

# PRAGMA34 Students and Lightning Talks Session

Wassapon Watanakesuntorn

on behalf of the PRAGMA Students Committee

*The 34<sup>th</sup> PRAGMA Students Session, Akihabara, Japan, May. 10th, 2018*



# Recently Graduated PRAGMA Students



- Pongsakorn U-chupala
  - Software Engineer at Sony



- Quan (Gabriel) Zhou
  - Data Scientist at Paypal



- Chawanat Nakasan
  - Assistant Professor at Kanazawa University



- Che Huang
  - Researcher at NTT

# Current PRAGMA Students



- Wassapon Watanakeesuntorn
  - Nara Institute of Science and Technology, Japan



- Giljae Lee
  - University of Florida, USA



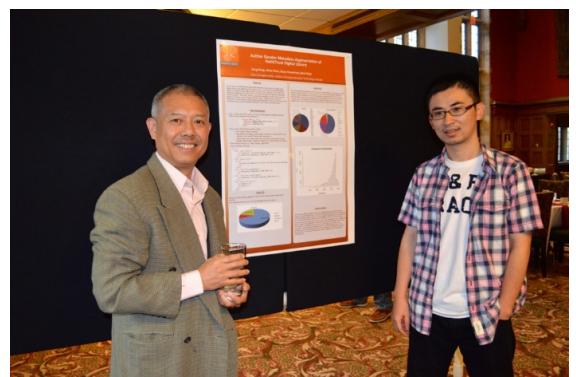
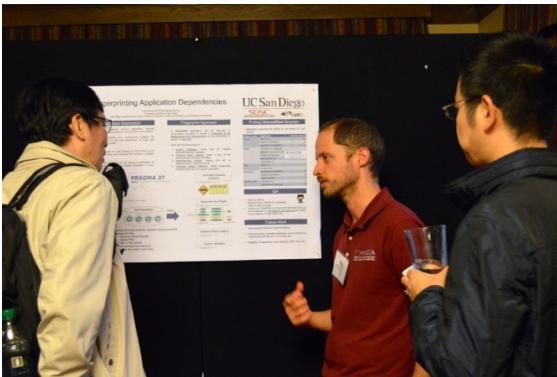
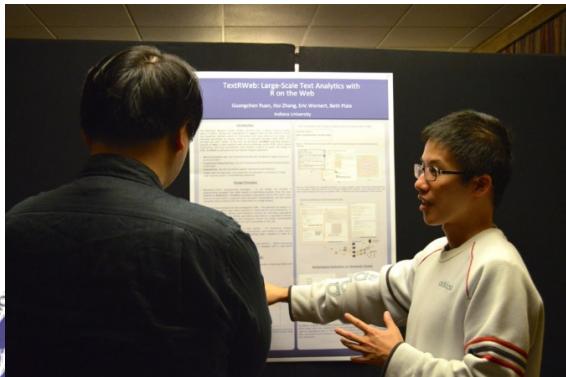
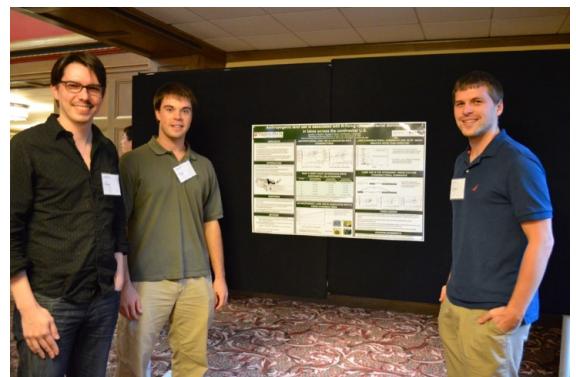
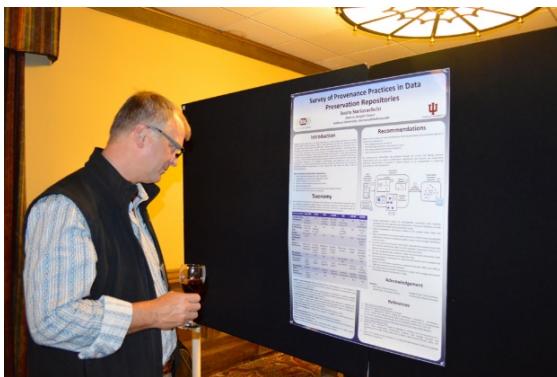
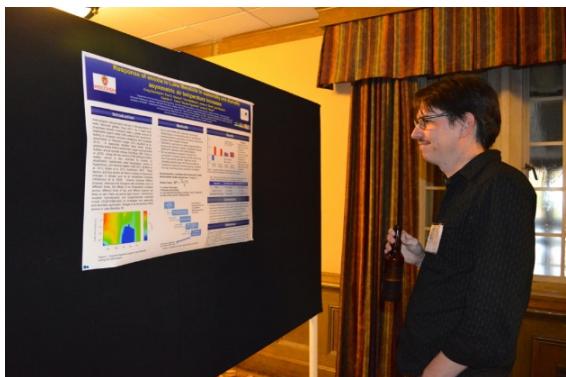
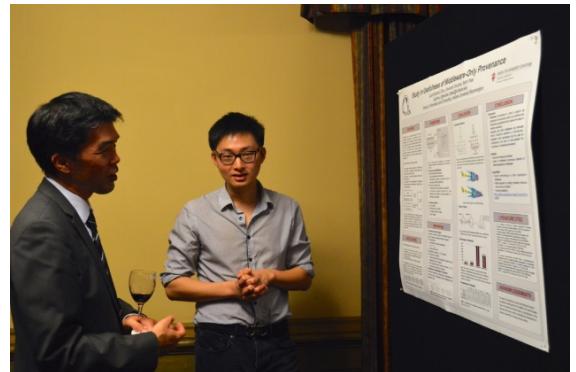
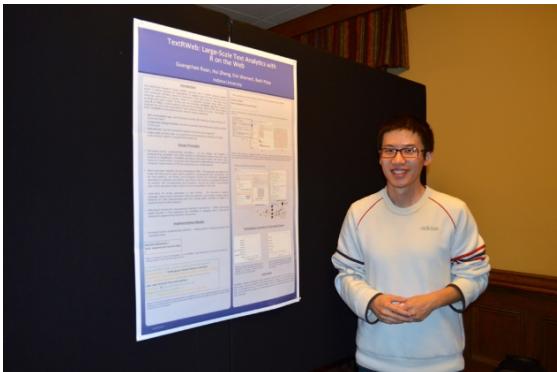
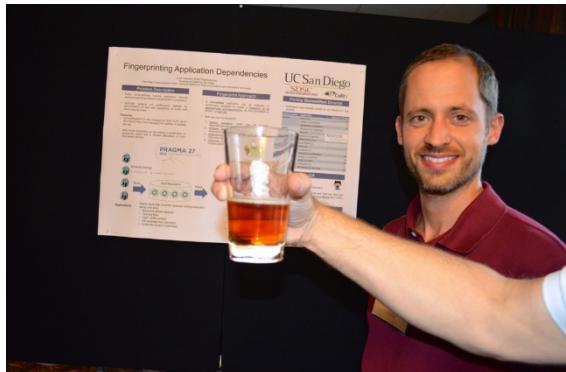
- Can Wu
  - Chinese Academy of Sciences, China

# PRAGMA Students Activities

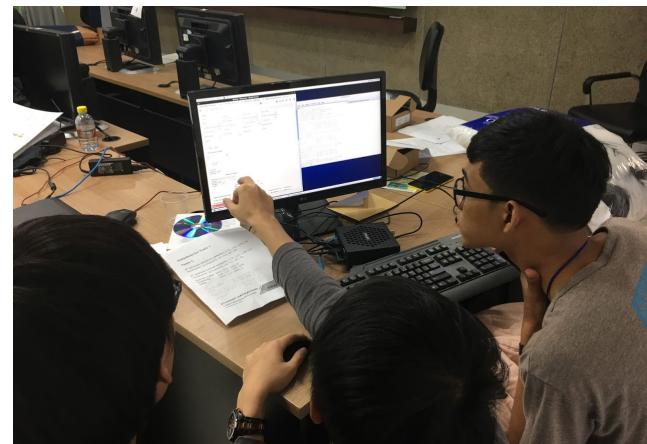
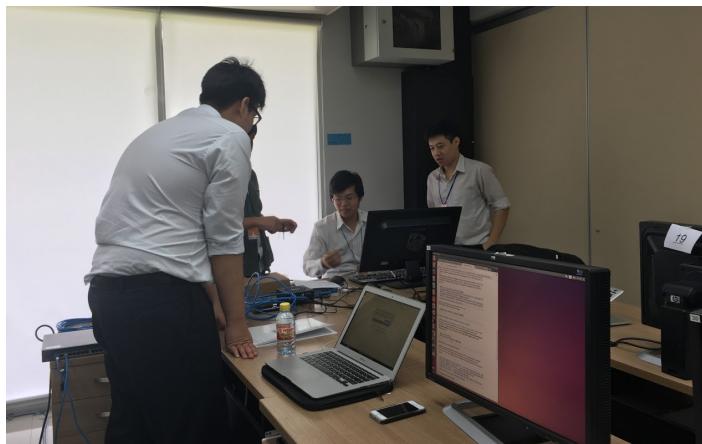
- Student Workshop
  - Lightning Talks Session
    - 1 minute talk
  - Poster Session
- Networking with students
- Student event support



# Poster Session



# Student Hackathon



PRAGMA 31, Bangkok, Thailand

# Informal trips/events



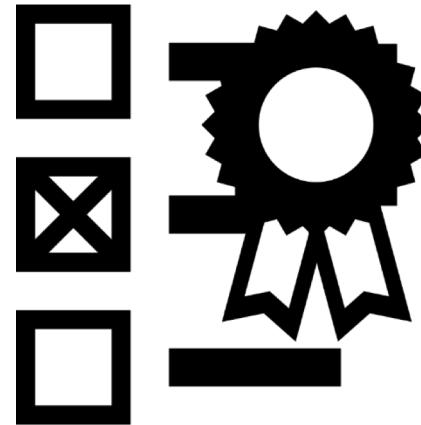
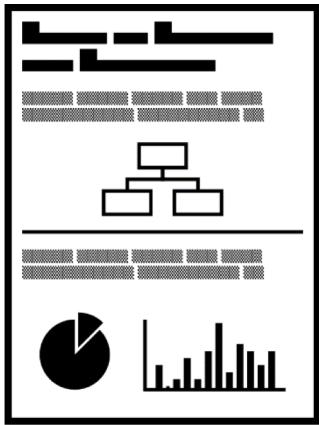
PRAGMA 24, Bangkok, Thailand



PRAGMA 26, Tainan, Taiwan

PRAGMA 28, Nara, Japan

# Student Activity Overview @ PRAGMA34



Poster Presentation  
(21 Posters)

Lightning Talks  
(16 Presenters)

Voting  
(3 Awards)

# Sessions

- Lightning Talks Session
  - 11:35~12:00, 10th May 2018
- Poster Session
  - 15:00~16:00, 10th May 2018
- Award Session
  - 16:30~16:45, 11th May 2018



# Poster Submission

	Name	Title
1	Nabylla Azahra	Indonesia E-Health Grid Link Bandwidth Recommendation
2	Chiao-Ning Chuang	Implementation of Deep Learning Algorithm on Personal Big Data Platform for Engineering Applications
3	Paulino Cristovao	Toward image inbetweening using Latent Model GRAPLER Platform Accelerates Whole-Ecosystem Simulation
4	Kaitlin J. Farrell	Modeling to Increase Understanding of Climate Change Impacts on Lake Nutrient Cycling
5	Qing Hong	Sub-policy pruning in Meta Learning Shared Hierarchies
6	Yossapol Jearamanytwesin	GIS with Crowdsourcing as a Service
7	Surapol Kunsarwat	Automatic systems for 3D camera (Kinect) joint range of motion evaluation of physical fitness
8	Yu Luo	Persistent IDs: Application to Workflow and Sensor Applications
9	Suchanat Mangkhangjaroen	ONE: Online Note Extraction to Music Cheat
10	Yuki Matsui	Architecture of Job Scheduling Simulator for Evaluating Mapping Between Queue and Computing Node
11	Chawanat Nakasan	Performance Evaluation of Simple Multipath OpenFlow Controller in a Ceph Distributed Storage System Environment

# Poster Submission

	Name	Title
12	Visaruth Punnum	Multi-site Cluster Reservation for PRAGMA cloud
13	Tanakon Sawanglok	Human Postural System with Kinect
14	Heru Suhartanto	Implementation of HPC Resource Management Portal with Load Balancer and Job Scheduler based on High Throughput Condor
15	Jutamas Teerarueangchaisri	Recommender Chatbot for Thailand Attraction
16	Wongsatorn Thongthaworn	Reducing Time of Application Migration Across Datacenters Using Load Balanced Parallel TCP
17	Wisit Tipchuen	APT-IPFS: Development of software using The InterPlantary File System for enhancing features of Linux package manager
18	Thomas Tsai	The Status of Data Marketplace – on its way to the National Data Service
19	Sarah Syahwenni Utari	Implementation of Virtual Firewall Mechanism for Security of Indonesian E-Health Cloud Model
20	Wassapon Watanakesuntorn	A proposal of a real-time OpenFlow DDoS detection tool
21	Juan Sebastian Aguirre Zarraonandia	Application Aware Traffic Engineering Functionality for an SDN Transit Network

# Poster Voting

- There will be 3 awards for best 3 posters
- Please vote for your favorite poster
  - Paste a sticker on the poster



# Lightning Talks Session



# Lightning Talks Session

	<b>Presenter</b>	<b>Title</b>
1	Wassapon Watanakeesuntorn	A proposal of a real-time OpenFlow DDoS detection tool
2	Nabylla Azahra	Indonesia E-Health Grid Link Bandwidth Recommendation
3	Chiao-Ning Chuang	Implementation of Deep Learning Algorithm on Personal Big Data Platform for Engineering Applications
4	Paulino Cristovao	Toward image inbetweening using Latent Model GRAPLER Platform Accelerates Whole-Ecosystem Simulation
5	Kaitlin J. Farrell	Modeling to Increase Understanding of Climate Change Impacts on Lake Nutrient Cycling
6	Qing Hong	Sub-policy pruning in Meta Learning Shared Hierarchies
7	Yossapol Jearamanytwesin	GIS with Crowdsourcing as a Service
8	Yu Luo	Persistent IDs: Application to Workflow and Sensor Applications

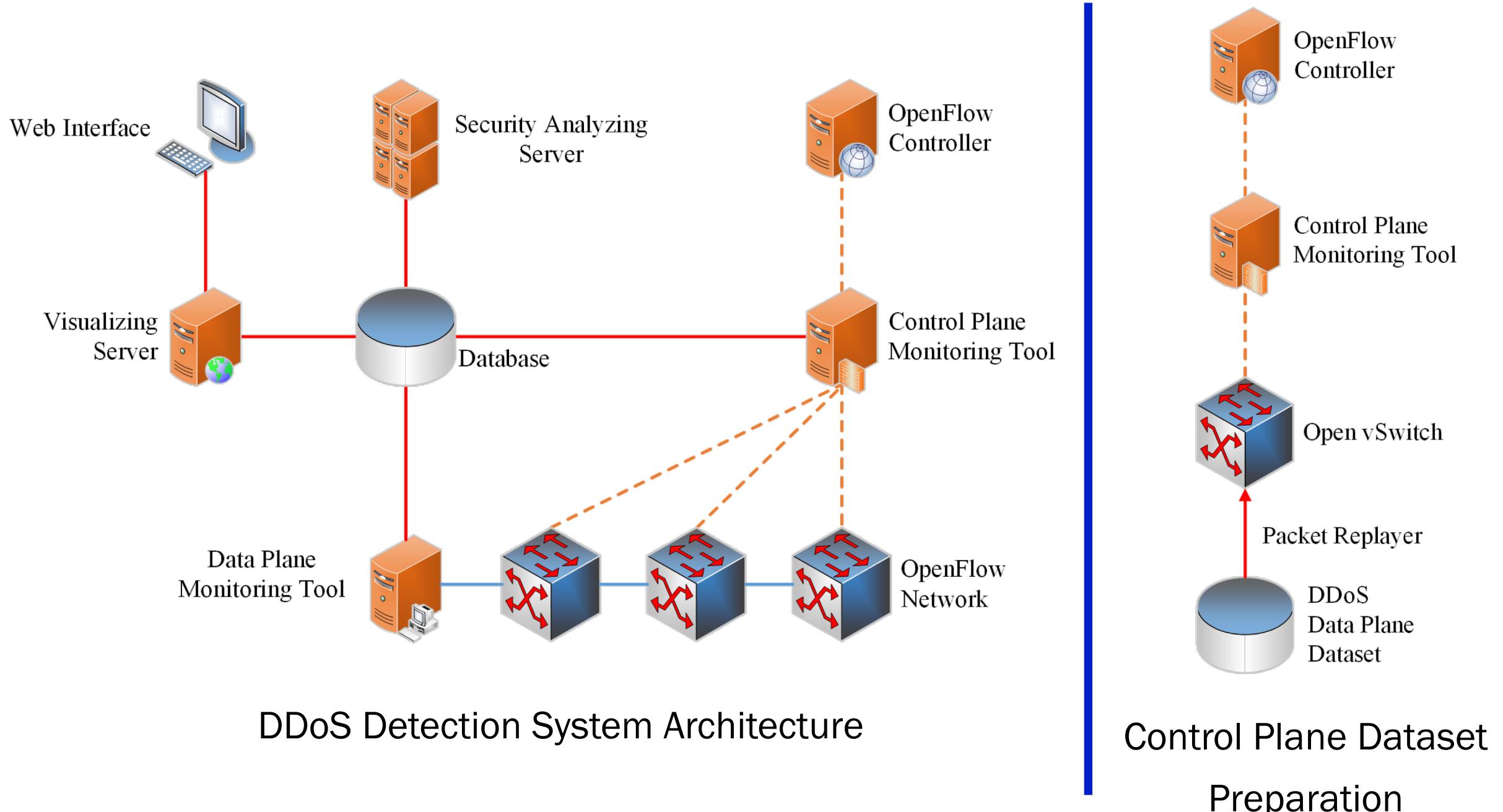
# Lightning Talks Session

	<b>Presenter</b>	<b>Title</b>
9	Suchanat Mangkhangjaroen	ONE: Online Note Extraction to Music Cheat
10	Yuki Matsui	Architecture of Job Scheduling Simulator for Evaluating Mapping Between Queue and Computing Node
11	Visaruth Punnum	Multi-site Cluster Reservation for PRAGMA cloud
12	Tanakon Sawanglok	Human Postural System with Kinect
13	Heru Suhartanto	Implementation of HPC Resource Management Portal with Load Balancer and Job Scheduler based on High Throughput Condor
14	Jutamas Teerarueangchaisri	Recommender Chatbot for Thailand Attraction
15	Sarah Syahwenni Utari	Implementation of Virtual Firewall Mechanism for Security of Indonesian E-Health Cloud Model
16	Juan Sebastian Aguirre Zarraonandia	Application Aware Traffic Engineering Functionality for an SDN Transit Network

# A proposal of a real-time OpenFlow DDoS detection tool

Wassapon Watanakeesuntorn, Kohei Ichikawa, Hajimu Iida, Putchong Uthayopas

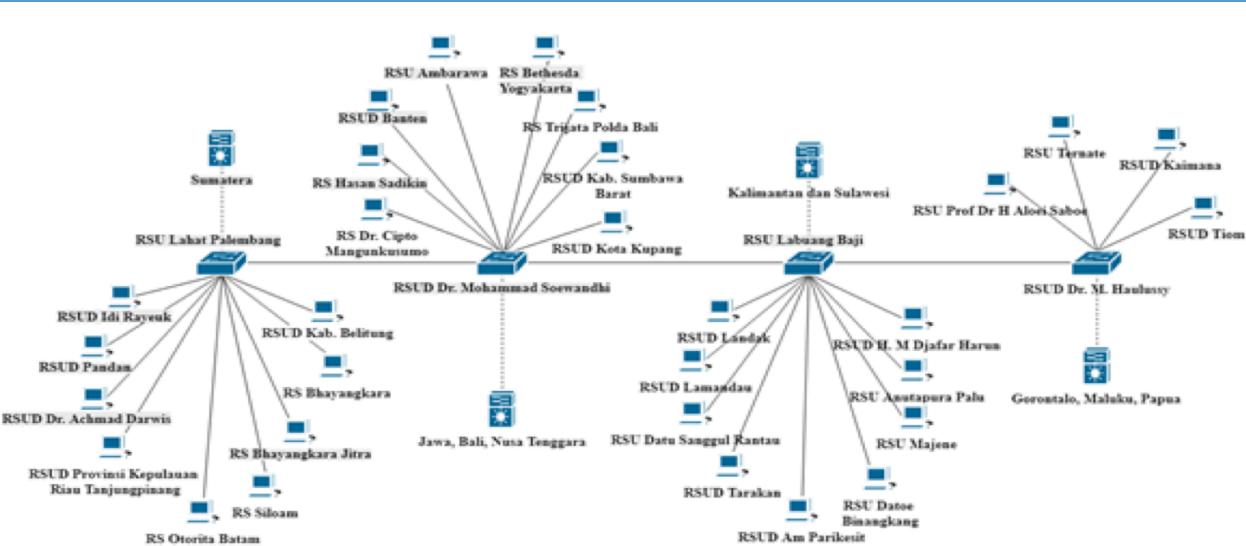
## ⚓ Design and Architecture



## INDONESIAN E-HEALTH GRID LINK BANDWIDTH RECOMMENDATION

<sup>1</sup>Faculty of Information Technology, Universitas YARSI, Indonesia

<sup>2</sup>Faculty of Computer Science, Universitas Indonesia



**Figure 1 : Indonesian e-Health Grid Topology Based on Province**

## Simulation

We have evaluated and analyzed the performance of topology proposed in the simulation using Mininet. The simulation run in actual distance between hospitals in Indonesia. We performed two scenarios with different link bandwidth (100 Mbps and 50 Mbps) and investigated the round trip time (rtt).

## Acknowledgement

This work under the support of  
Indonesian Ministry of Research and  
Technology and Higher Education,  
Directorate General of Higher Education  
Excellent Research Grants Number  
105/K3/KM/2015.

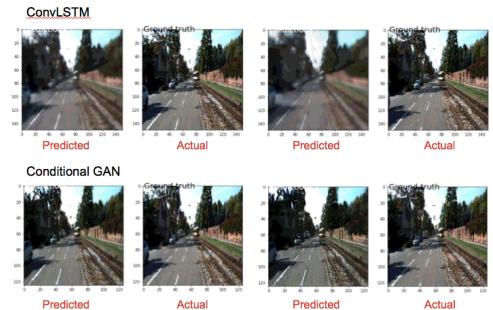
	From	To	Link Bandwidth (Mbps)
Region 1 Sumatra's Provinces	RSU Lahat Palembang	RSUD Lahat Palembang	50
		RSUD Pandan	50
		RSUD Dr. Achmad Darwis	50 or 100
		RSUD Provinsi Kepulauan Riau Tanjungpinang	50
		RS Otorita Batam	50
		RS Siloam Jambi	50 or 100
		RS Bhayangkara Jitra	50
		RS Bhayangkara	50
		RSUD Kabupaten Belitung	50
Region 2 Java, Bali & Nusa Tenggara's Provinces	RSUD Dr. M. Soewandhie	RS Dr. Cipto Mangunkusumo	50
		RS Hasan Sadikin	50
		RSUD Banten	50
		RSU Ambarawa	50
		RS Bethesda Yogyakarta	100
		RS Trijata Polda Bali	50
		RSUD Kab. Sumbawa Barat	100
		RSUD Kota Kupang	50
		RSUD Landak	50
Region 3 Kalimantan's & Sulawesi's Provinces	RSU Labuang Baji	RSUD Lamandau	50
		RSU Datu Sanggul Rantau	50
		RSUD Am Parikesit Tenggarong	50
		RSUD Tarakan	50
		RSU Dateo Binangkang	100
		RSU Majene	50
		RSU Anutapura Palu	100
		RSUD H.M Djafar Harun	50
		RSU Prof Dr H Aloe Saboe	50
Region 4 Maluku's & Papua's Provinces	RSUD Dr. M. Haulussy	RSU Ternate	50
		RSUD Kaimana	50
		RSUD Tiom	50
		RSUD Sorong	50

# Implementation of Deep Learning Algorithm on Personal Big Data Platform for Engineering Applications

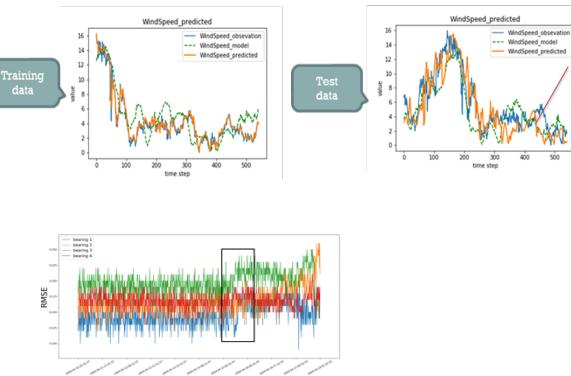
Chiao-Ning Chuang; Chien-Heng Wu; Wen-Yi Chang; Whey-Fone Tsai

## Development Environment:

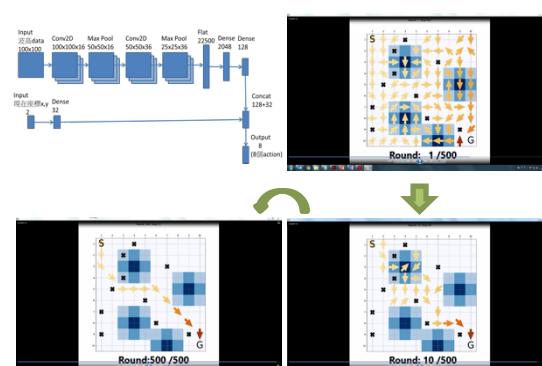
- master-slave distributed architecture
- distributed deep learning (TensorflowOnSpark)
- Tensorflow/Keras sample codes, such as CNN, RNN, ConvLSTM, cGAN



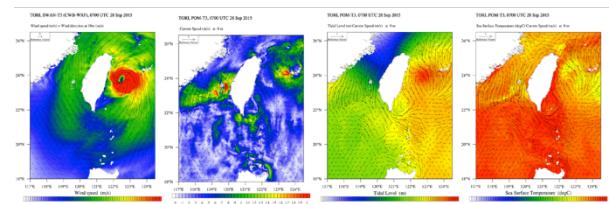
## Application 1: wind field prediction and wind turbine bearing monitoring



## Application 2: Reinforcement learning implementation for optimized path planning for shipping



## Application 3: Taiwan offshore wind energy BD database establishment



# Toward image inbetweening using Latent Model

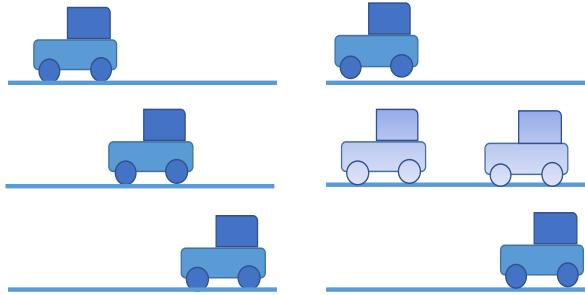


Paulino CRISTOVAO, Yusuke TANIMURA  
Hidemoto NAKADA and Hideki ASOH  
University of Tsukuba



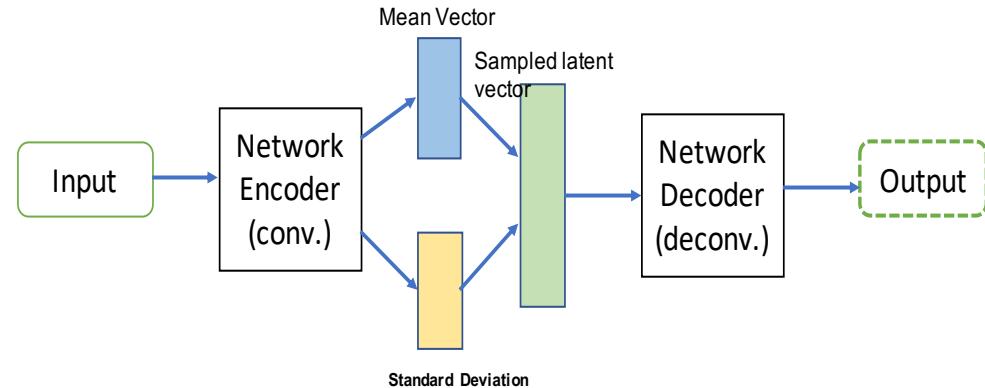
National Institute of Advanced Industrial Science and Technology

Goal

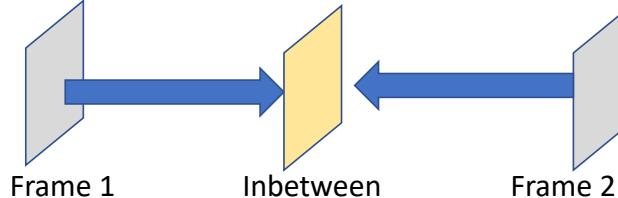


We might have this

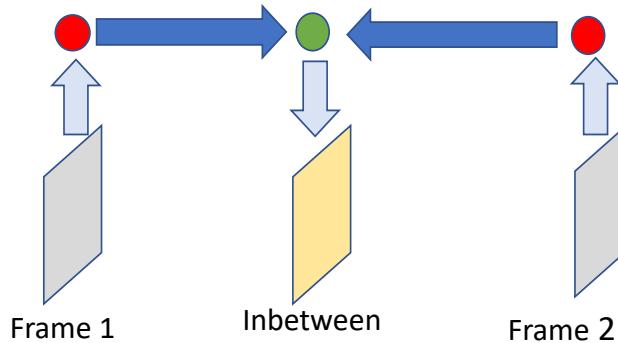
Variational Autoencoder



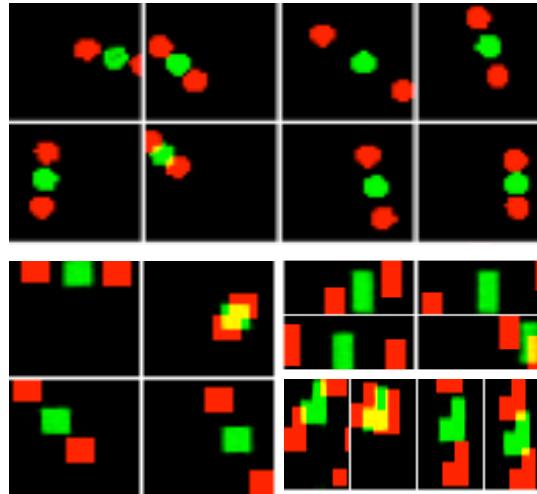
Existing methods: 'pixel-based'



'Latent-variable' based method



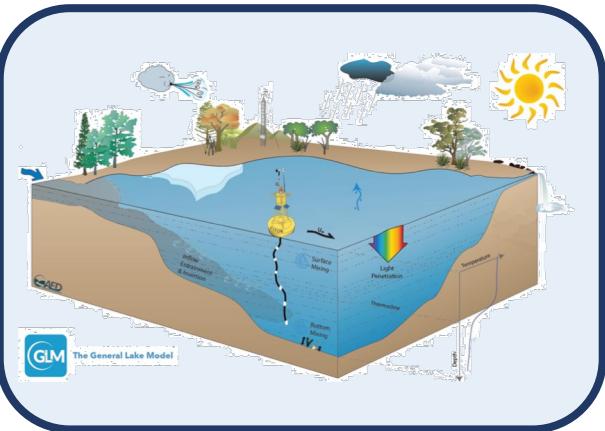
Results



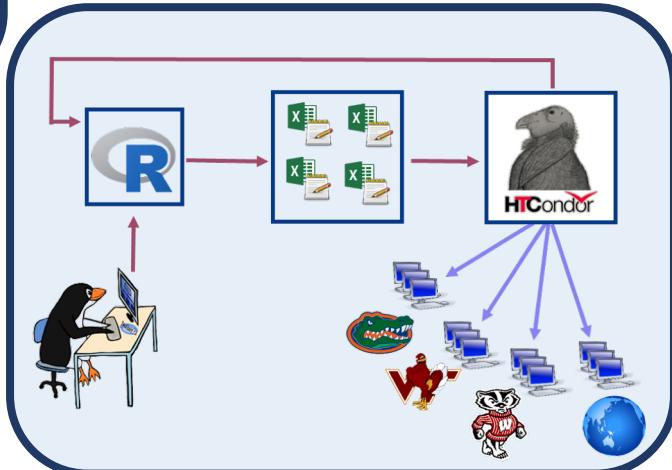
# PRAGMA Lake Expedition: Using Computer Science to Accelerate Discovery in Limnology



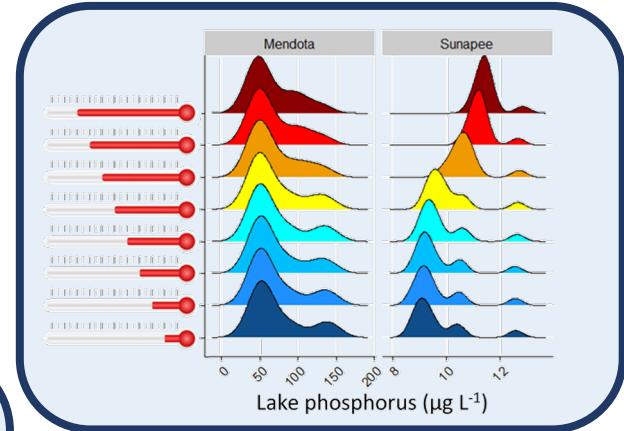
## Lake Ecosystem Simulation Model



## GRAPLER Platform



## Climate Warming Scenarios



Learn more!  
Poster 6

# Sub-policy pruning in Meta Learning Shared Hierarchies

Qing HONG<sup>1, 2\*</sup> Yusuke TANIMURA<sup>2,1</sup> Hidemoto NAKADA<sup>2,1</sup>

<sup>1</sup> University of Tsukuba

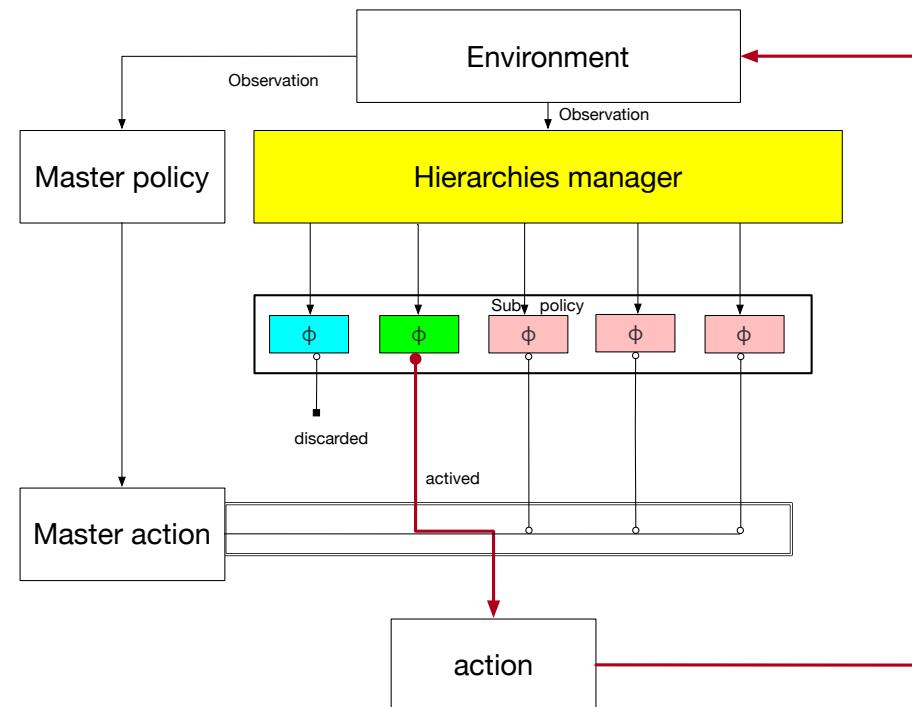
<sup>2</sup> National Institute of Advanced Industrial Science and Technology

Approach: Meta learning Shared Hierarchies

Goal: Locate the number of sub-policies

Proposed method: Hierarchies Manager

Result: Prune 40% sub-policies



# GIS with Crowdsourcing as a Service

Yossapol Jearamanytwesin



## Persistent IDs: Application to Workflow and Sensor Applications

In Rice Genomics, we explore the use of storing provenance as part of the PID Kernel Information, emphasizing on the data trust and reusability.

In Airbox Sensor Data, we explore the use of predefined DTR types in database object, building the relationships among objects and presenting the detailed definition with results.

- Use DTR model to improve sharing and interoperability of scientific data objects by embedding agreeable minimum metadata in persistent data identifier
- Provide a framework with both repository and PID service to provide long-term access and findability to heterogeneous data objects across scientific boundaries
- Propose a methodology to automatically harvest data objects from scientific workflows and devices

### Future Work:

1. Continue to transition and evaluation Rice Genomics work.
2. Explore representation of collections as part of PID Kernel Information.
3. Evaluation of benefit of provenance as part of PID KI record in comparison to other global provenance approaches.

# ONE: Online Note Extraction to Music Cheat

Suchanat Mangkhangjaroen



# Architecture of Job Scheduling Simulator for Evaluating Mapping Between Queue and Computing Node

Yuki Matsui, Yasuhiro Watashiba, Susumu Date, Takashi Yoshikawa, Shinji Shimojo

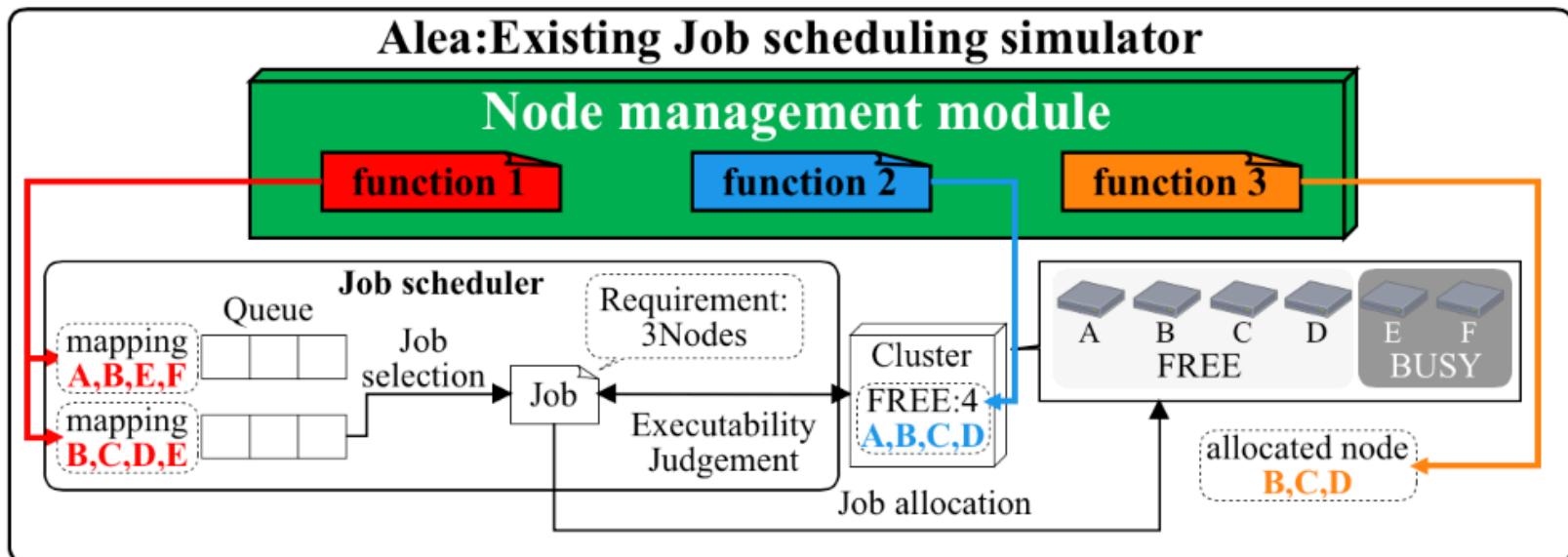
## Introduction

Mapping is an important factor affecting job throughput in a computer cluster,  
But how to decide the parameter value of mapping depends on administrator's experience.

## Job scheduling simulator with mapping configuration

## Proposal

Node management module that links with existing job scheduling simulator.



# Multi-site Cluster Reservation for PRAGMA cloud

Visaruth Punnium



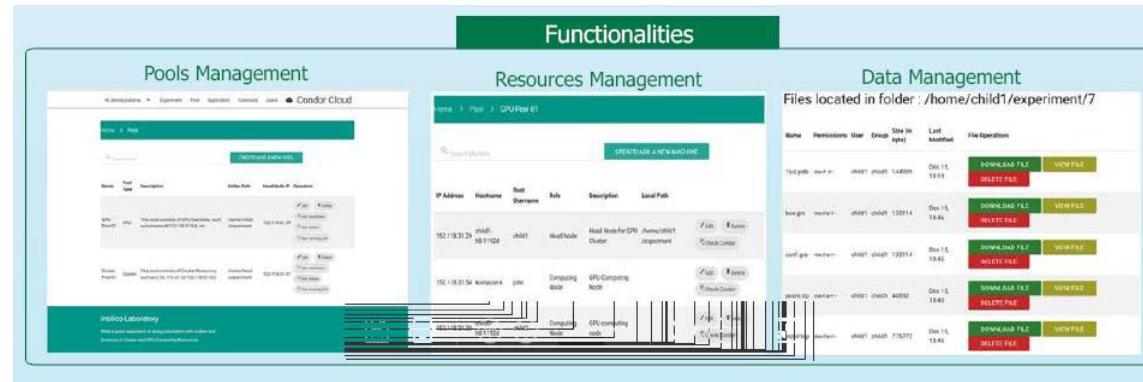
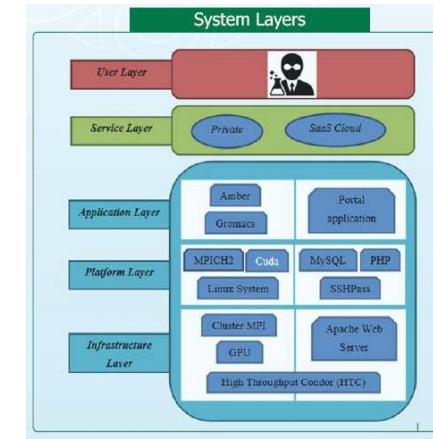
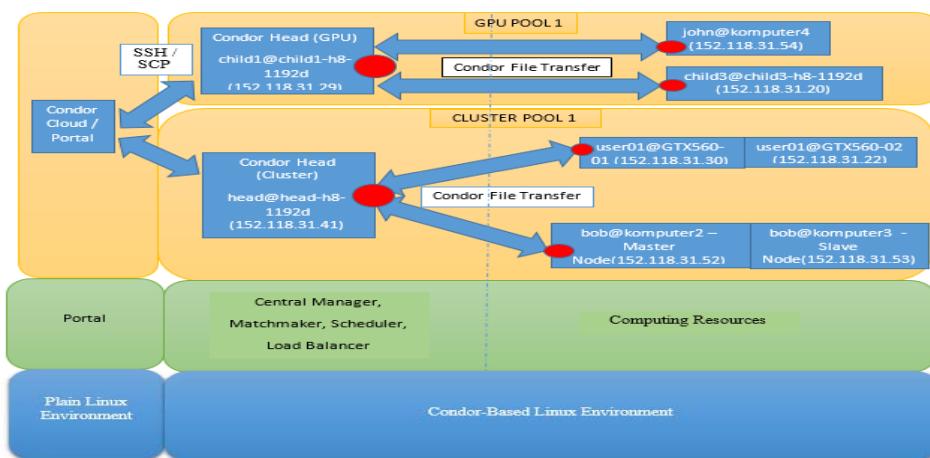
# Human Postural System with Kinect

Tanakon Sawanglok



# Implementation of HPC Resource Management Portal with Load Balancer and Job Scheduler based on High Throughput Condor

Dennis Pratama Kammah, Ari Wibisono, Heru Suhartanto  
Faculty of Computer Sciecne, Universitas Indonesia



Presented at PRAGMA34 Tokyo, Japan, May 9-12, 2018

# RECOMMENDER CHATBOT FOR THAILAND ATTRACTION

- This chatbot is called “**LunLa**”.
- Add friend on Line application.
- The information that we use to recommend and search are from conversation about attribute of places
- Using Reinforcement learning which is machine learning technique .
- The response has information about tourist attraction including name, picture, detail and location.

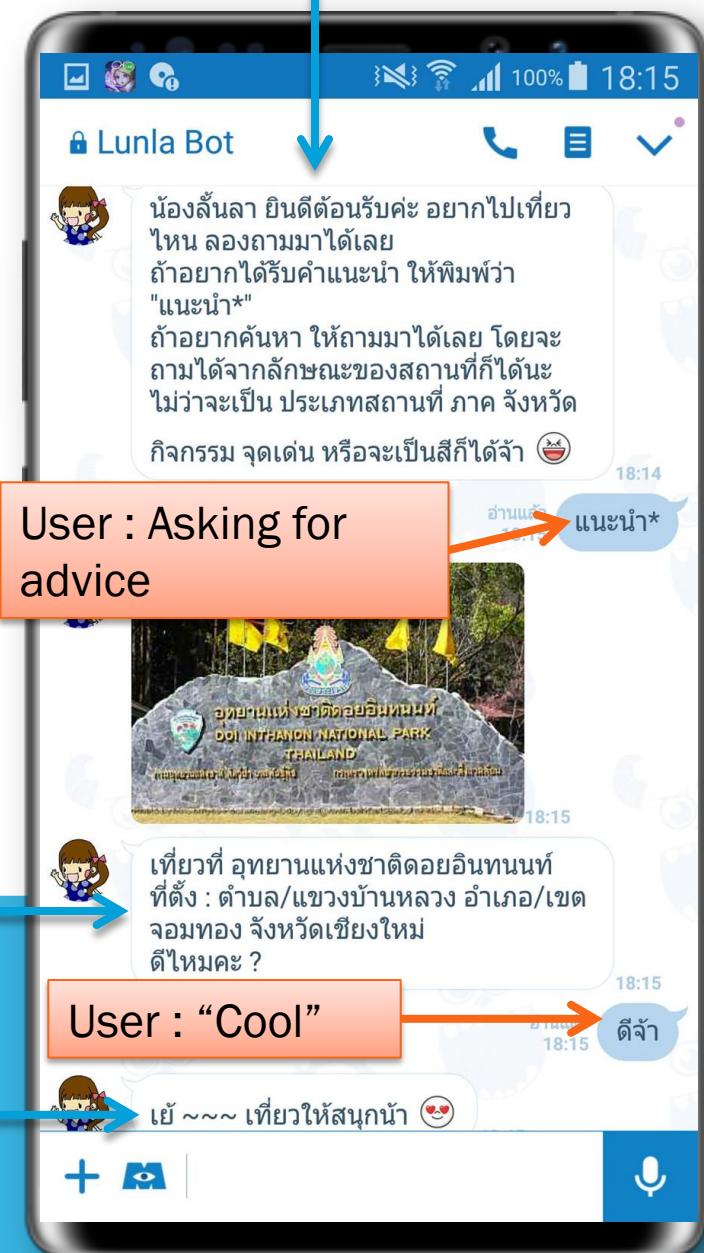


Lunla : Recommended “Doi Inthanon National Park”

Lunla : Yeah! Have fun!

By JUTAMAS TEERARUEANGCH AISRI  
WORAWAT SURAPHANPHAIROJ  
Advisors PAKORN LEESUTTHIPORNCHAI, Ph.D.  
Thammasat University , Thailand.

Lunla : Chatbot details





# Implementation of Virtual Firewall Mechanism for Security of Indonesian E-Health Cloud Model



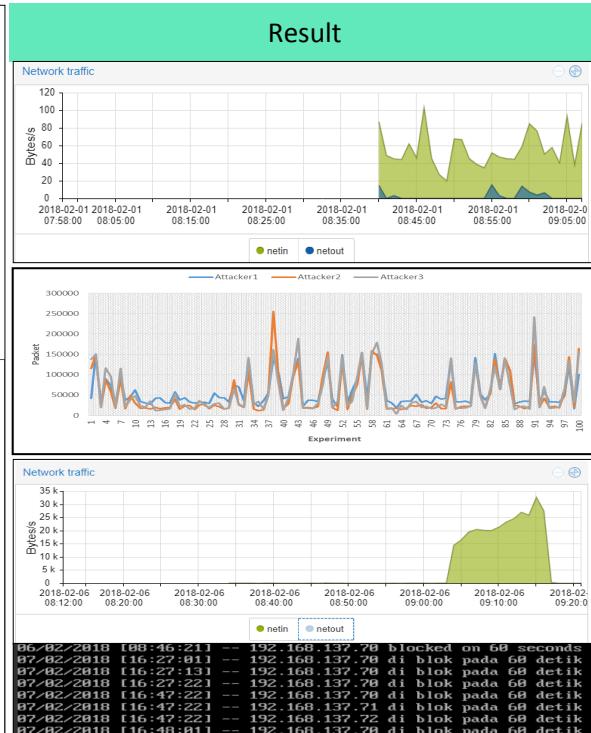
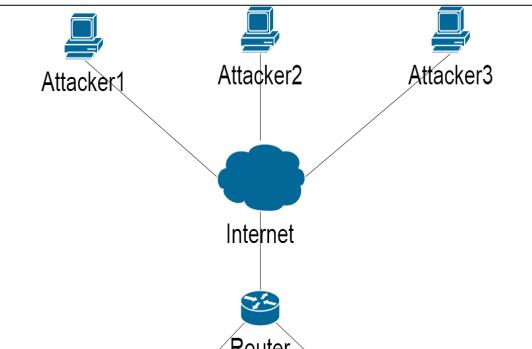
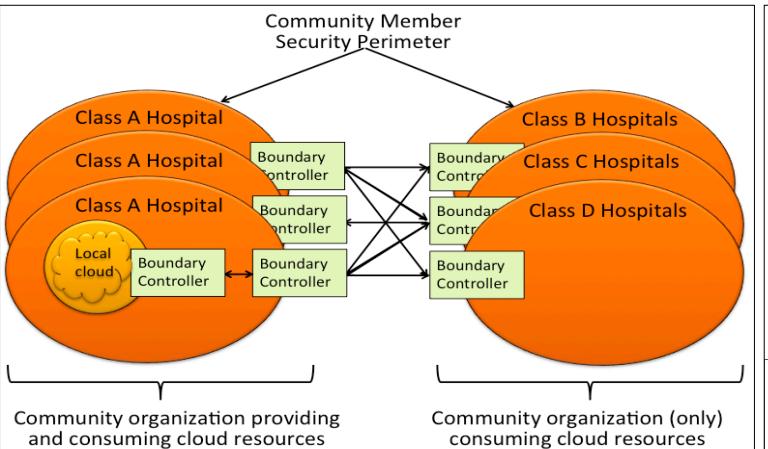
Sarah Syahwenni Utari<sup>1</sup>, Sri Chusri Haryanti<sup>1</sup>, Ummi Azizah Rachmawati<sup>1</sup>,

Sri Puji Utami Atmoko<sup>1</sup>, Heru Suhartanto<sup>2</sup>

<sup>1</sup>Faculty of Information Technology, Universitas YARSI, Indonesia

<sup>2</sup>Faculty of Computer Science, Universitas Indonesia

sarahsyahweni@gmail.com<sup>1</sup>; sri.chusri@yarsi.ac.id<sup>1</sup>; ummi.azizah@yarsi.ac.id<sup>1</sup>; puji.atmoko@yarsi.ac.id<sup>1</sup>; heru@cs.ui.ac.id<sup>2</sup>



## Conclusion

Virtual firewall by modifying CSF on Ubuntu Server 14.04 for Indonesian e-health cloud model is working successfully

The result obtained from the 1st scenario is that the average downtime is 197.26 seconds with the standard deviation is 52.99 seconds before a server was down because of DDoS attacks.

The result of the 2ns scenario show that virtual firewall managed to block the attacker IP address and the server could withstand from DDoS attacks

Figure 1 Indonesian e-Health Cloud Deployment Model

Node
<ul style="list-style-type: none"> <li>◦ OS : Proxmox VE 4.4</li> <li>◦ Memory : 5.9 GB</li> <li>◦ Processors : 4</li> <li>◦ Hard Disk (IDE) : 100 GB</li> <li>◦ Network Adapter1 : Custom (VMnet2)</li> <li>◦ Network Adapter2 :</li> <li>◦ Custom (VMnet2)</li> <li>◦ Network Adapter3 :</li> <li>◦ Bridged</li> </ul>

Virtual Router
<ul style="list-style-type: none"> <li>◦ OS : Ubuntu Server 14.04</li> <li>◦ Memory : 512.00 MB</li> <li>◦ Processors : 1</li> <li>◦ Hard Disk : 8 GB (local-lvm)</li> <li>◦ Network Adapter1 : Bridge (vmbr1)</li> <li>◦ Network Adapter2 : Bridge (vmbr2)</li> </ul>

Virtual Server
<ul style="list-style-type: none"> <li>◦ OS : Ubuntu Server 14.04</li> <li>◦ Memory: 512.00 MB</li> <li>◦ Hard Disk : 8 GB (local-lvm)</li> <li>◦ Network Adapter1 : Bridge (vmbr2)</li> </ul>

Attacker
<ul style="list-style-type: none"> <li>◦ OS : Kali Linux</li> <li>◦ Memory : 1 GB</li> <li>◦ Hard Disk (IDE) : 20 GB</li> <li>◦ Network Adapter1 :</li> <li>◦ Custom (VMnet2)</li> </ul>

## Acknowledgement

This work under the support of Indonesian Ministry of Research and Technology and Higher Education, Directorate General of Higher Education Excellent Research Grants

# Application Aware Traffic Engineering Functionality for an SDN Transit Network

## Network Functions Implementation

- External BGP Routers
  - Mininet
- End host
  - Mininet
- Internal BGP Router
  - Quagga
- SDN Controller
  - ONOS 1.12
- Dataplane
  - PRAGMA-ENT

