

Thailand's National e-Science Infrastructure Consortium

Sornthep Vannarat

National Electronics and Computer Technology Center National Science and Technology Development Agency





Foundation

- Founded by five institutes in September 2011:
 - National Science and Technology Development Agency (NSTDA)
 - Hydro and Agro Informatics Institute (HAII)
 - Chulalongkorn University (CU)
 - Suranaree University of Technology (SUT)
 - King Mongkut's University of Technology Thonburi (KMUTT)
- Objective:
 - To develop a sustainable computing infrastructure for research





Organization

- Board of Steering Committee
- Working Groups: Resource, Utilization, Network, User
- Research Groups: HEP, Computer Science & Engineering, Computational Science & Engineering
- Membership: Regular member and Associated member





The MoU was signed on 27 September 2011.

Current members and resources

	NSTDA	HAII	CU	SUT	KMUTT	NARIT
CPU (2,796 cores)	688	<u>896</u>	<u>240</u>	656	<u>244</u>	<u>92</u>
DISK (982 TB)	<u>866</u>	<u>122</u>	8	150	<u>30</u>	<u>10</u>
Application areas	Chemistry , Biology, Hydrology , Eng. design,	Weather, Water resources	HEP (CMS), Comp. Eng.,	HEP (ALICE), Chemis try	Comp. Eng., Weather	Comp. Astrophysics , cosmology

Resource growth



New members

- EGA
- Sch. of Sci, MFU

Students

- 4 Undergrads
- 14 Postgrads

Institutes of Users: SUT, KMUTT, CU, HAII, NANOTEC, NECTEC, MTEC, KU, MFU, WU, KKU, BU, UP, MU, SU, NU, KMITL, UBU, PSU, Siam U., NSTRU., RMUTT, CRI, KU (Kamphaeng Saen) and TINT (25 institutions)



Utilization and outputs (FY2015 / 14)

No. projects	71 / 49	
Journal	40 / 47	
Int. Conf.	21 / 18	
Other publications	20 / 21	

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National e-Science Infrastructure Consortium





Collaboration with WLCG

- CU CMS, SUT ALICE
- Join WLCG in 2013
- Three Tier-2 sites

Site-name	Experiment	Resource	Status
TH-T2-CUNSTDA	CMS	200 cores 200 TB	Having difficulty with 'xrootd' after data migration
TH-T2-ALICE-NSTDA	ALICE	60 cores 10 TB	Decommissioned
TH-SUT-NPP	ALICE	128 cores 100 TB	In good shape
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NECTEC

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ALICE ITS Upgrade and O²

Detector simulation at SUT



e-beam for sensor characterization at SLRI

Material characterization, heat exchanger design at TMEC



Control, configuration and monitoring system at KMUTT





Consortium Activities

(1) eHPC2015

- TMD Numerical Weather Forecast
- EGA Open Government Data
- KU HPC Experiences from ASC15 Asian Student Supercomputer Challenge and Implication for HPC education
- NARIT Mapping the Universe; Challenge for the Big Data science
- KMUTT HPC for High Energy Physics at Alice Experiment
- HAII Image Post-processing for Rainfall Forecasts from Weather Forecast Models
- NSTDA Addressing Different Perspectives on Bus Stop Management using Simulation
- CU Big data management at CMS collaboration with worldwide LHC computing grid
- SUT Reproducible e-Science Experiments with Docker



(2) Panel discussion: Big Data for National Productivity and Safety

Speakers: TMD, HAII, EGA, NECTEC and Wangkanai Group



(3) Out-reach and user trainings (Bangkok + Provinces)

- Presentations: 3+2
- Exhibitions: 1+3
- Trainings & Workshop: 2+2 (MD, Openstack, Infographics, High Pressure workshop)





National Science and Technology Development Agency



Clusters

Agriculture & Food

Rice, Tapioca, Rubber, Seed, Plant for the future, Animal production & animal health, Food innovation

Energy & Environment

Sustainable environment, Resource and energy efficiency, Renewable energy, New technology research Health & Medicine <u>Newly and re-emerging disease</u>, <u>Genotype technology</u>, Assistive technology

Bio-resource & Community

Technology for rural development, <u>Bio-resources</u>

Manufacturing and Service Hard disk drive, Air-conditioning and refrigerator, Automotive

Cross cutting technologies Functional material, <u>Digital</u> engineering, <u>Sensor & intelligent</u> system, Service research and innovation



Main Challenges

- Lack of skilled personnels in HPC
- Inadequate network infrastructure
- Scattered and small scale operations
- Lack of related industries





Thank you!

