National Supercomputing Centre Singapore (NSCC)

Asian Pacific Research Platform (APRP)

Heng LAY, HOD, Department of Information and Communication Engineering, Institute of Technology of Cambodia
Email: layhengg9@gmail.com
Mobile: (+855) 99 631 618
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High Performance Computing and Cambodia Research Education Network (CamREN)

1. Introduction to ITC
   *Who we are and when we born*

2. HPC Current Status
   *Human and hardware resources*

3. CamREN
   *Overview, current situation and road map*

4. ITC-Open Educational Resources
   *Research topic & features*

5. Conclusion and Perspective
   *The future of Cambodia’s HPC*

6. Questions & Answers
1. ITC

ITC is a public and research institution, which is established in 1964.

- **Engineering specializations at ITC**
  1. Information and Communication Engineering (ICT)
  2. Chemical Engineering and Food Technology
  3. Civil Engineering
  4. Electrical and Energy Engineering
  5. Geo-resources and Geotechnical Engineering
  6. Industrial and Mechanical Engineering
  7. Rural Engineering

- **Other schools and Service Centers:**
  1. Doctoral school
  2. Research Center
  3. e-Learning Center
  4. Cyber University and Multimedia Center
  5. Information Technology Service Center
2. HPC Current Status

Not deployed yet

• **Human resource**
  - Available - researcher from University of Namur, Belgium

• **Hardware resource**
  - Server - imported France
  - Network connection - fast and realizable

• **Platform**
  - Open Source platform available
3. CamREN Overview

- It’s a large network for exchanging educational and research resources: Paper & article platform, Video Conferences, Streaming Video, e-Learning Contents, e-Library, etc...

- Established under MoEYS, ITC has been selecting as HUB Center
- CamREN Connected to the TEIN-3
- Through VinaREN to HUB Network in Hong Kong (45Mbps)
- 2016 connect to ThaiREN 400Mbps, HUB Link in Singapore

- 1st Rector’s Meeting to review CamREN’s services and activities (Policy Level)
- 20 Universities joint the meeting

Review Links and Services

2012

CamREN Establishment

Sep, 2014

2015

Expansion Activities

- 2nd Rector’s Meeting for Increasing CamREN’s members (Policy Level)
- 27 Universities joint the meeting
3. CamREN Current Situation

Moving forward

**Jan-May, 2016**
- 3 Public Institutions were signed agreement to connect CamREN
- ITC, UHS, and NUM
- Pending agreement with RUA

**Jun-Dec 2016**

**Growing Resources**
- Link Capacity: 100mbps for Data Center and 25mbps for members
- 15 Online courses are sharing along the network
- 4 online courses are developing: 1:UHS, ITC:3

**2017**

**Increasing Members**
- 3 more members in Phnom Penh & 1 from province
- Increasing educational resources: online course, e-library, research resources, video conferences, streaming video, etc…

**Expand to many Univ. in Cambodia 2018**
- 5 more members in Phnom Penh, 2 from provinces
- Increasing educational resources: online course, e-library, research resources, video conferences, streaming video, etc…
3. CamREN Roadmap

**2012-2015: Activate Services and Members**
- Review on initiative members
- Review on NOC and priority services
- Decision maker meeting
- Workshop / training for operational team

**2016-2019: Expand Members and Operate Services.**
- Connect data center to research center members
- Provide common services to members
- Capacity Building (leadership & developer) in advanced level
- Assist e-learning operations, techniques, and online development

**2020-~: HUB & Gateway for HEIs**
- Update and maintain Link Capacity locally and Internationally
- Provide more services on educational and research areas
- Increase CamREN’s members widely
- Test the sustainable model for CamREN

Clear pathway to get success easier!
Services provide by CamREN

1. Link from your **education & research center** to CamREN with dedicated high speed
2. Link through **CamREN to TEIN** Network as well as to the **NRENs** in the globe, which is speed up to **400mbps**

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1. Access to **free online courses** at ITC (credit courses), and joint course development with UHS, NUM, and RUA
2. Provide a powerful **Learning Management System** within the **tracking function** for online learning efficiency
3. Access to **e-Library resources** locally and internationally

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1. **Capacity building** in some technical areas: Network System Implementation / Installation, Campus Network Design, Hotspot
2. **Online content development**: Storyboard, Script, Video production and edition, etc…
Partners and members:

1. Our Partners:
   - International Agent
   - Local Technical Provider
   - Future link partner (Backup)

2. Our Active Members:
   - ITC
   - NUM
   - UHS
   - RUA
4. ITC-Open Educational Resources

ITC-OER Research Project 2016-2019

- Research works of Master and PhD students between ITC and Belgium University Partner
- Full-time researcher: 4 Researchers / Year and 2 Supervisors
- Expected Outcomes:
  - OER Platform
  - Proposed model to ITC
  - Proposed support policy to MoEYS Cambodia
4. OER Features

4 common functionalities

1. Ordinary
   Search & Browse, Download, Register, Update Profile

2. Administration
   User Managements

3. Discussion Forum
   Create threads, Post reply, Q&A, Help

4. Material Management
   Upload & modify material, Bookmark materials, Review: peer/member, Submit, Report
5. Where We Will: **Perspective**

*3 Key Components for future Cambodia’s HPC*

- Continuing to research and develop high performance computing technology and human resource as much as possible
- Keep increasing institution partners (for active members, quality of growing network, and sharing resources)
- ITC is going to be the very first institution to use and share high performance computing technology in Cambodia
Thank You for Attention!