Trends and Direction of a National Research and Education Infrastructure

Assoc. Prof.Kamjorn Tatiyakavee, MD.
Deputy Secretary-General Office of the Higher Education Commission

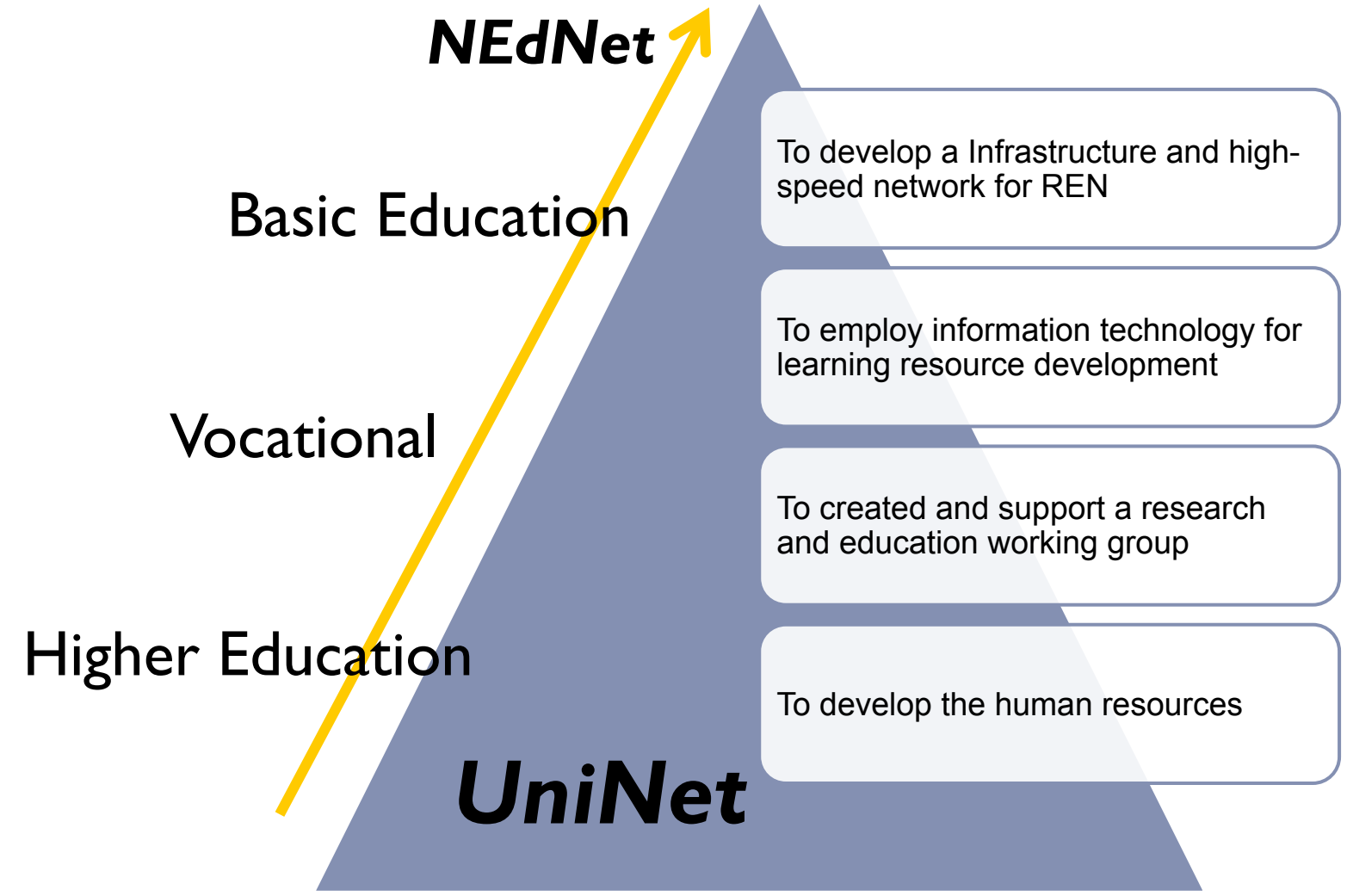
Agenda

- Introduction to UniNet
- From UniNet to NEdNet
- Education Information Service
- Research and Education Activities
- Self learning Centre and Sharing Educational Resources

Introduction

- UniNet is the largest internet provider for Thai educational institute.
  - Established in 1996 as a part of Ministry of University
  - Now is under Ministry of Education
- UniNet provides hi-speed internet links to universities, educational institutes
  - For advanced research
  - Education and learning

Vision and Mission



Member of UniNet/NEdNet (2009-2014)

Members	Number of Member
Universities/Institutes	194
Vocational Education	415
Educational Service Area	185
Basic Education (schools)	9,749
Municipality Public Library	151
Research and other Education	51
Total	**10,745**

Millions of users!

From UniNet to NEdNet (National Education Network)

The Previous Education Networks

- MOE Net (Primary, Secondary Schools)
- VEC Net (Vocational Network)
- UniNet (University Network)

"Thailand Government approved Stimulus Package total Budget 6,000 M Baht or 170 M US$ to Integrate all Education Network to National Education Network (N E d N e t)"

NEdNet Conceptual

UniNet
Next Generation network

Universities

Vocational Education

Non Formal Educational

Education Area Office

NEdNet

Knowledge Network

E-Library

Researche

e-Learning

IPTV

Distance Learning

Basic Educational

Knowledge Center

Home Knowledge

UniNet functions

- There core function of UniNet
  - Infrastructure provider
  - Services hosting
  - Activities leader

Infrastructure Goal 2010-2014

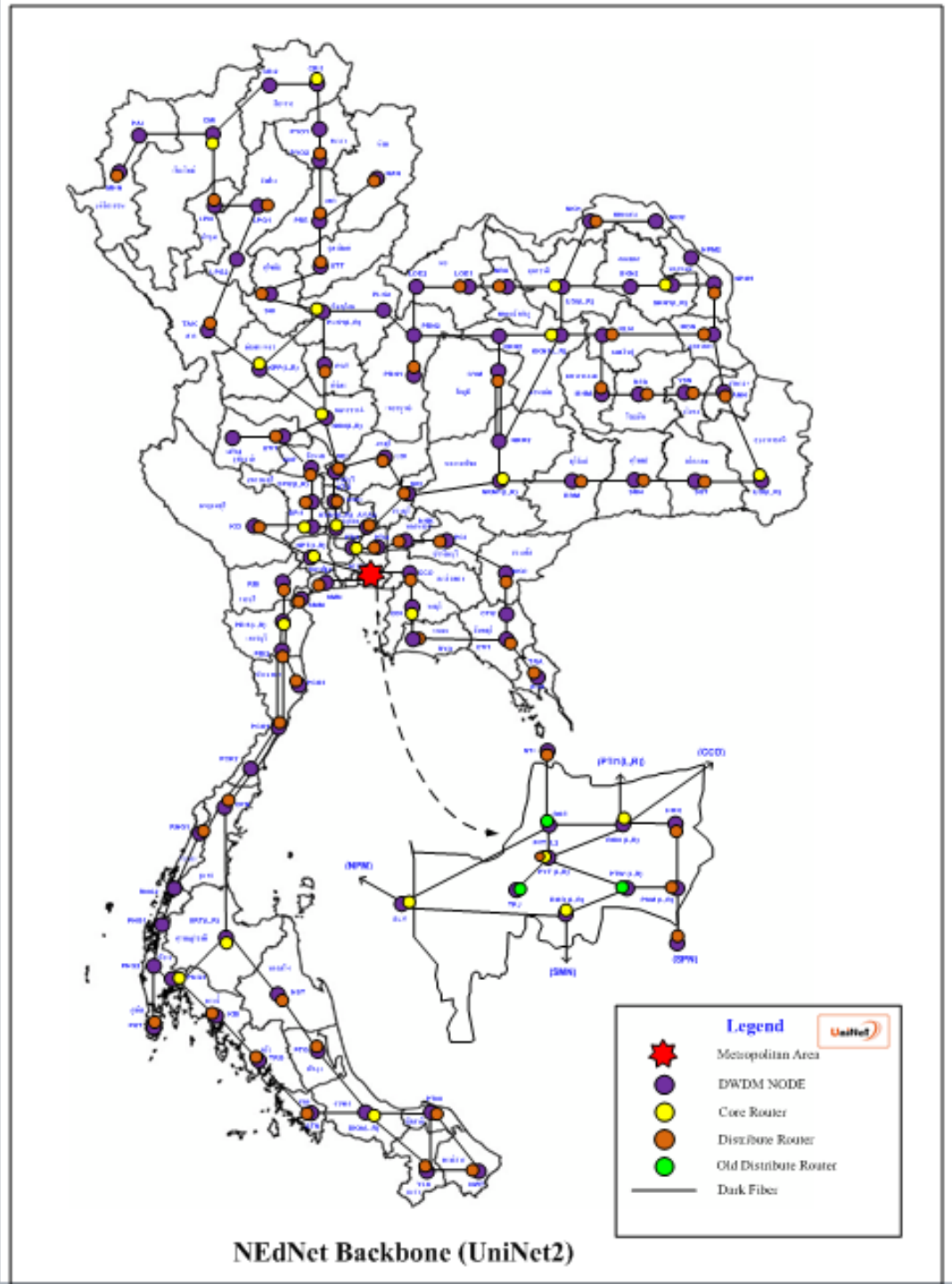
- **Fiber Optic to accommodate the core network (Backbone) that can support bandwidth 50 Gbps (total 87 Node)**
  - University connected (Dark Fiber) with bandwidth 1 Gbps-N x 1 Gbps.
  - Vocational institutions bandwidth 100-1,000 Mbps.
  - School bandwidth 10-100 Mbps.
  - Research network at least 10 Gbps.

- **Phase1 (2010-2012)**
  - 293 Universities (1 Gbps).
  - 415 Vocational Education (100 - 1,000 Mbps)
  - 2,749 schools (10 - 100 Mbps)
- **Phase2 (2013-2014)**
  - 7,000 schools (10 - 100 Mbps)
- Building a content infrastructure that stimulate learning and research in Thailand

UniNet
Next Generation network

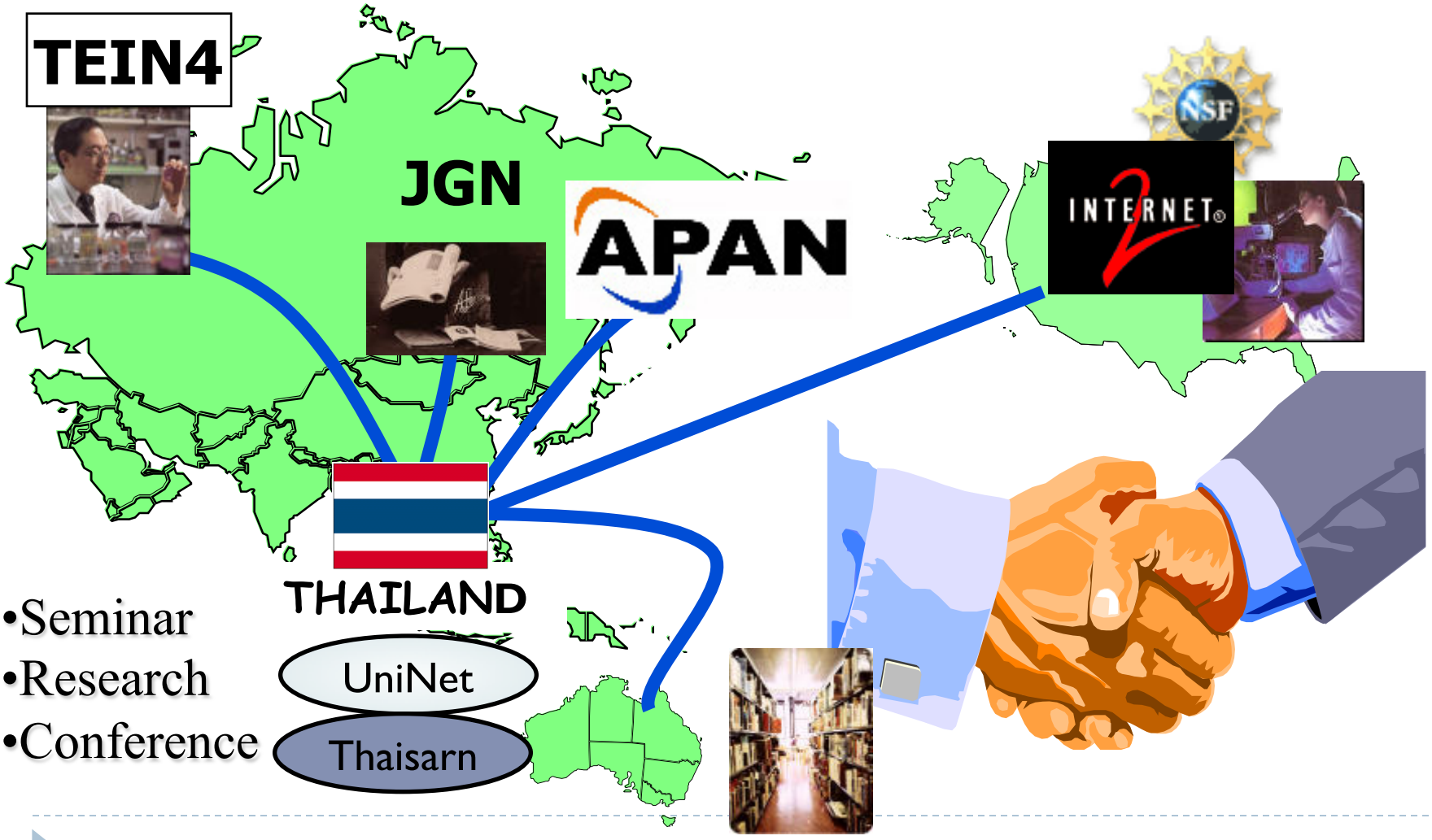
NEdNet Backbone Topology

"All POP IPv6"



NEdNet Backbone (UniNet2)

Research & Education Collaborations

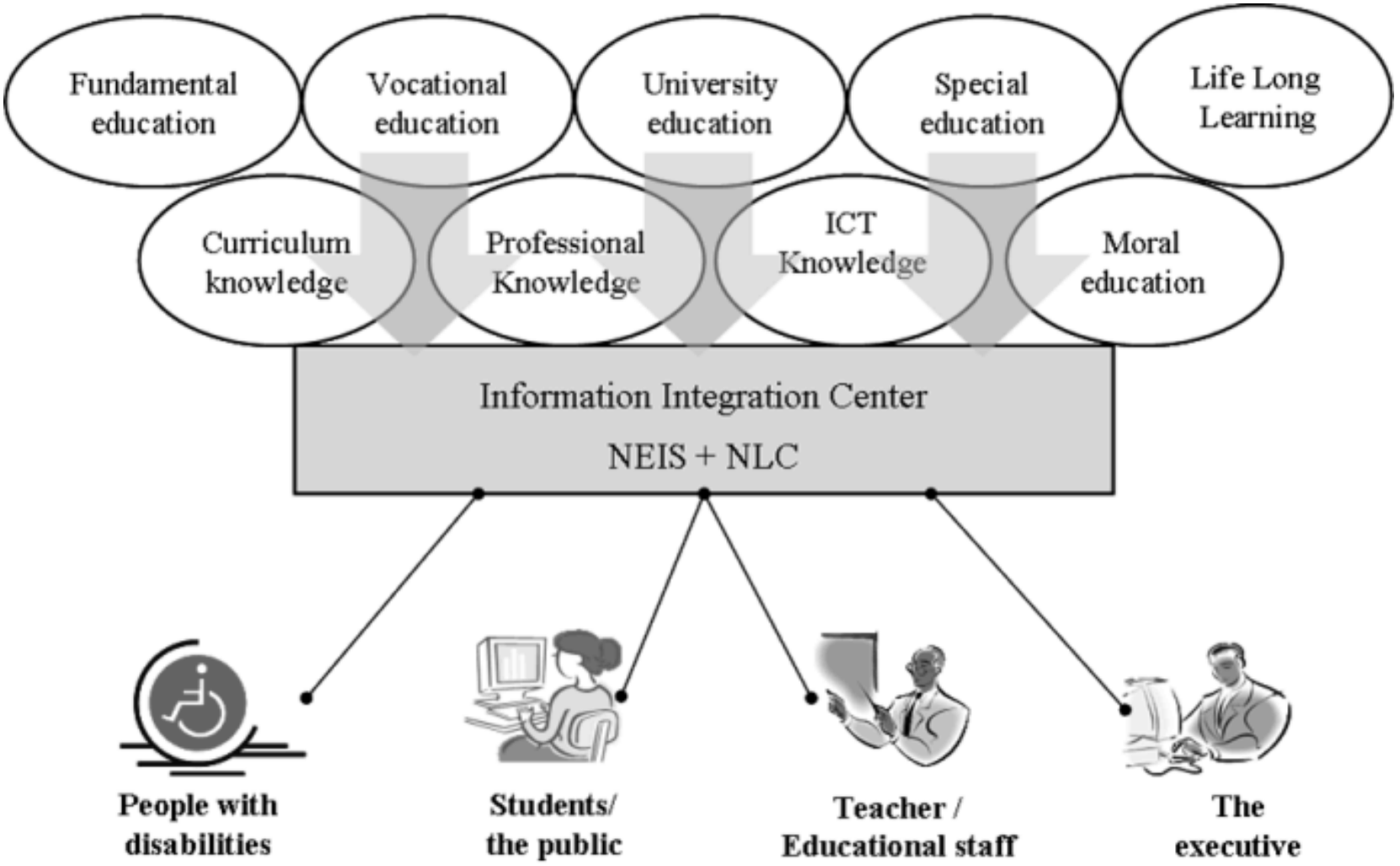


Education Information Services

National Education Information Services (NEIS) using Service Oriented Architecture (SOA) infrastructure which provide information for management and executives in three levels.

1. National level using TH e-GIF (Thailand e-Government Interoperability Framework)
2. Local level (province)
3. School level

Information Integrated center with combine education information services and learning services



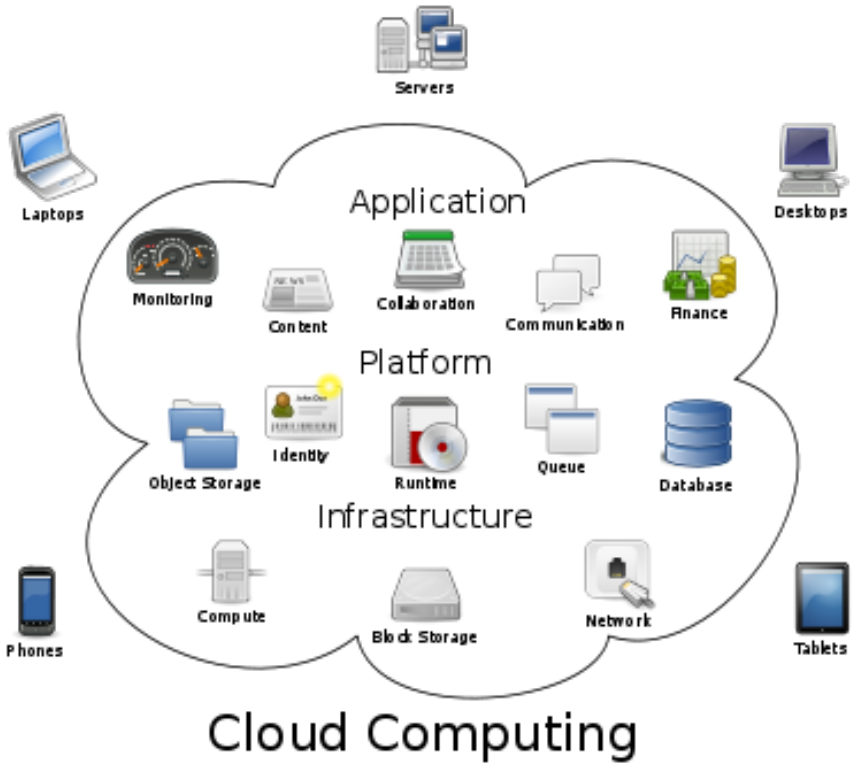
otpc

โครงการแท็บเล็ตพีซีเพื่อการศึกษาไทย

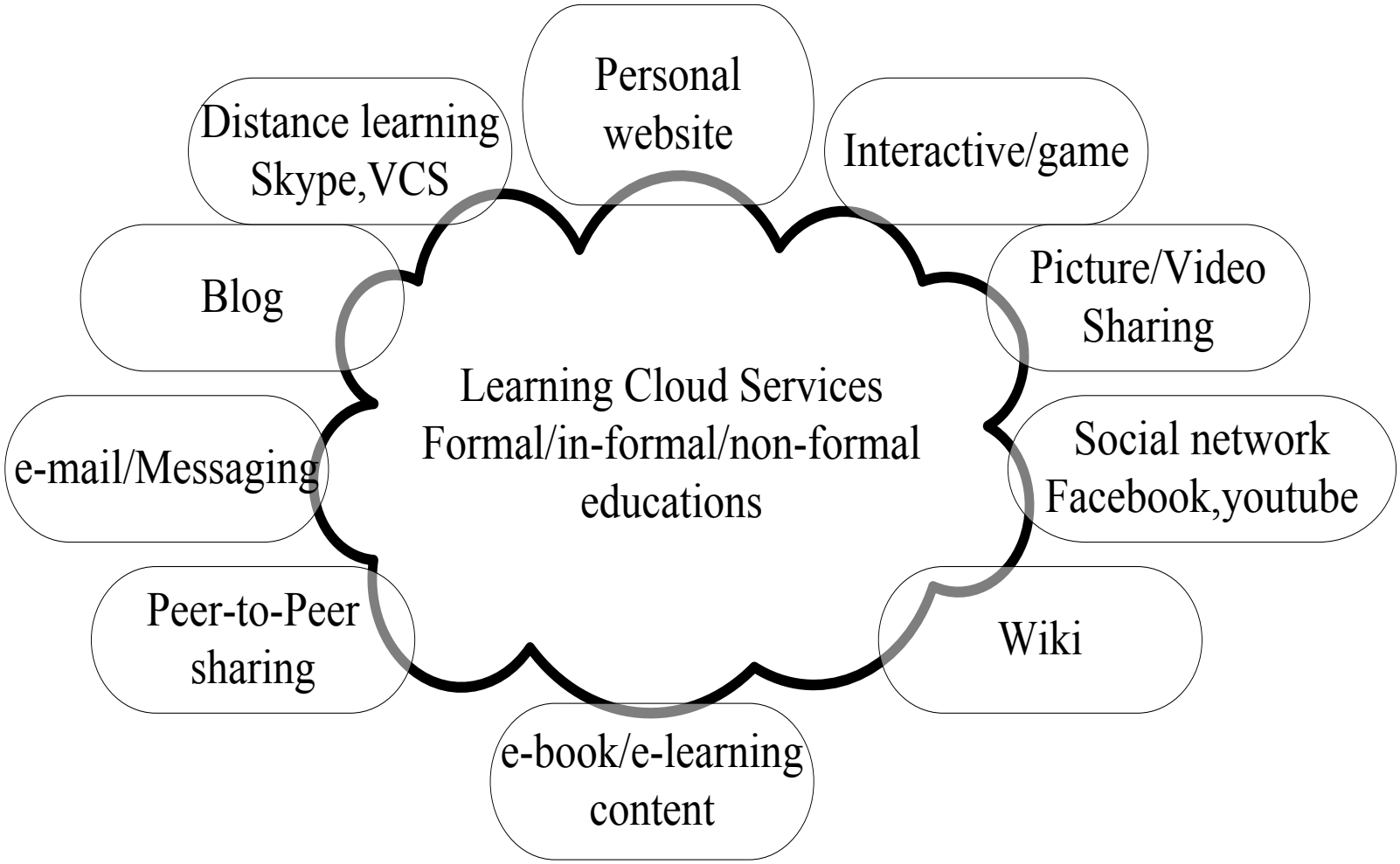
2012 1 Million Tablets
2013 3 Million Tablets
Target 10 Million Tablets

Learning Cloud Service

- Vision
  - Driving research and education using cloud, internet, and mobile computing technology
- Leverage the emerging cloud computing technology to provide a
  - Rich educational content environment
  - Internet services, Computing service
  - Mobile learning support
  - Storage service



Learning Cloud Service Model



Learning Cloud Services

- Personal website: link to teachers and students websites.
- Interactive application and game
- Picture and video sharing
- Wiki, Blog
- e-book and e-learning
- Peer-to-peer sharing application
- Collaborative tools such as e-mail, messaging
- Distance learning through Video Streaming services

UniNet Services

- Currently, UniNet provides self learning centre and sharing educational resources
  - Thai Library Integrated System: ThaiLIS
  - Thai Cyber University: TCU
  - Thai Teacher TV

Thai Library Integrated System:ThaiLIS

“Make a collaboration with University Libraries in Thailand and support and service academic content”

1.Union Catalog

- Bibliographic data of university libraries in Thailand 3.4 M Bibliographic records located at 24 University libraries
- Operated the MARC Standardization
- Distributes Web based Union Catalog and service for Inter Library Loan (ILL)

2. Thai Digital collection Fulltext Service

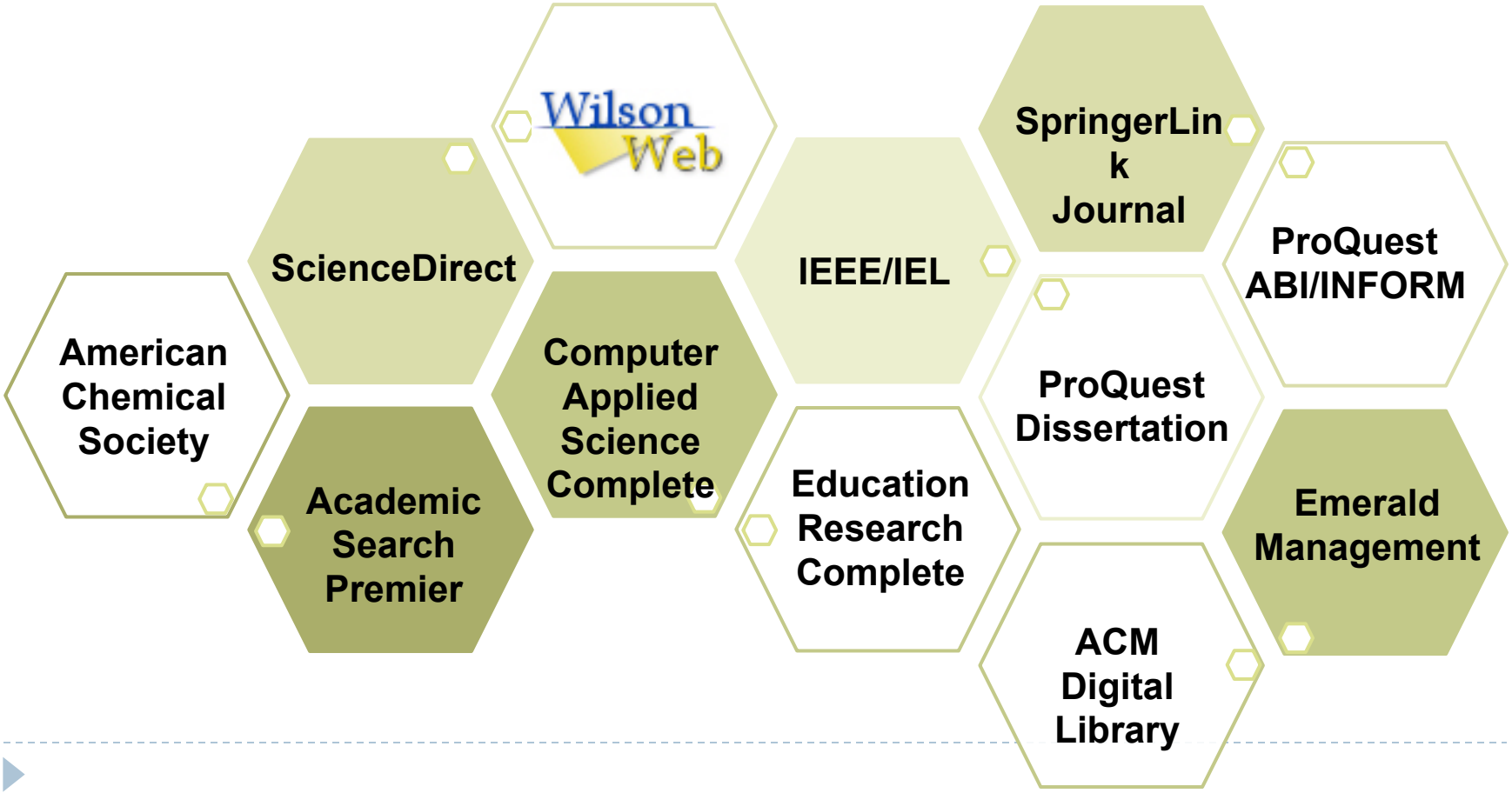
- Fulltext collection more than 300,000 fulltext files located by 140 University libraries in Thailand
- Operated the Metadata Duplin core Standardization
- Distributes Web based Thai Digital collection and allow network-user to access full-text immediately

Type of Digital collection: Fulltext Service

- Integrated search of digitized as:
  - Theses & Dissertations
  - Research
  - Journal Articles
  - Rare book
  - E-books
  - Proceeding

3. Foreign Research Database: Project Reference Database

- Supporting international research Database
- Subscription to 78 members of university



Thai Cyber University: TCU

The TCU has developed its own LMS and developed it to be the sharable LMS which is open source software. The system includes:

- Content management system, student management system, and production tools.
- Several support and service systems such as web board, chat room, collaborative group system.
- Support English version that we could provide to the world.
- Students can choose many open courseware offering in the TCU-LMS. At present there are about 616 courses available in the TCU-LMS

Total of self-paced learning courses classified by ISCED

ISCED	Number of Courses	Percentage
Education Science and Teacher Training	26	4.22%
Humanities, Religion and Theology	37	6.01%
Fine and Applied Arts	2	0.32%
Law	12	1.95%
Social and Behavioural Science	56	9.09%
Commercial and Business	73	11.85%
Mass Communication and Documentation	23	3.73%
Home Economics	9	1.46%
Service Trades	34	5.52%
Natural Science	29	4.71%
Mathematics and Computer Science	103	16.72%
Medical Science and Health-Related	19	3.08%
Engineering	144	23.38%
Architecture and Town Planning	7	1.14%
Agriculture, Forestry and Fishery	33	5.36%
Other Programs	8	1.30%
N/A	1	0.16%
Total	**616**	

ISCED : International Standard Classification of Education

No. of self-paced course registrations classified by students' occupation

Occupation	Total	Percentage
Student	106,345	38.02%
Government Officer/Staff	57,186	20.45%
State Enterprise Employee	5,083	1.82%
Employee	31,741	11.35%
Self-Employ	9,065	3.24%
Unemploy	6,058	2.17%
N/A	64,223	22.96%
Grand Total :	**279,701**	

No. of self-paced course registrations classified by students' education level

study level	Total	Percentage
Primary Level	5,938	2.12%
Secondary Level	33,609	12.02%
Vocational	6,994	2.50%
Diploma	8,304	2.97%
Bachelor's Degree	89,824	32.11%
Graduate Diploma	2,248	0.80%
Master's Degree	24,279	8.68%
Higher Graduate Diploma	1,708	0.61%
Doctoral Degree	1,745	0.62%
N/A	105,052	37.56%
Grand Total :	**279,701**	

Thai Teacher TV

- Sharing best practice
- to see good practice
- 24 Hours a day on IPTV and Digital Television Channel (CAT chanel, TRUE) and internet Channel on http://iptv.uni.net.th
- Over 3,600 Programmes online for Broadcast Streaming on IPTV (15 Minute format for each program)
- High Quality Video

Research Working Groups

- IPv6
- Multicast Technology
- Grid
- Security
- Network Monitoring
- Open Source

- E-Learning and Multimedia
- GIS
- Web cache
- Distance Learning
- Telemedicine
- E-Culture

Future Direction

- Expanding Internet for Research and Education
  - Reach ability
  - Performance, Speed, Reliability
- Expanding Content and Service using Cloud Computing
- Building Stronger Community of
  - Education
  - University Researchers
- Stimulate research and education
  - Rich content and services environment
  - Real experimental test bed using UniNet

Thank You