ThaiREN NOC Update

Kriangsak Lekdee (UniNet/ThaiREN)

Topics

- A brief Introduction to Thailand Research and Education Network

- Software Defined Network Testbed in ThaiREN

- Plan deployed SDN in ThaiREN

Thailand Research and Education Network (ThaiREN)

ThaiREN represents research and education networks consisting of ThaiSarn and UniNet for international research and education collaboration.

ThaiSarn connects government institutes for research activities and project collaborations.

 UniNet currently connects most higher education universities as well as cover more than 9,000 basic education schools and vocational institutions in Thailand.
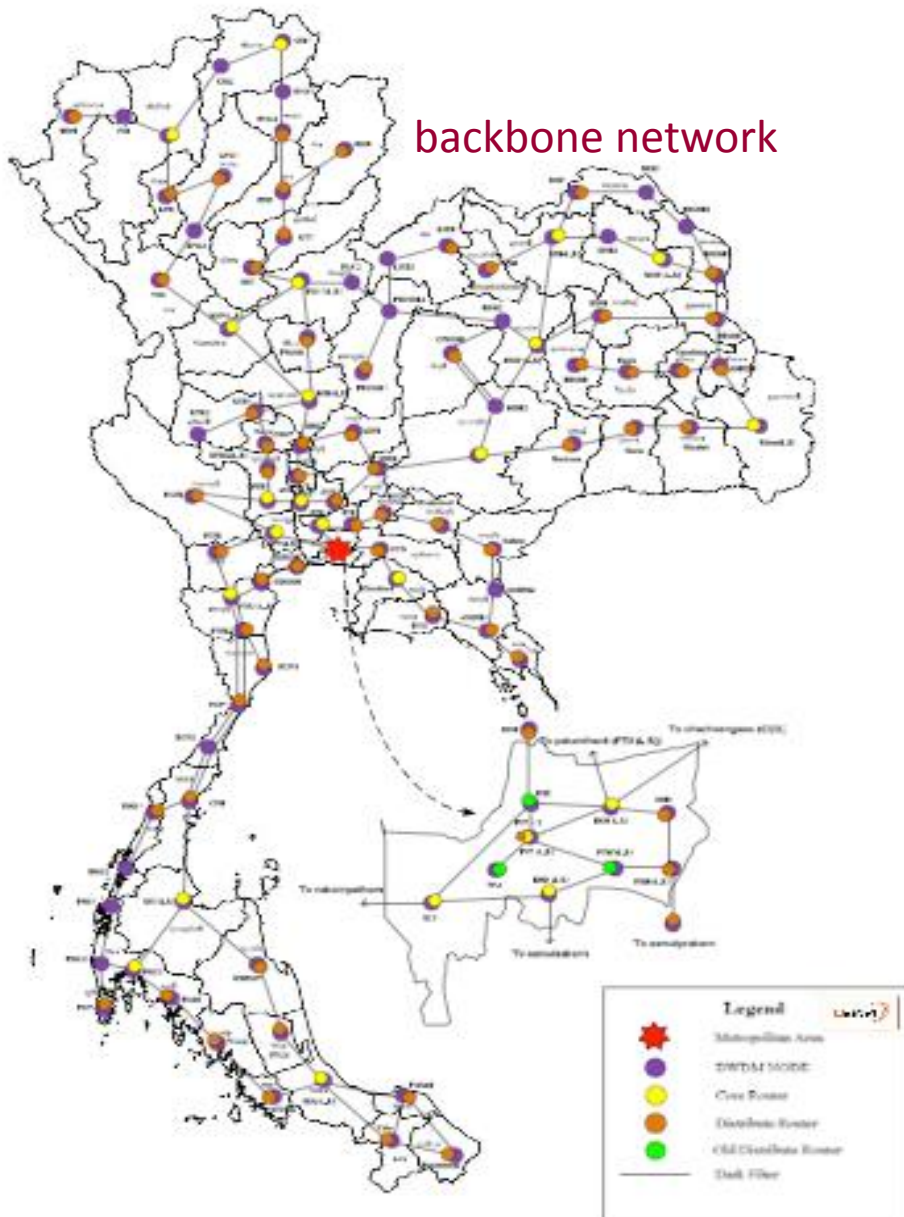
NEdNet/ThaiREN Conceptual
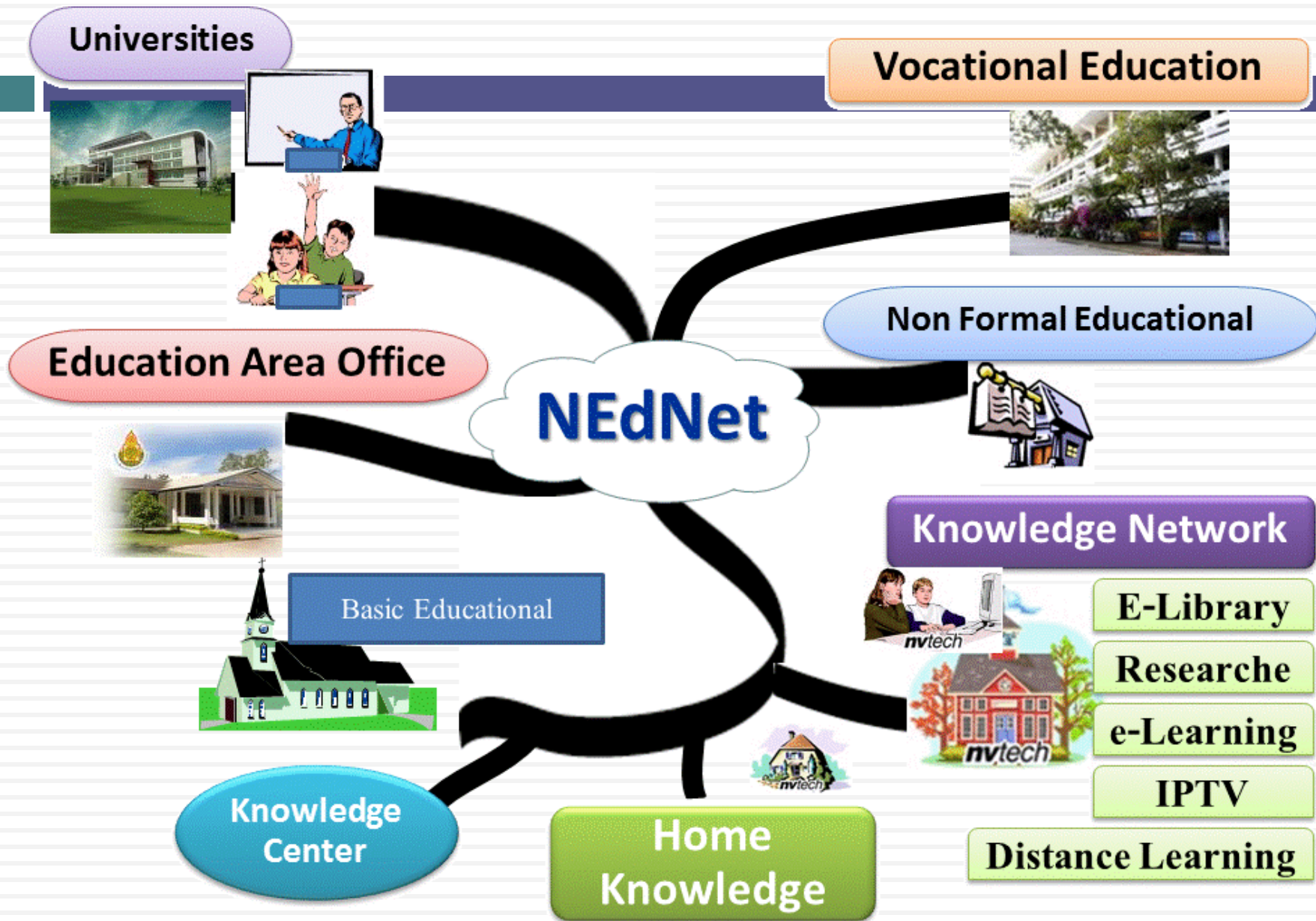
Current Network Status:

National R&E Backbone Network

backbone network

- Optical Network Backbone with DWDM @ N x 10Gbps
- Fiber to the University @ 1 - 2 Gbps
- Fiber to the school @ 10 – 100 Mbps
- Public libraries @ 10 – 100 Mbps

Members	# of Members
Universities/Institutes	194
Vocational Education	415
Educational Service Area	185
Basic Education	9,749
Public Library	151
Research and others	51
Total	10,745

Current Network situation of UniNet

- Fiber optic core network support bandwidth 50 Gbps

- Institutions/agencies for research and education

  With the following

  - 194 Universities (1-2 Gbps)

  - 415 Vocational Educations(100Mbps-1 Gbps)

  - 185 Education Services Area Offices(100Mbps-1 Gbps)

  - 9,749 Schools (10-100 Mbps)

  - 151 Public Library (10-100 Mbps)

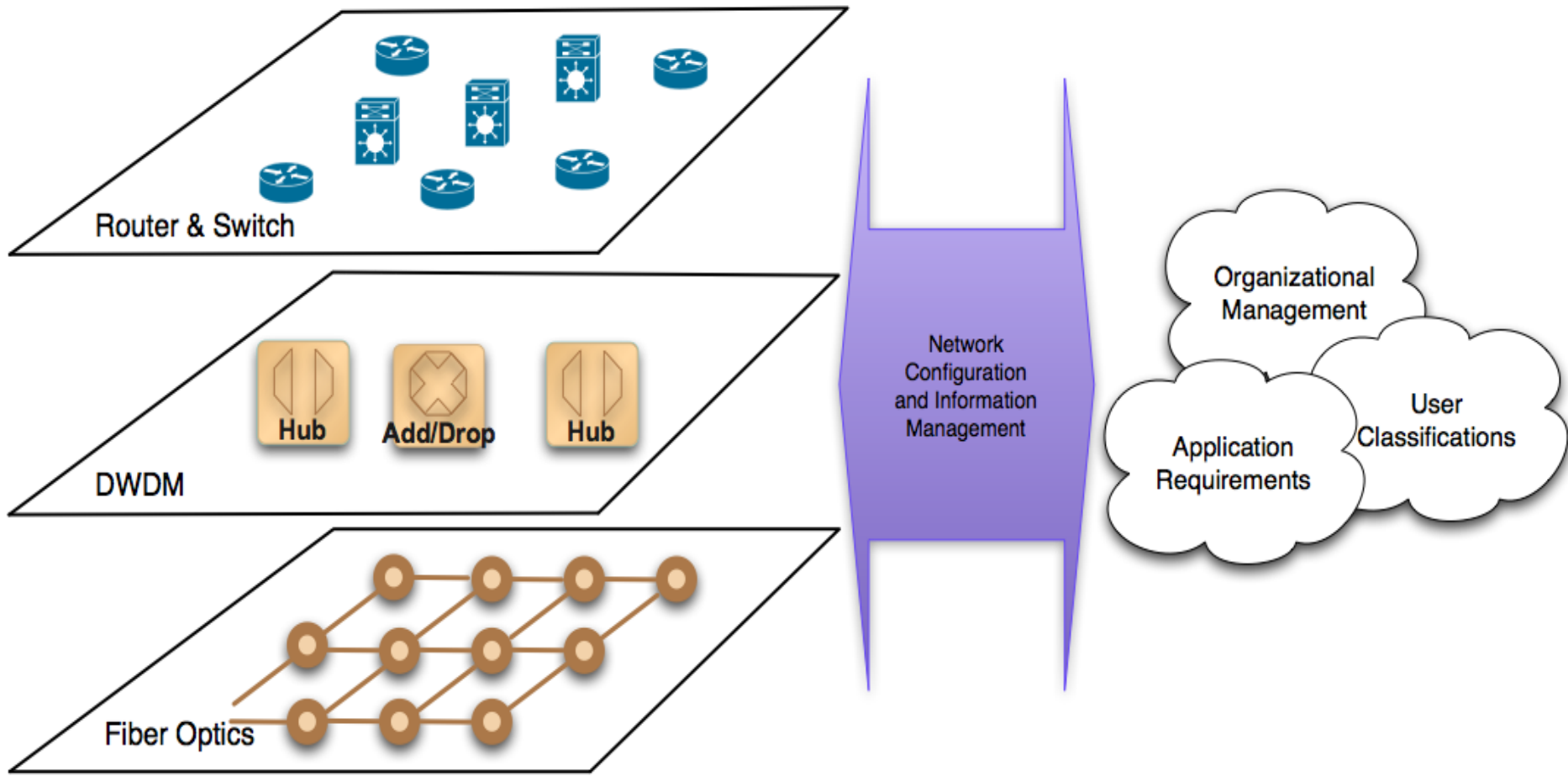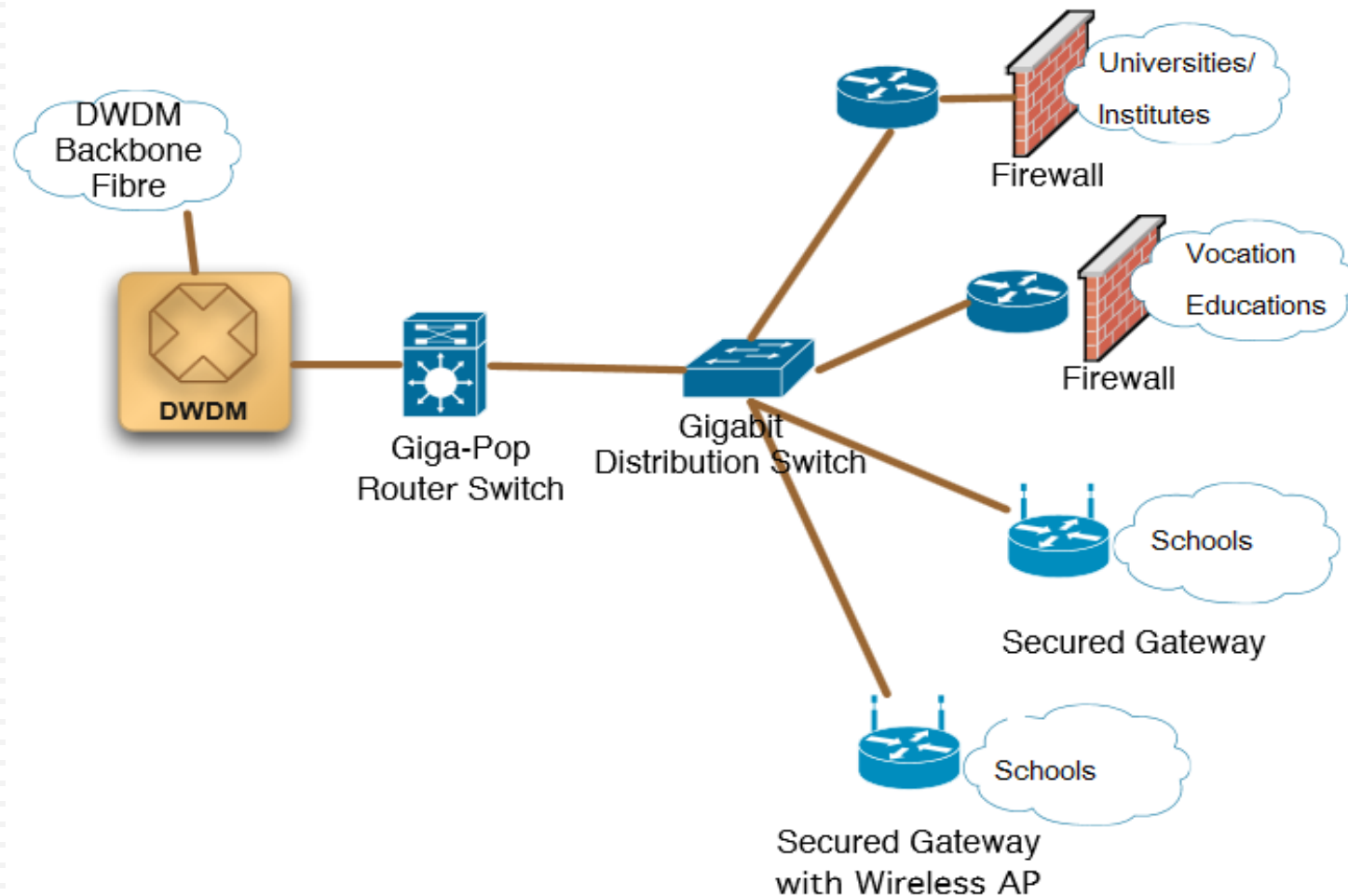 - 51 Research and others (100Mbps-1 Gbps)
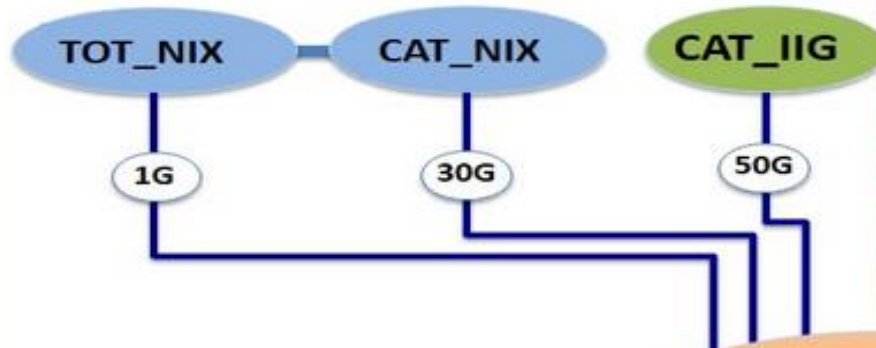
Backbone of UniNet

Layers of Network and Management

Layers of Network and Management
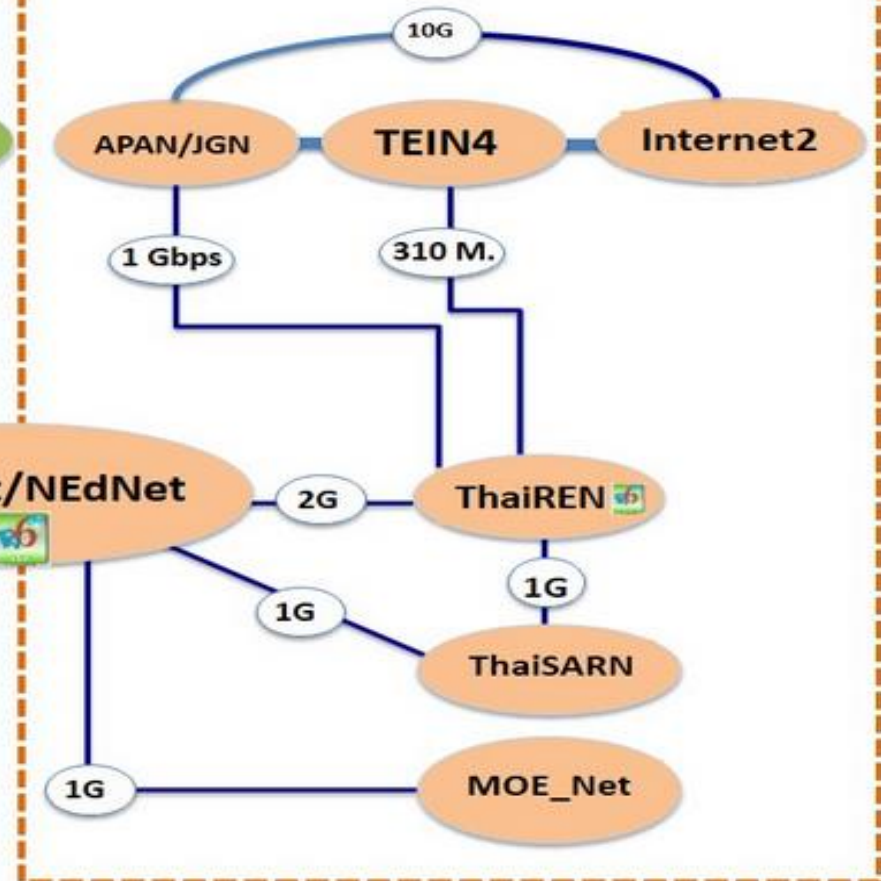
ThaiREN Gateways

Peering Network Map

Research and Education Network

ThaiREN Gateways

UNINET-TH NETWORK WEATHERMAP

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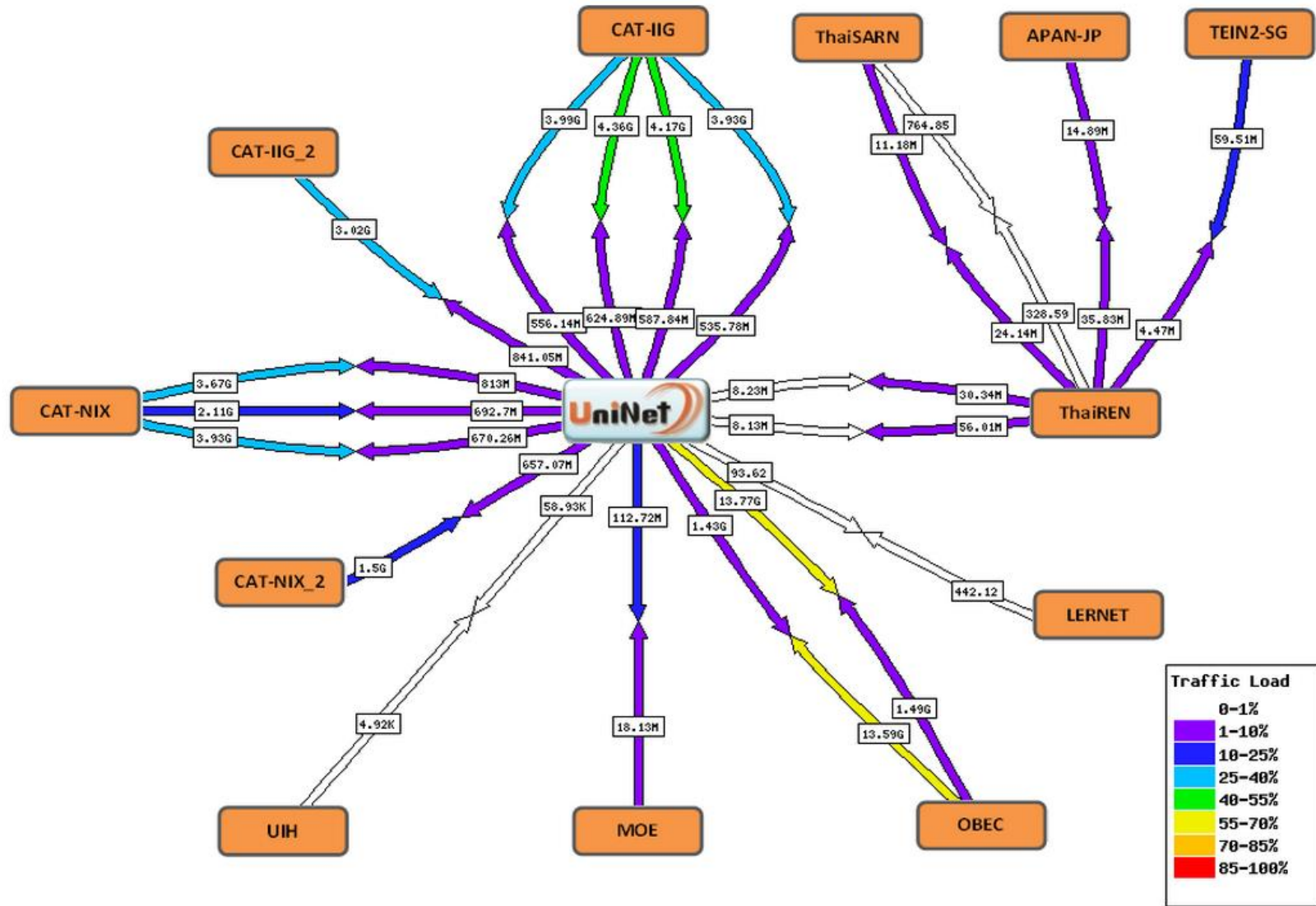
Research and Education Working Groups and Activities

Community of Education and Research Network in Thailand

☐ The Research Community Network project as it foresees the essence of networking development. In this case, the Office has managed annual technical seminars called WUNCA. The seminar is held twice a year with the purpose to brainstorm and receive queries and advices as well as demonstrate technology and provide information to members. The seminar has combined group-meeting to learn information technology as the follows:
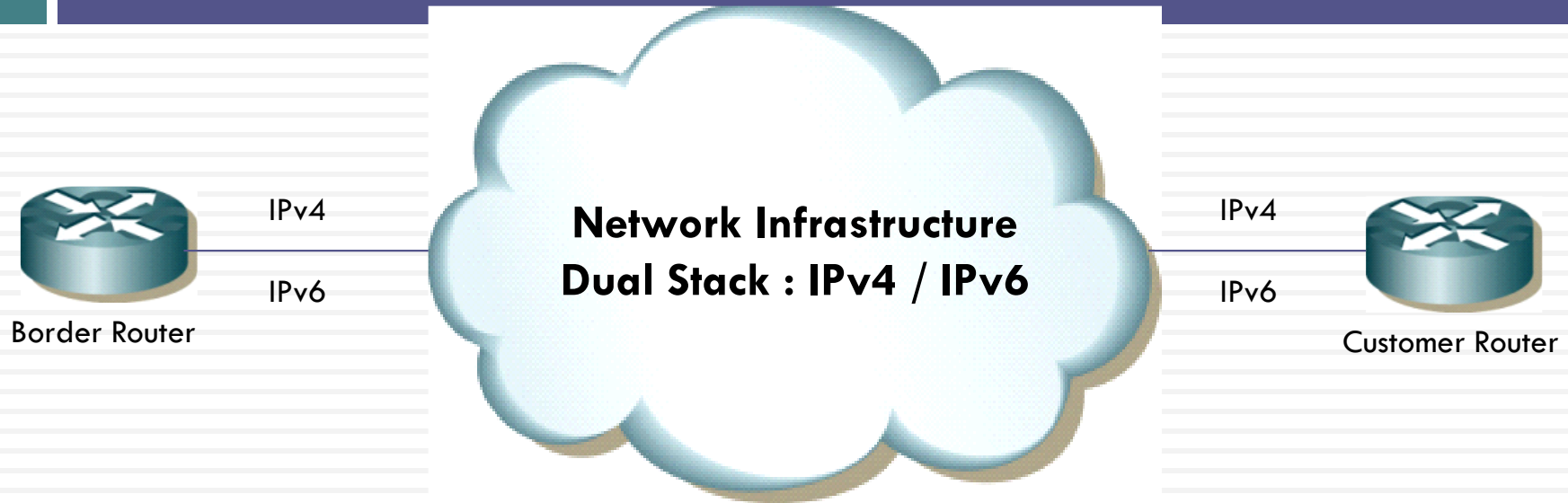
Research Working Group	
●IPv6	●E-Learning and Multimedia
●Education Cloud	●GIS
●Security Network	●Distance Learning
●Open Source	●Telemedicine
●Eduroam	●E-Culture
	●CanalAVIST

Examples of Network Services, Applications, and Project Collaborations

- IPv4/IPv6
- eduroam
- Teleconferencing
- E-learning/Tele-education
- Tele-medicine
- Live video stream transmission
- Earth observation data transfer
- E-Science
- Cloud
- Future Internet technology

IPv6 Services

Network Infrastructure
Dual Stack : IPv4 / IPv6

Border Router — IPv4 / IPv6

Customer Router — IPv4 / IPv6

- Dual Stack Service (Current)
- GRE Tunneling Service (Current)
- Native Service (Future)
- Unicast/Multicast Service
- BGP Peering

eduroam@Thailand

17 University implemented

E-Learning resources and services

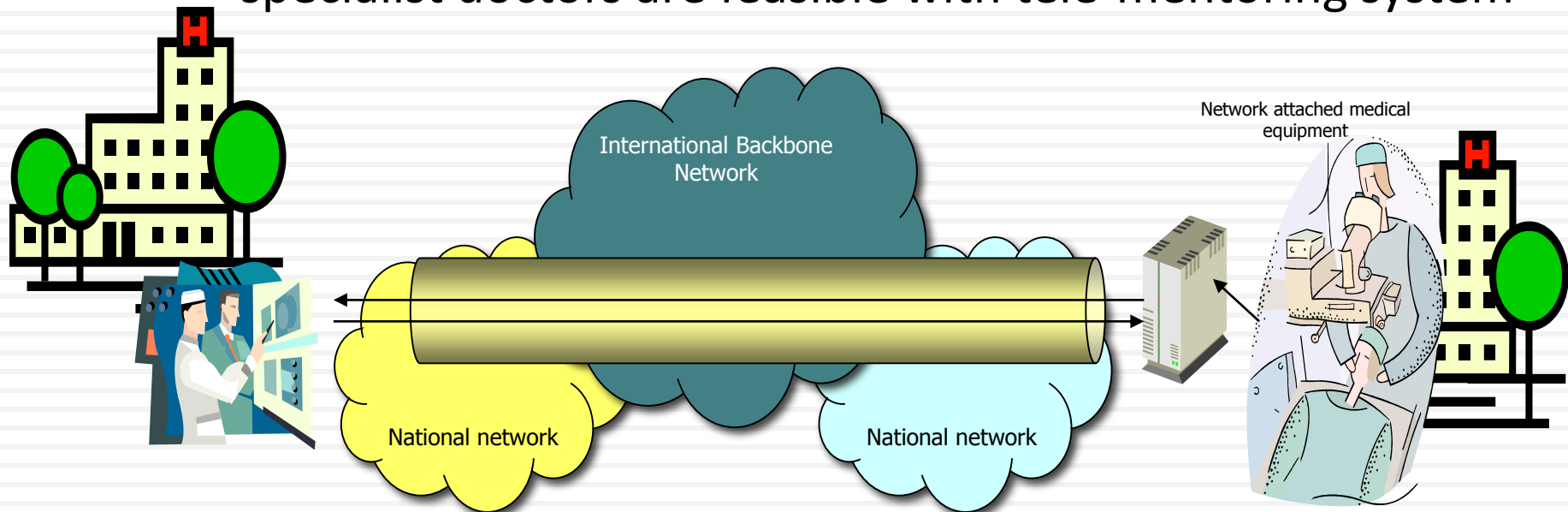|		
e-Thesis	e-Journal	e-Learning
e-Book	Union Catalog Search Engine	Video on Demand Teacher TV
Video Steaming Content	Research Paper	

Tele-medicine

□ Advanced medical treatment and diagnostic skills from specialist doctors are feasible with tele-mentoring system

In Summary

- National and International Research and Education Networks are important to provide network infrastructure for education and research activities

- New generation RENs will be able to support advanced research applications

- Global Collaboration is useful and important

- Co-operations between networks/institutions are necessary to provide quality of service and assurance to network applications

- More research projects, applications and collaborations should be encouraged

Thank You

Thank You
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