

Internet and Information Technology Education in Taiwan

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Jan. 2000**

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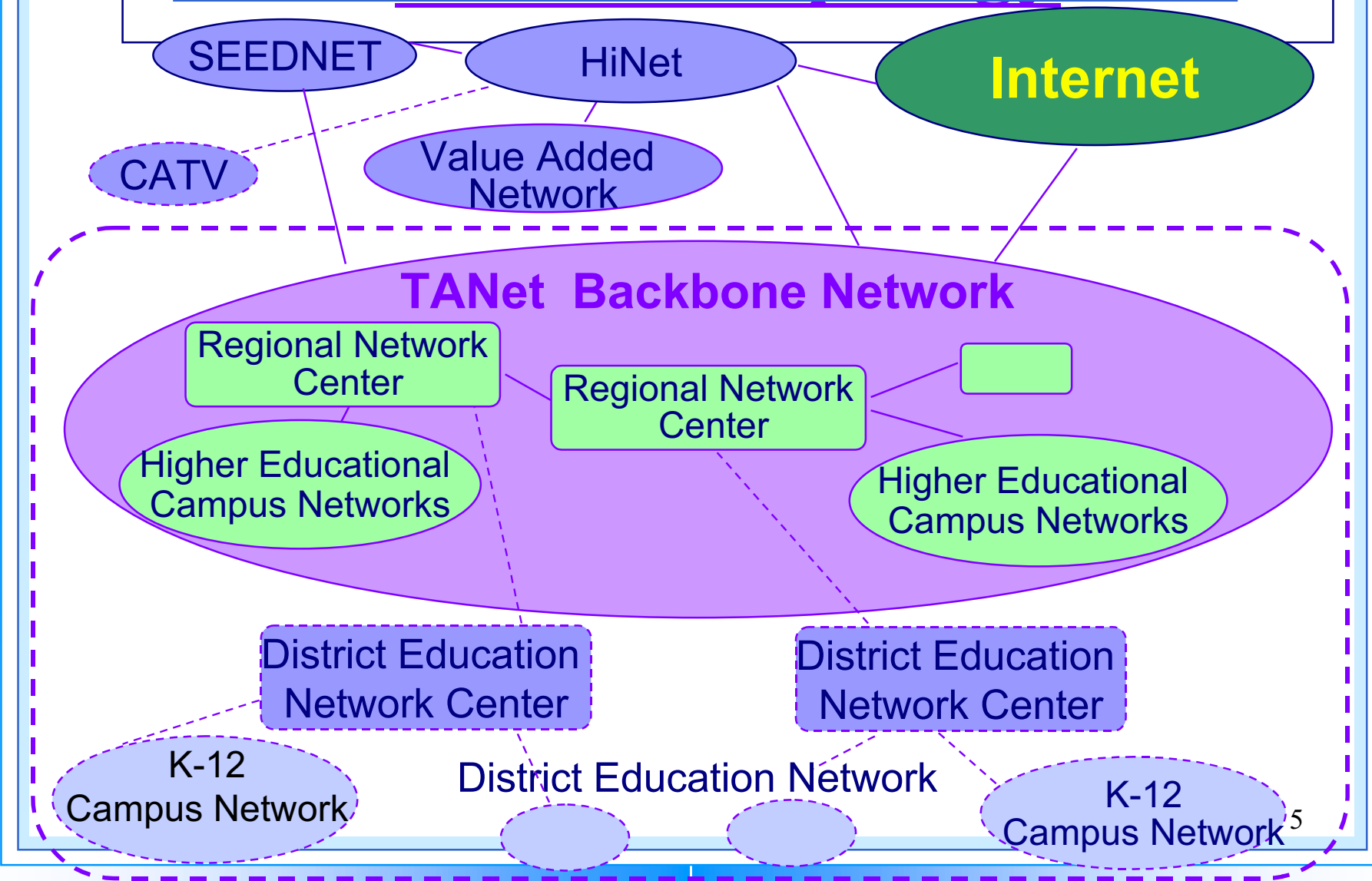
Related Plans

- ◆ **IT education infrastructure (1997~2007)**
- ◆ **Social education network(1997~2002)**
- ◆ **Distance-learning (1997~2001)**
- ◆ **NII professional training (1997~2001)**

Network Environment : TANet (Taiwan Academic Network)

- ◆ 1987: connected with BITNET
- ◆ 1991: connected with Internet (experimental)
- ◆ Protocol (backbone): TCP/IP
- ◆ A common national academic network infrastructure to support research and academic works
- ◆ 12 regional network centers
- ◆ 25 county education network centers
- ◆ T3 backbone
- ◆ T3 international link

TANet Topology



Internet

TANet Backbone Network

Regional Network Center

Regional Network Center

Higher Educational Campus Networks

Higher Educational Campus Networks

District Education Network Center

District Education Network Center

K-12 Campus Network

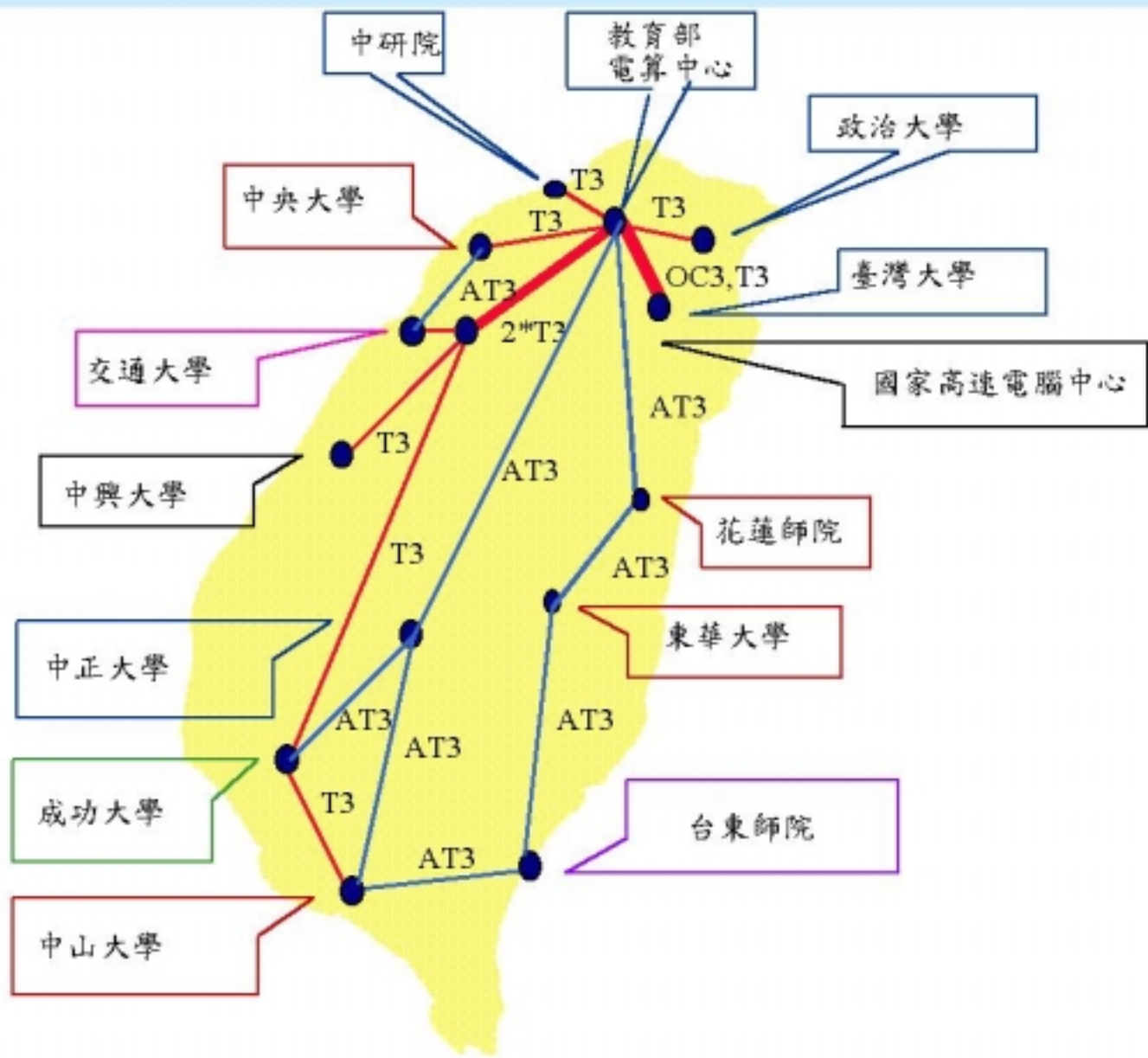
District Education Network

K-12 Campus Network⁵

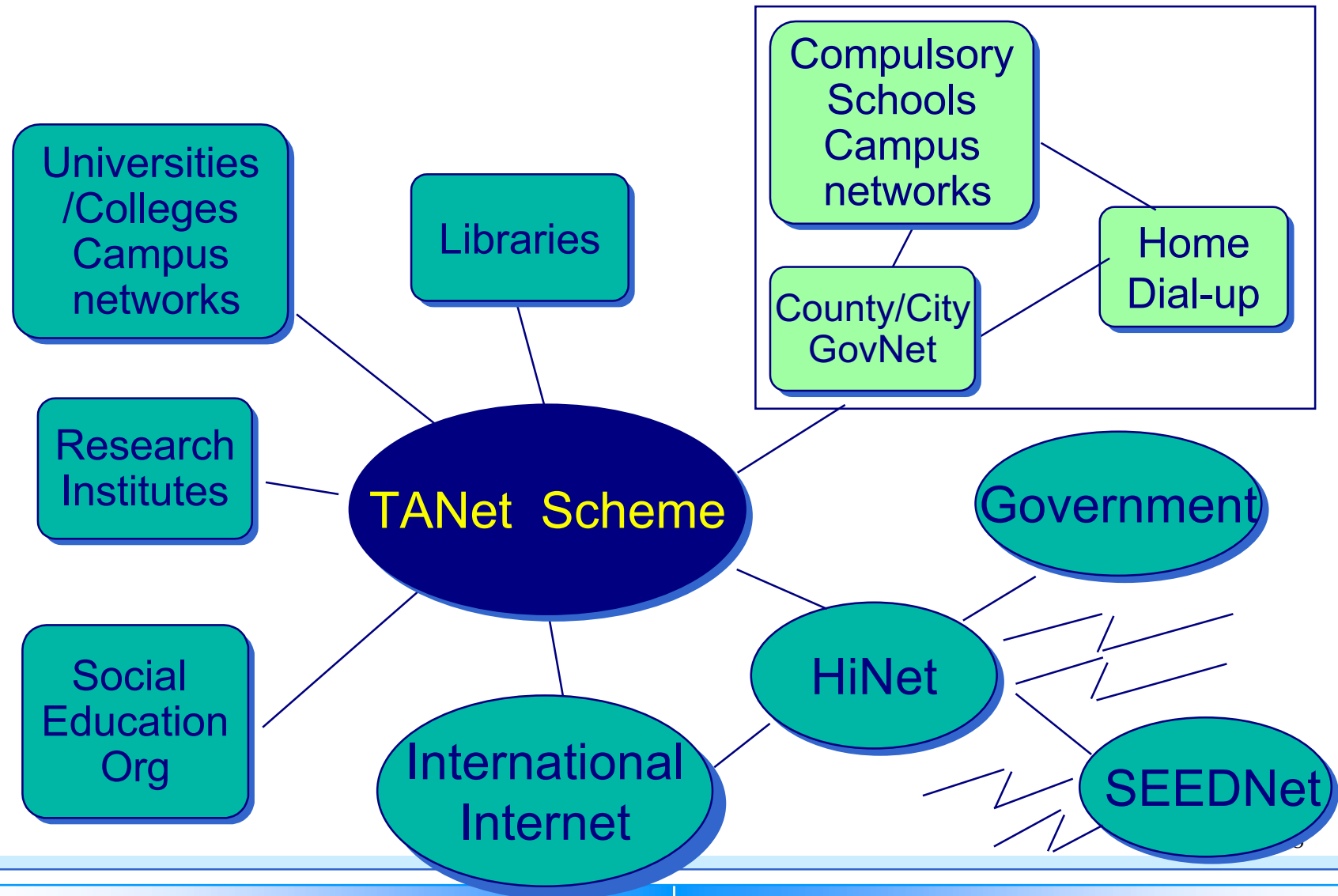
Current Status of TANet

- ◆ **Internet-based applications and localization**
- ◆ **More than 3,800 organizations connected**
- ◆ **District education computer networks**
- ◆ **Average utilization rate: over 90%, sometimes up to 100%**
- ◆ **More than 150 thousand hosts**

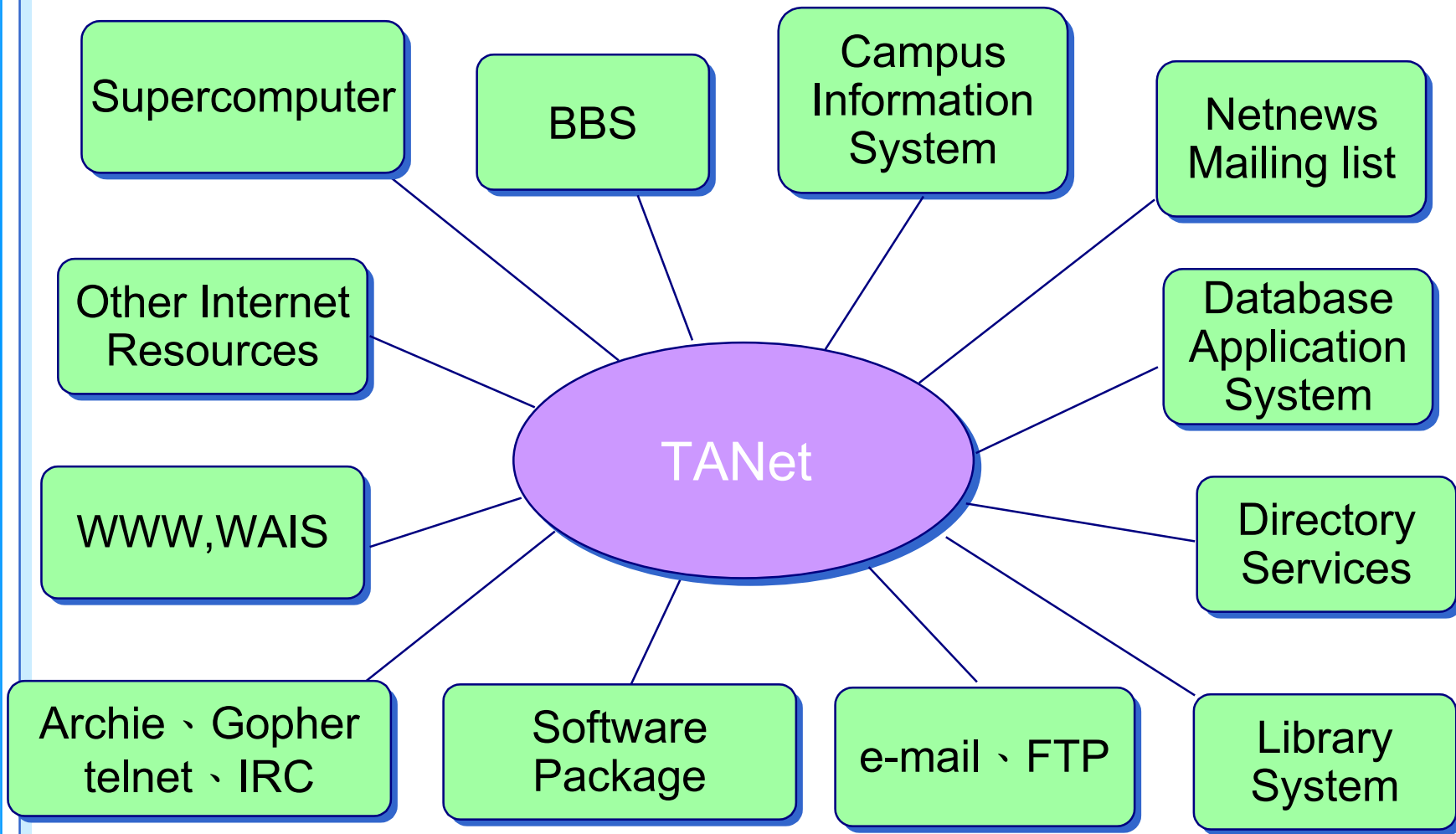
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TANet Scheme



Network Resources Sharing



IT Education Infrastructure Plan (1997-2007)

◆ Goal

**to improve and elaborate IT
education in all level of schools**

- over 200 high schools and 200 vocational schools**
- over 700 junior middle schools**
- over 2,500 primary schools**

Short-term Strategies

- ◆ **Upgrade hardware**
- ◆ **Expansion of TANet**
- ◆ **Training of personnel**
- ◆ **Enrich teaching resources**
- ◆ **Improve teaching methods**
- ◆ **Institutional reform**
- ◆ **Promote information literacy**

Long-term Strategies

- ◆ Computers in classrooms, connection to TANet, CAI and multimedia for elementary and secondary schools
- ◆ Information literate teachers
- ◆ Capacity building for schools to develop teaching resources
- ◆ Information literate students and citizens
- ◆ Institution and personnel reform to create an information environment

The Stimulus Package

- ◆ A budget Increase of NTD 6.47 billion in IT education in Oct. 1998
- ◆ Computer labs for all elementary and secondary schools and one machine per student **with network connections**
- ◆ Information literate teachers: **all teachers be able to use computers**
- ★ 100% mid-term goal accomplished by the end of June 1999

Improvement of Hardware

- ◆ **Computer rooms for all schools and connected to Internet, one machine per student**
- ◆ **ADSL connection, upload bandwidth: 384K; download: 1.5M, monthly fee: NTD 2,050**

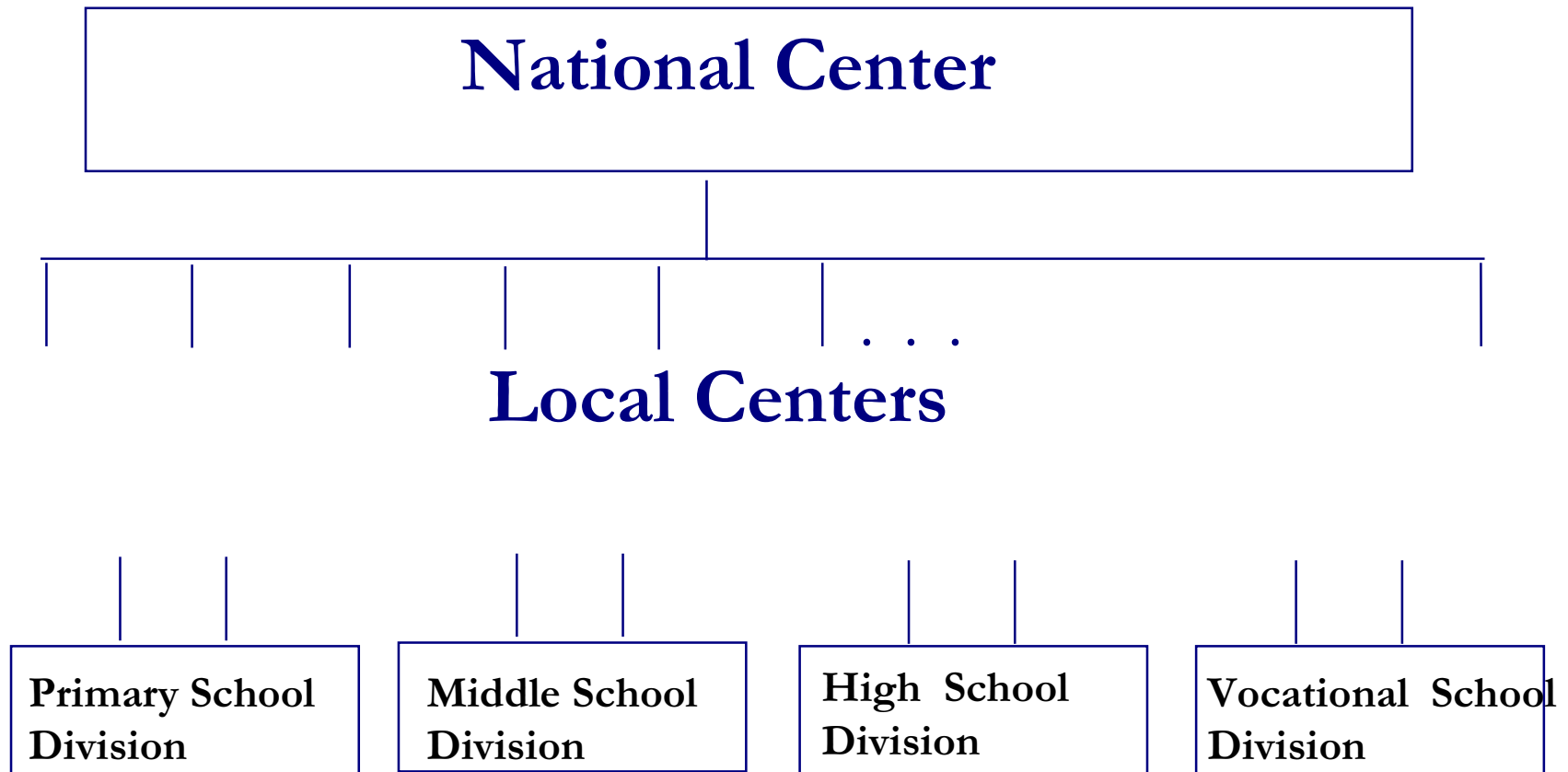
Percentage of School Internet Connections

	1998/6/30	1999/6/30
University	100%	100%
High School	100%	100%
Middle School	72%	100%
Elementary School	24%	100%

Enrichment of Teaching Resources

- ◆ Produce a series of 19 CAI CD-ROM
- ◆ Organize “Golden learning award” to promote CAI software development
- ◆ Establish a resource-sharing web site: (<http://content.edu.tw>) to integrate software and teaching materials
- ◆ Produce network teaching material for primary and secondary schools Ex. do-do island
- ◆ Fund teaching software purchase

Software and Teaching Resources Centers



Tasks of National and Local Resources Centers

- ◆ Completed 46 primary and secondary school and 32 high school and vocational schools web-sites
- ◆ To consolidate resources from centers
- ◆ To collect and produce digitized teaching materials, software, discussion rooms, test bank, progress reports, and network linkage
- ◆ To produce localized teaching materials
- ◆ To collect products of resources center
- ◆ Extension

Current Applications of Information Technology in Education

- ◆ **Distance learning and resource sharing**
- ◆ **Virtual classroom**
- ◆ **Network teaching by mail**
- ◆ **International cooperation**
- ◆ **In-service training for teachers**
- ◆ **Network teaching**

Distance Learning and Resource Sharing

- ◆ “Guidelines for distance learning in Junior college or higher” promulgated July, 1997
- ◆ As of the 1997 school year, 71 colleges and universities participated and offered 100+ courses
- ◆ 73 colleges and universities participated and offered 85 courses in the 1998 school year
- ◆ Guidelines for accreditation of foreign degrees promulgated January, 1999. maximum credits obtained through distance learning can not exceed 1/3 of the total credits
- ◆ “Guidelines for distance learning in junior college or higher” amended April, 1999 to increase the volume of distance learning

Virtual Classroom

- ◆ The high school of NTNU and wu-chi middle school are establishing distance learning experiment networks with virtual classroom of geometry and biology to develop network teaching and to provide learning resources such as Electronic book and test bank.

Network Teaching by Mail

- ◆ **Providence university is providing interactive distance learning English courses to high schools in offshore islands through www and e-mail**

International Cooperation

- ◆ **NSYSU and kaoshiung girls' high schools are cooperating with schools in UK and Japan to provide international English courses**
- ◆ **NKNU and san-shin vocational school are in cooperation with Morrison Academy Kaohsiung Campus and Tallahassee Community College, Florida USA**

International Cooperation

- ◆ **International collaborative learning project for 5 secondary schools between Canada and Taiwan**
- ◆ **Create and maintain web site through the Internet. Provide a distributed collaborative learning environment and remove the hurdle of communication**

In-service Training for Teachers

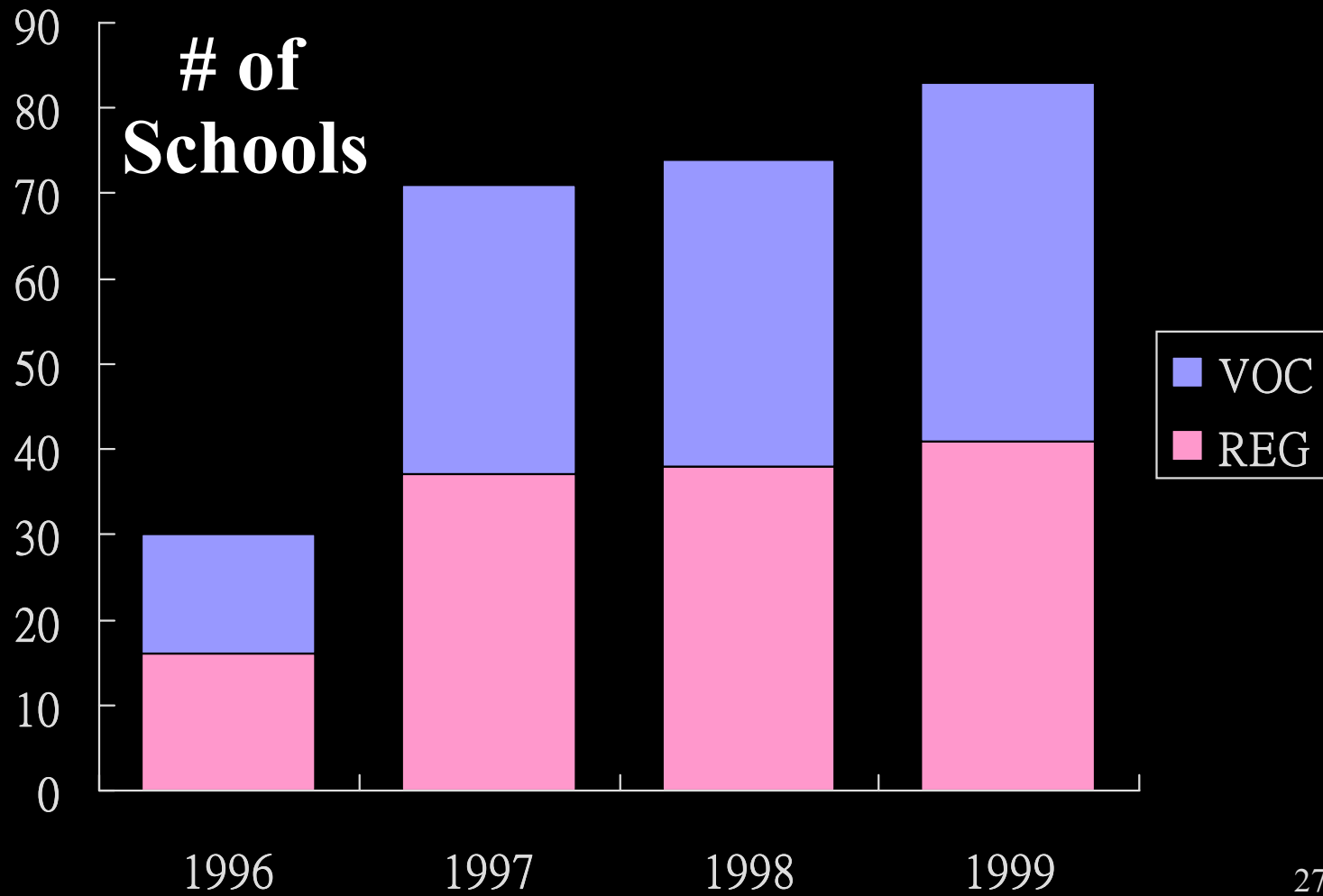
- ◆ **San-shin vocational school and ta-kuan elementary school are experimenting teachers' training with cable TV and Internet. Classes are broadcasted in neighboring schools simultaneously by microwave; Processed classes are stored in electronic format available through Internet.**

Distance Learning for Offshore Islands

- ◆ **Distance learning priority are given to off shore islands to provide on-the-job training for teachers**
- ◆ **Priorities are also given to remote areas to reduce the imbalance in education resources between urban and rural sectors.**

Distance Learning project Growth Chart

Feb. 1997 to May 1999



Application of Distance Learning in Education

- ◆ **Realizing lifelong learning through cable distribution systems**
- ◆ **Free from time and space restrictions**
 - **Corporate employees improve professional skills and sense of commitment**
 - **Company benefits from quality and competitiveness enhanced**

Application of Distance Learning in Education (Cont.)

◆ For the disabled

- Improving the vocational training of the disabled**
- Acquiring same standard and quality of education**
- Easy-access to knowledge**

Social Education Information Network

- ◆ **Establish digital library and museum**
 - **Computerize collection**
 - **Establish social education database**
- ◆ **Computerize services of MOE agencies**
- ◆ **Develop lifelong learning CD-ROMs**
 - **Complete the development of 23 sets of CD-ROMs**
 - **All the digital information is available on the Internet**

Computerize Administration within MOE

- ◆ **Sharing documents over networks**
- ◆ **Completed a campus public safety network and a reporting system of campus incident and earthquake disaster**
- ◆ **establish an online reporting system to providing immediate assistance to and searching for discontinued school students and dropouts**
- ◆ **Develop a project management and review system with the Research, Development and Evaluation Commission**

Visions And Perspectives

- ◆ Internet access for each classroom
- ◆ Integrate IT with other educational fields and develop an amalgamated instructional guide
- ◆ Increase teachers' ability in IT application
- ◆ Develop subject-based digital teaching materials
- ◆ Improve the quality of network transmission

Visions And Perspectives (Cont.)

- ◆ **Global resource-sharing through Network**
- ◆ **Fast dissemination and exchange of information through network**
- ◆ **E-mail accounts for all teachers and students for interaction**
- ◆ **On-line assistance during study**
- ◆ **To improve traditional teaching and the quality of education**

Visions And Perspectives (Cont.)

- ◆ **Inter-school cooperation through network to reduce personnel expense**
- ◆ **To broaden the vision and scope of learning and teaching**
- ◆ **Unlimited access to knowledge to provide life-long learning**
- ◆ **Business opportunities for industries**

Conclusions

- ◆ **Speeding up the NII program by applying IT education**
- ◆ **Enhancing competitiveness**
- ◆ **Education without frontiers**
- ◆ **Regardless of time and place, schools can provide “just-in-time” learning**
- ◆ **Linking all Internet in the world**

Possible U.S. contact point:

- ◆ **Dr. Ching-chih Chen, Professor and former Associate Dean of the Graduate School of Library and Information Science, Simmons College, Boston.**
- ◆ **President Clinton appointed her, in February 1997, to his Presidential Information Technology Advisory Committee (PITAC), by a new Presidential Executive Order.**
- ◆ **She is also a member of the PITAC/NGI and PITAC/In*2 Subcommittees.**

Thank You

