National higher education IT infrastructure

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IT Influence on the Development of Society:

Information technologies (IT) destroy borders between countries.

Globalization of economic and social processes, determined by IT, is increasingly changing life.

Periphery is already perceived as a way of thinking but not as a peculiarity of a territory.

The state should take care that digital revolution would not stimulate the appearance of the new e-poor and e-elite.

Long Life Learning:

Education obtained does not allow to seek for further career successfully all life.

The European Council states that education, once obtained, is sufficient just for 7 years on average.

This period is even shorter in the area of rapidly developing science and industries.

The difference of duration in average age of society and an individual of working age increases the significance of refreshing qualification constantly.

Distance and Life Long Learning:

Transition from learning for life to life long learning has become the most important issue of the time.

Rapid tempo of life requires conditions to study on-the-job, at home, in one's own time, place and speed.

Distance learning has become the basic instrument for implementing the principle of life long learning.

Features of Distance Learning:

Distance studies are a tool that could be used providing various types of education.

Experience of earning organizing, accumulated for centuries, can not always be applied.

Traditional education: an individual comes to a study centre.

Distance education comes to an individual itself.

The nature of studies has changed as they have become more individual, with a teacher as an adviser and methodical tutor.

Distance Learning and IT

Distance learning revived when IT were started to be used while:

- transferring traditional methods of learning into distance learning;
- developing new methodologies of distance and traditional education.

Directions of Distance Learning:

- correspondence studies *(corresponding, sessions and e-mailing),*
- learning while using information medias, such as books, video and audio tapes, CDs and DVDs,
- education, applying communication systems: mail, phone, fax, radio and television,
- education, applying web, WEB tools, video conferencing and virtual learning environments.

Virtual Universities

Historic Development

- Senate “classes” in Cambridge University.
- Rapid development of distance (e) learning.
- Industry of distance (e) learning in the USA.
- Worldwide expansion of distance (e) learning.
- Formation of worldwide market.
- Slow participation of Lithuania in the process.
- Principle models: centralized, decentralized and network-based.

Centralized Model

- Typical to countries were traditional universities “were sleeping” and the state took the lead.
- Typical to British, Dutch, Slovak universities, defined as open universities.
- An open university has its teachers, students, issues grants diplomas and develops new methodologies for learning.
- The advantages are: competence centre and fast results (during 3 – 5 years).
- Disadvantages: traditional universities experience loss, are unable to compete, new thinking and learning technologies are not so easily adopted.

Decentralized Model

- Typical to countries were traditional universities were active and solved state problems themselves with no need to establish open universities.
- Examples are the USA, Canada, Australia.
- Advantages: traditional universities get stronger, enter international markets and develop new learning technologies (the USA, Lundas).
- Disadvantages: only big and active universities initiate such processes and another part of universities remains “asleep”.

Network-based Universities

- A current solution is network-based universities, where a university is developed with participation of several or all traditional universities.
- Technical-methodological centre assists and supports activity in the virtual environment.
- The centre allows to increase the level of all universities gradually.
- The initiative of the state or its active participation is a prerequisite.
- Examples are Virtual University of Finland, E-university of Estonia.

Prerequisites for the Activity of Virtual Universities

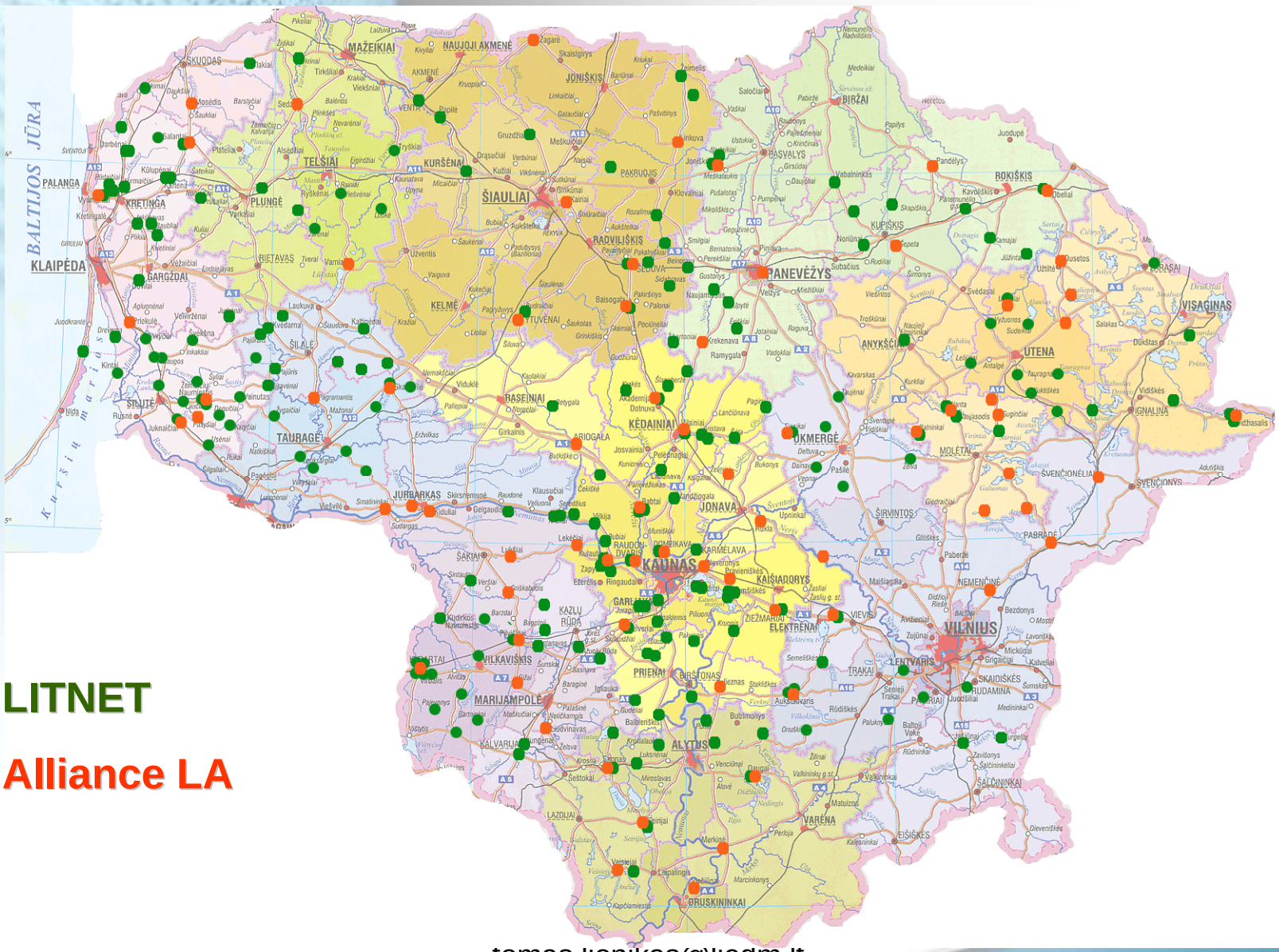
- Sufficient computer literacy.
- Expanded computer nets, providing access to many of inhabitants.
- Developed e-learning infrastructure.
- Collected literature for virtual studies.
- Virtual administration systems, based on self-service.

What is happening in Lithuania?

Computer Literacy

- Schools provide the basic skills of work with a computer.
- Requirements for teachers, municipality employees and state officials are prepared.
- A number of courses and literature is developed.
- General level of inhabitants is still insufficient, especially in rural areas, but the situation is constantly improving.
- Internet establishment in rural areas is a strong impulse.

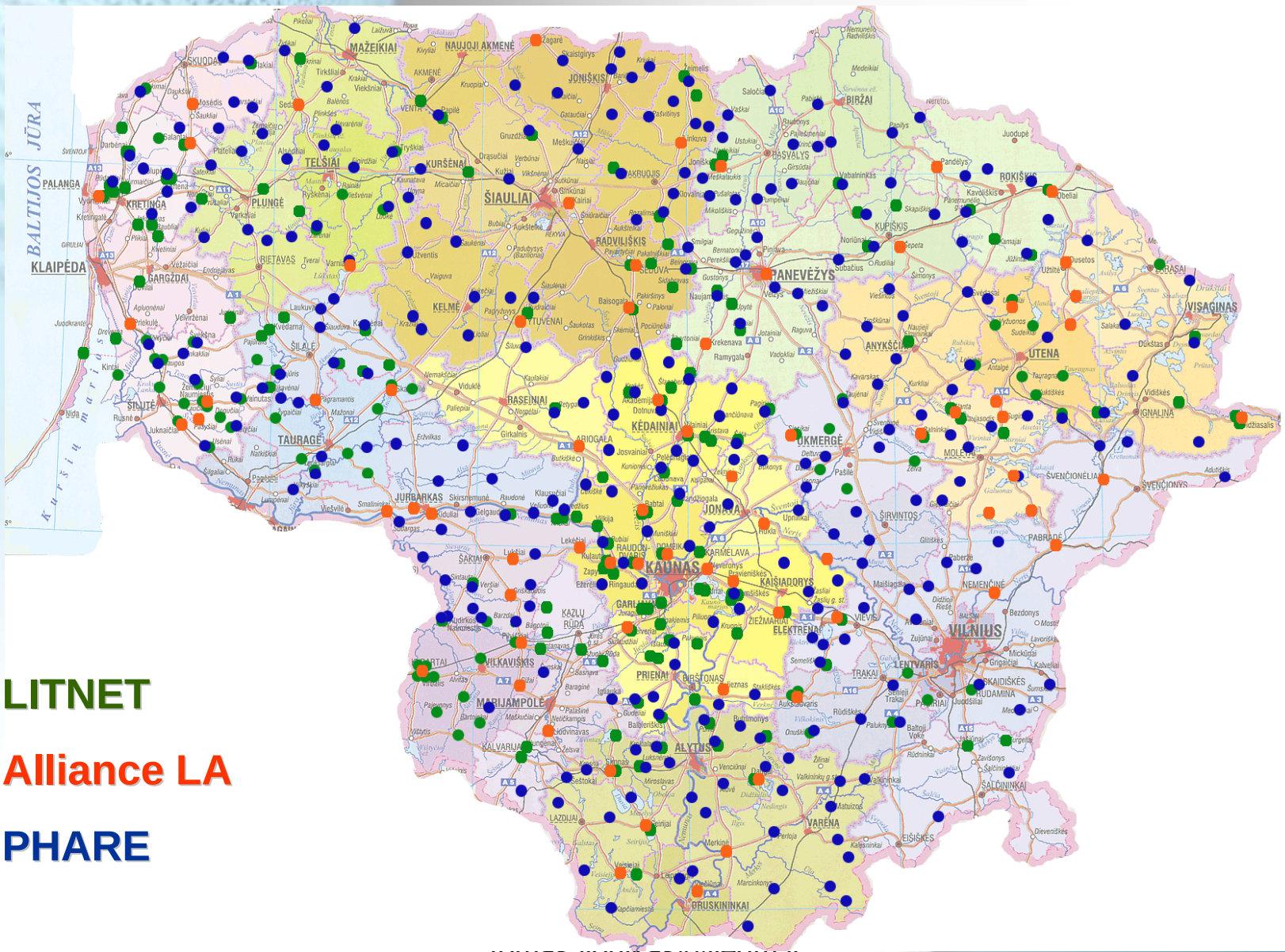
Rural areas with internet in 2003



LITNET

Alliance LA

Rural areas with Internet in 2006



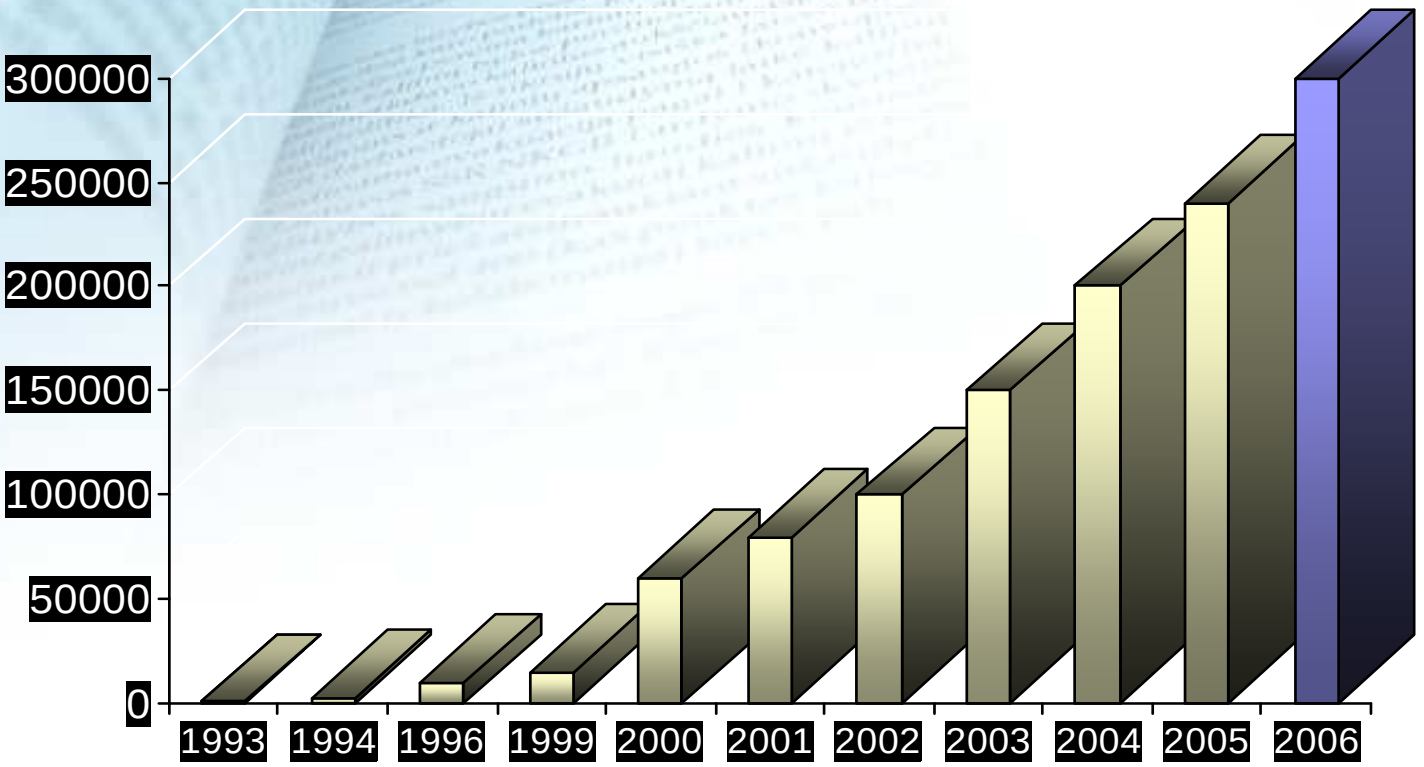
LITNET

Alliance LA

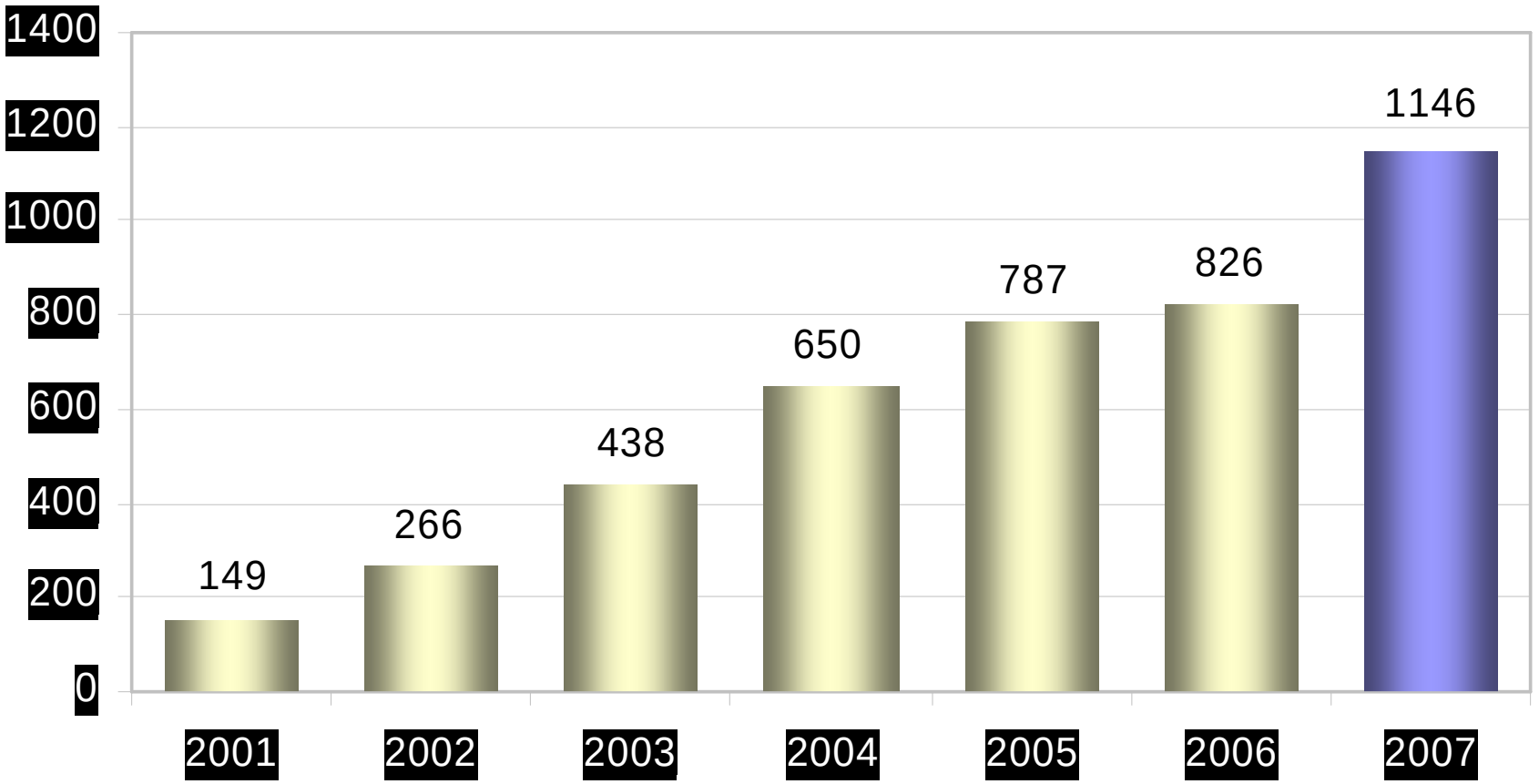
PHARE

Lithuanian Science and Study Computer Net LITNET is a background of ITMiS programme.

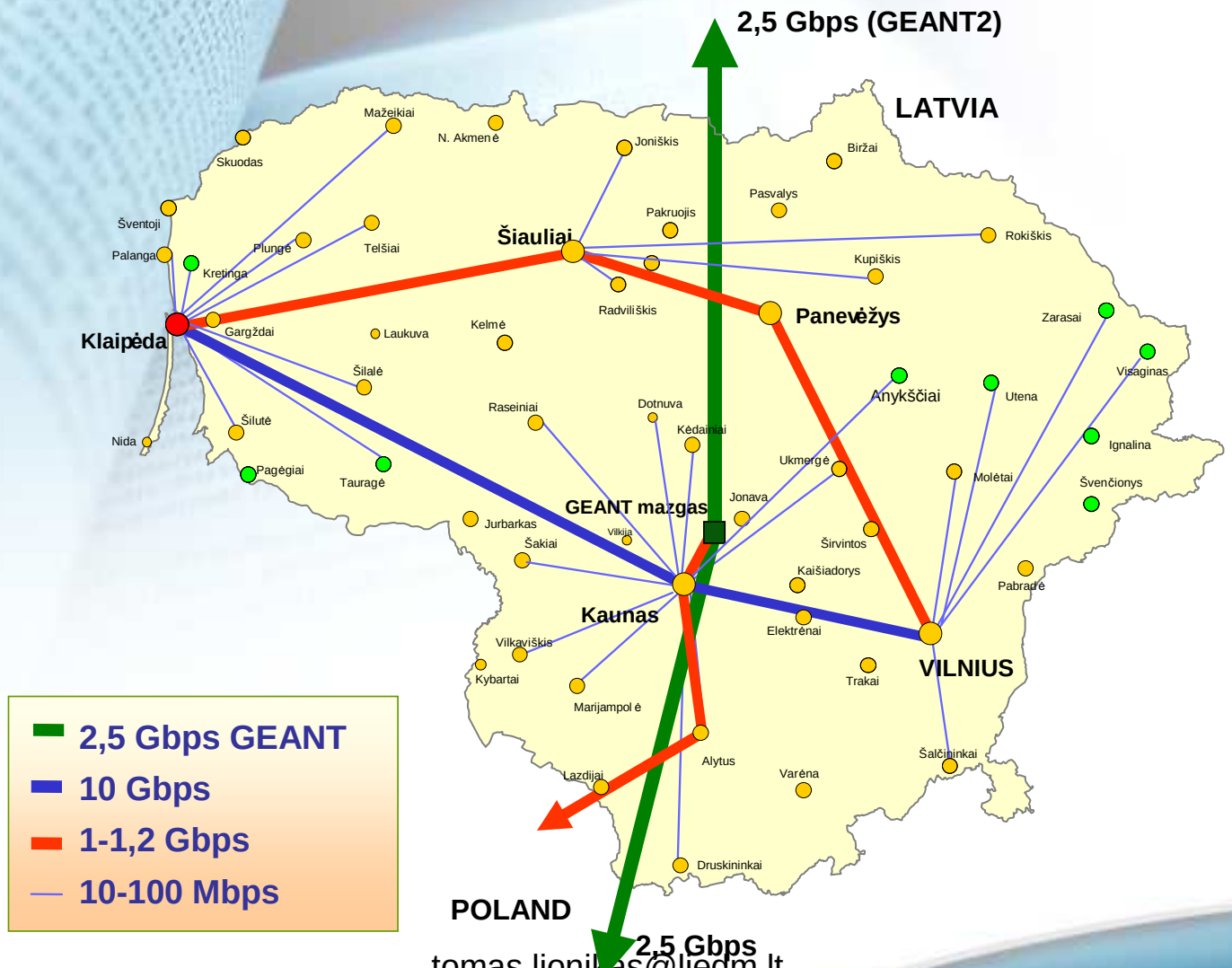
User Number Increase



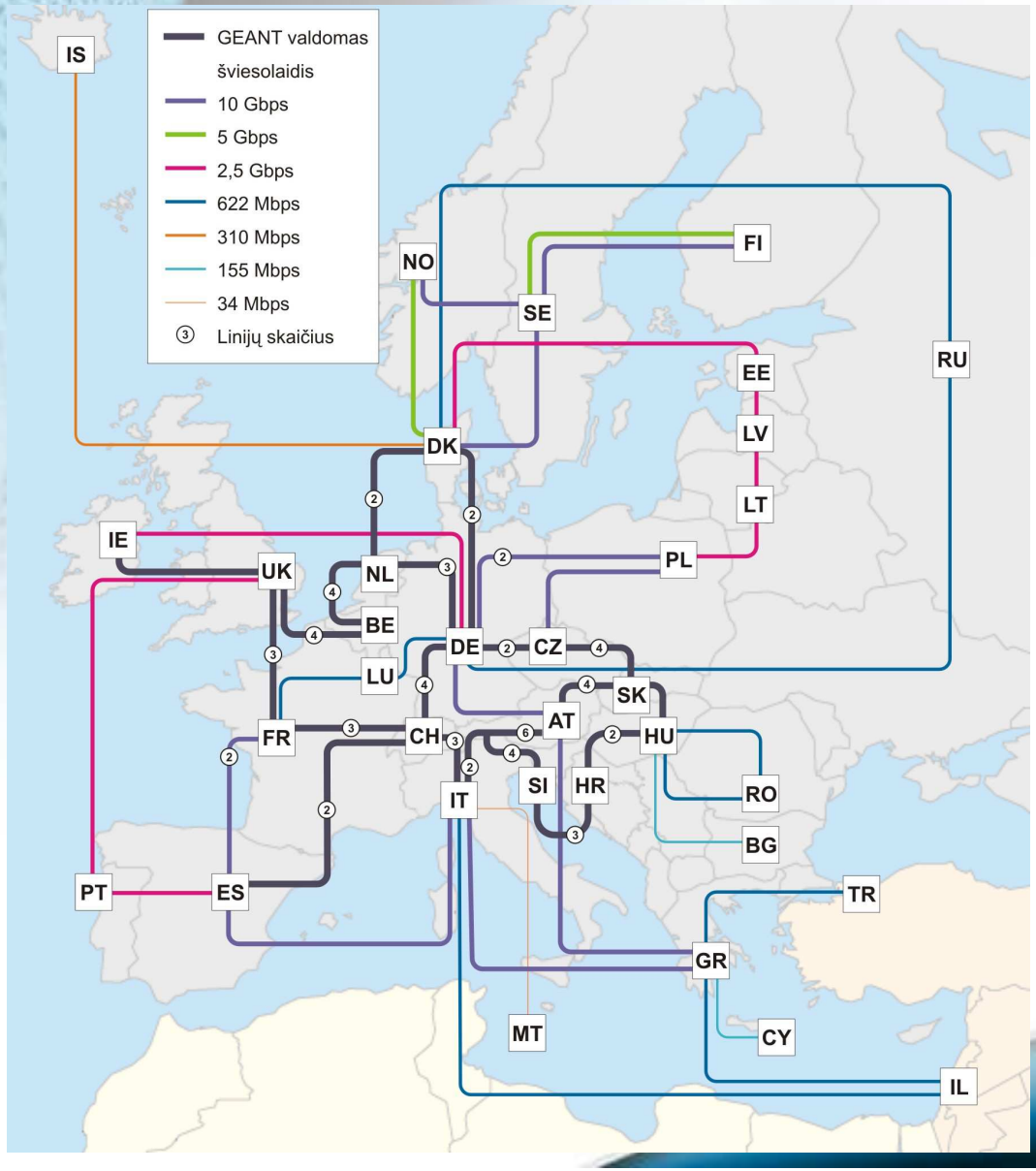
Organization Number Increase



LITNET' 2006


2,5 Gbps (GEANT2)
LATVIA
Mažeikiai
N. Akmenė
Joniškis
Biržai
Skuodas
Pasvalys
Šventoji
Pakruojis
Šiauliai
Rokiškis
Palanga
Plungė
Telšiai
Kupiškis
Kretinga
Radviliškis
Panevėžys
Zarasai
Klaipėda
Gargždai
Laukuva
Kelmė
Visaginas
Šilalė
Anykščiai
Utena
Raseiniai
Dotnuva
Šilutė
Kėdainiai
Ignalina
Nida
Ukmergė
Molėtai
Pagėgiai
Tauragė
Švenčionys
GEANT mazgas
Jonava
Jurbarkas
Vilkija
Širvintos
Šakiai
Kaišiadorys
Pabradė
Kaunas
Elektrėnai
Vilkaviškis
VILNIUS
Kybartai
Trakai
Marijampolė
Šalčininkai
Alytus
Lazdijai
Varėna
Druskininkai
POLAND
2,5 Gbps
2,5 Gbps GEANT
10 Gbps
1-1,2 Gbps
10-100 Mbps

LITNET – GEANT' 2006



Programme "Information Technologies for Science and Studies (2001-2006)

Programme Structure (www.ITMIS.lt):

- Lithuanian Academic Library Net (LABT, *www.LABT.lt*),
- Lithuanian Distance Learning Net (LieDM, *www.LieDM.lt*),
- Lithuanian Science and Study Information System (LieMSIS, *www.LieMSIS.lt*)

Lithuanian Academic Library Net LABT

LABT is:

- Net of 79 institutions,
- Information system of libraries (BIS) that supports the work of libraries, includes catalogues with 1,4 million of bibliographic records, 3,8 million of publication records and 90 000 readers,
- Publication database (PDB), including more than 200 thousand records about publications of Lithuanian scientists in Lithuanian and the world,
- Already developed Lithuanian Electronic Academic Library (eLABa) with electronic database of master and doctoral thesis (ETD) containing more than 3000 documents,
- All uniting Lithuanian Virtual Library (LVB).

What is meant by Lithuanian Virtual Library (LVB)?

LVB allows working with various open Lithuanian and world libraries, getting access to stored full text e-documents.

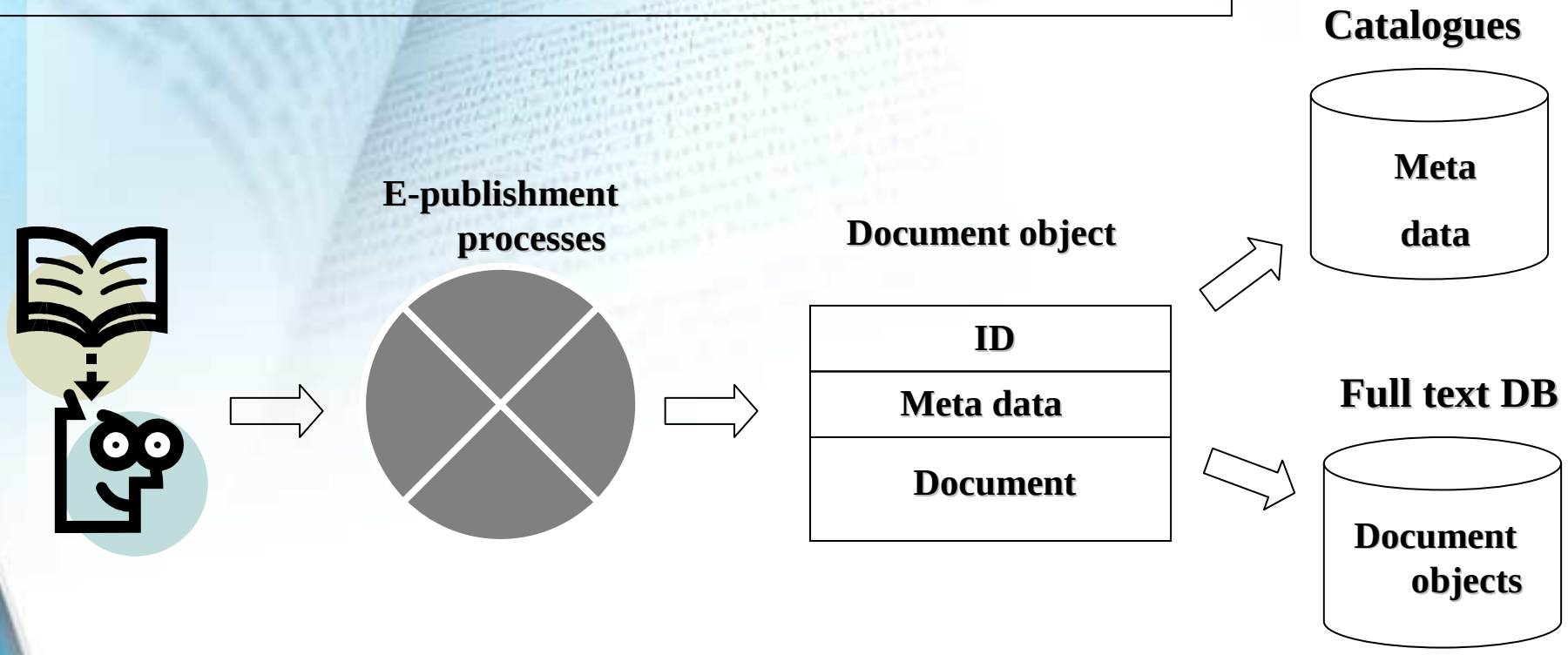
LVB was introduced in May 18, 2005.

www.lvb.lt

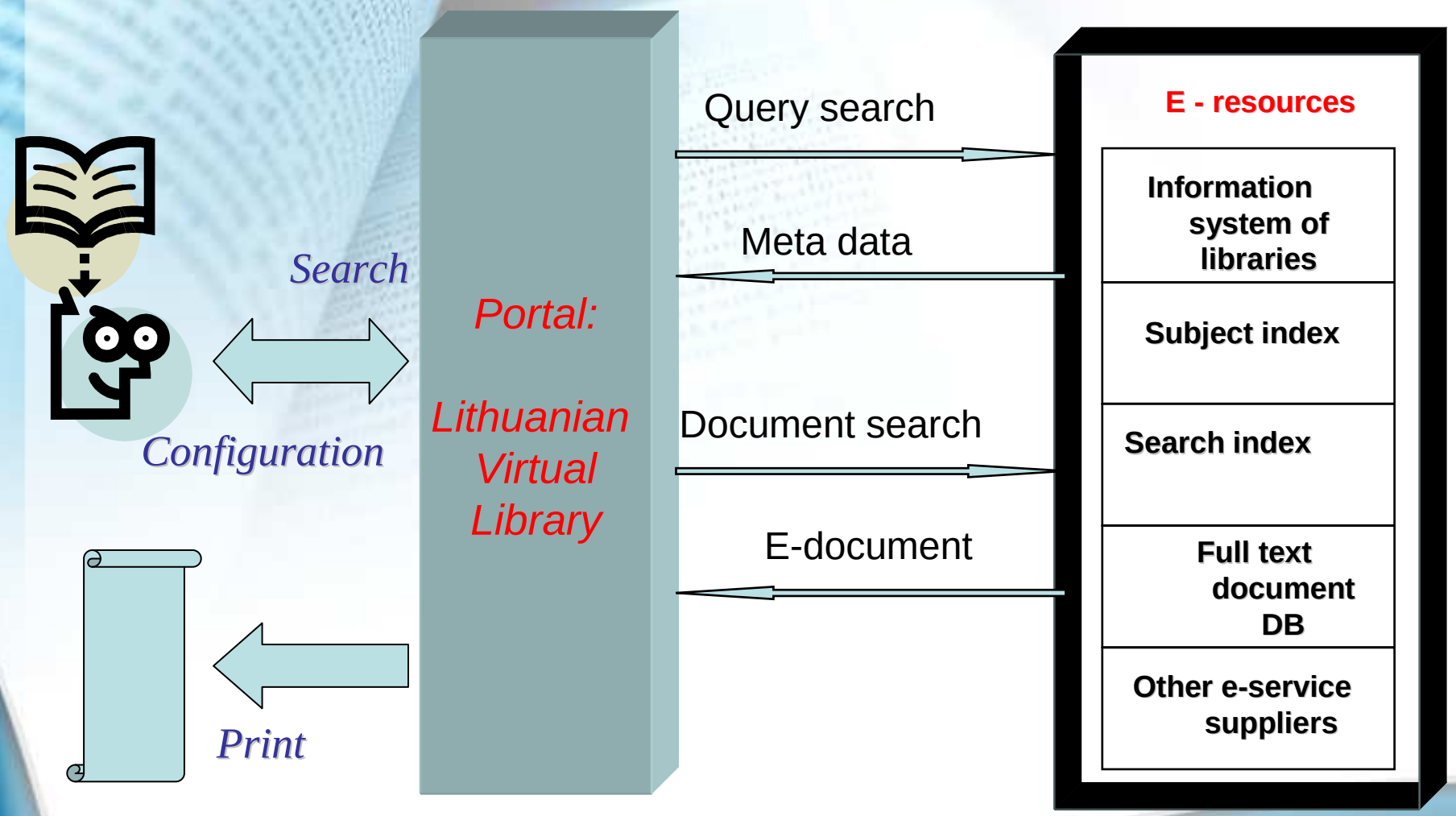
LVB is filled during the process e-publishing.

E-publishing

Rules, technologies, tools, teaching



Lithuanian virtual library

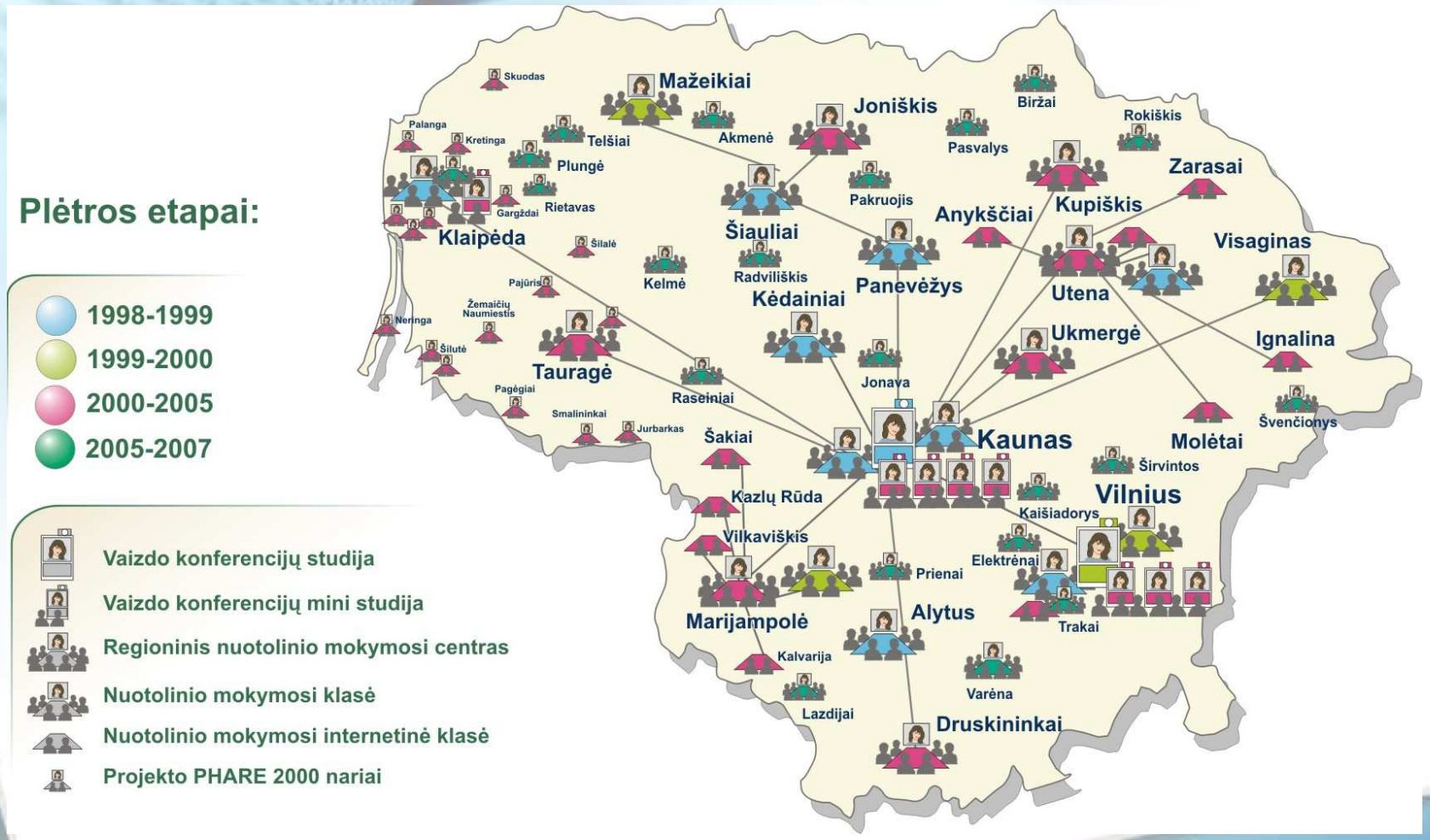


Lithuanian Distance Learning Net LieDM

LieDM includes:

- 28 rooms and 10 studies for video conferencing (in 2007 due to EU SF project it will expand to 78 places),
- more than 1000 distance learning courses,
- more than 50 thousand auditors,
- 10 second cycle study programmes with 646 students,
- 590 video conferences every year.

Development of Distance Learning in Lithuania



Video Studio in Kaunas

Distance Learning Class

Study programmes (2006):

Organization	Title of Study Programme	Student number
VGTU	**Construction management**	83
VGTU	**Real estate evaluation and management**	78
VGTU	**Business equity management**	45
VGTU	**Investment management**	55
VGTU	**Internet technologies and real estate management**	47
KTU	**Information technologies**	110
KTU	**Professional studies for teachers**	36
VU	**International communication**	39
KTU, VGTU	**Distance learning information technologies**	53
VGTU	**International business**	29
	Total:	546

Video conferencing is used:

- to qualification degree studies,
- to courses of competence increase,
- for correspondence student consultations,
- to deliver seminars for students of several universities at one time,
- for seminars, conferences, meetings, and meetings of different project members and events for information dissemination,
- For video conferences of foreign partners.

Everything is interactive, it is not a TV!

Will the strategy of LieDM development change?

1. The number of access places to the Internet at home, schools, libraries and internet cafes is increasing.

This is the background for "web-based" studies.

2. The requirements for channel throughput while using video conferencing are decreasing.

This allows adding up individual users to conferencing nets.

3. Smaller towns with smaller numbers of inhabitants should have new classes.

The development of new distance learning classes is purposeful in smaller towns.

4. Further development is purposeful, seeking to add up computer classes and provide video conferencing access.

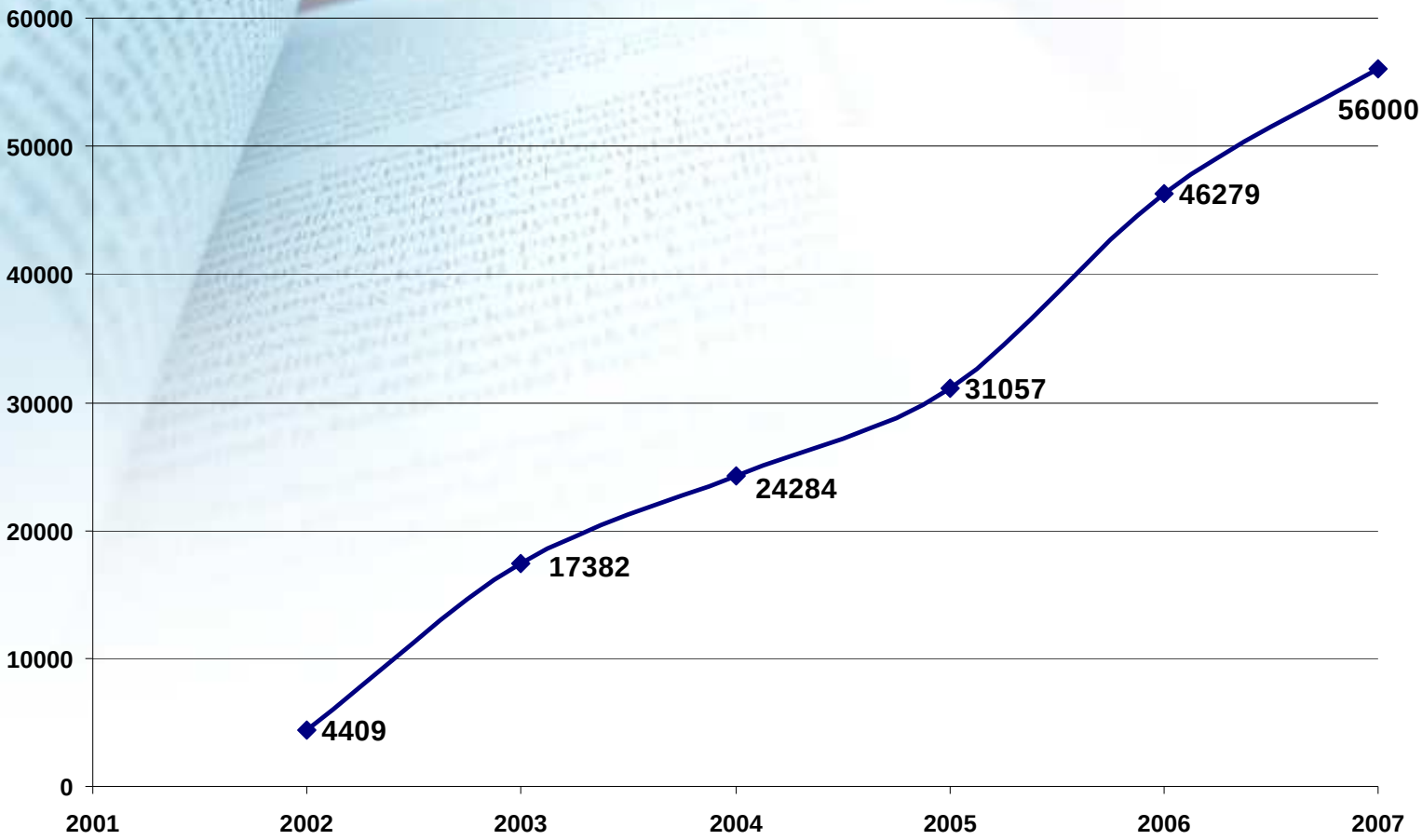
LieDM VLEs

- **WebCT Campus Edition 4**
- **WebCT Campus Edition 6** (translated into lithuanian)

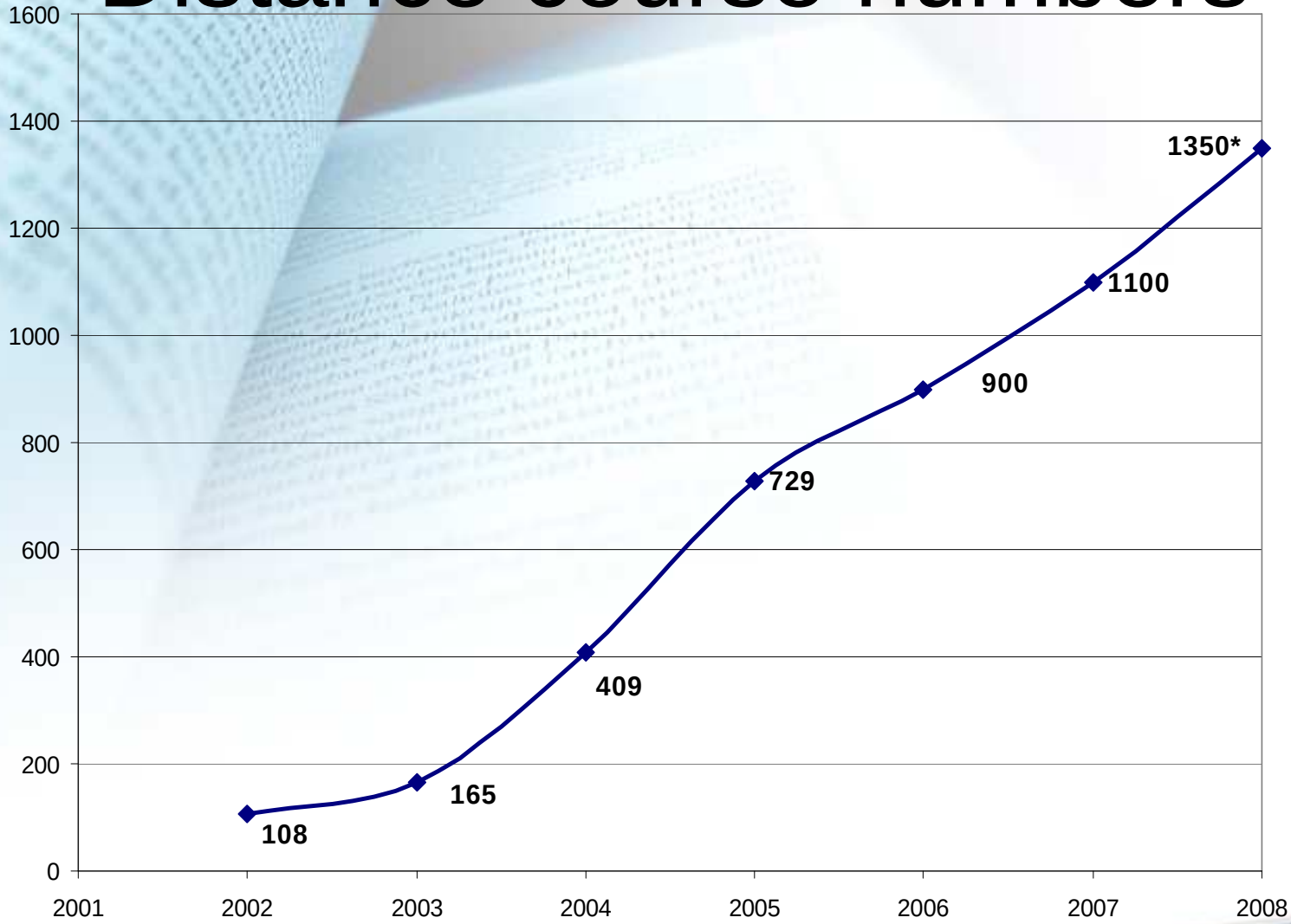
Other used VLEs

- First Class
- Moodle
- Learning Space

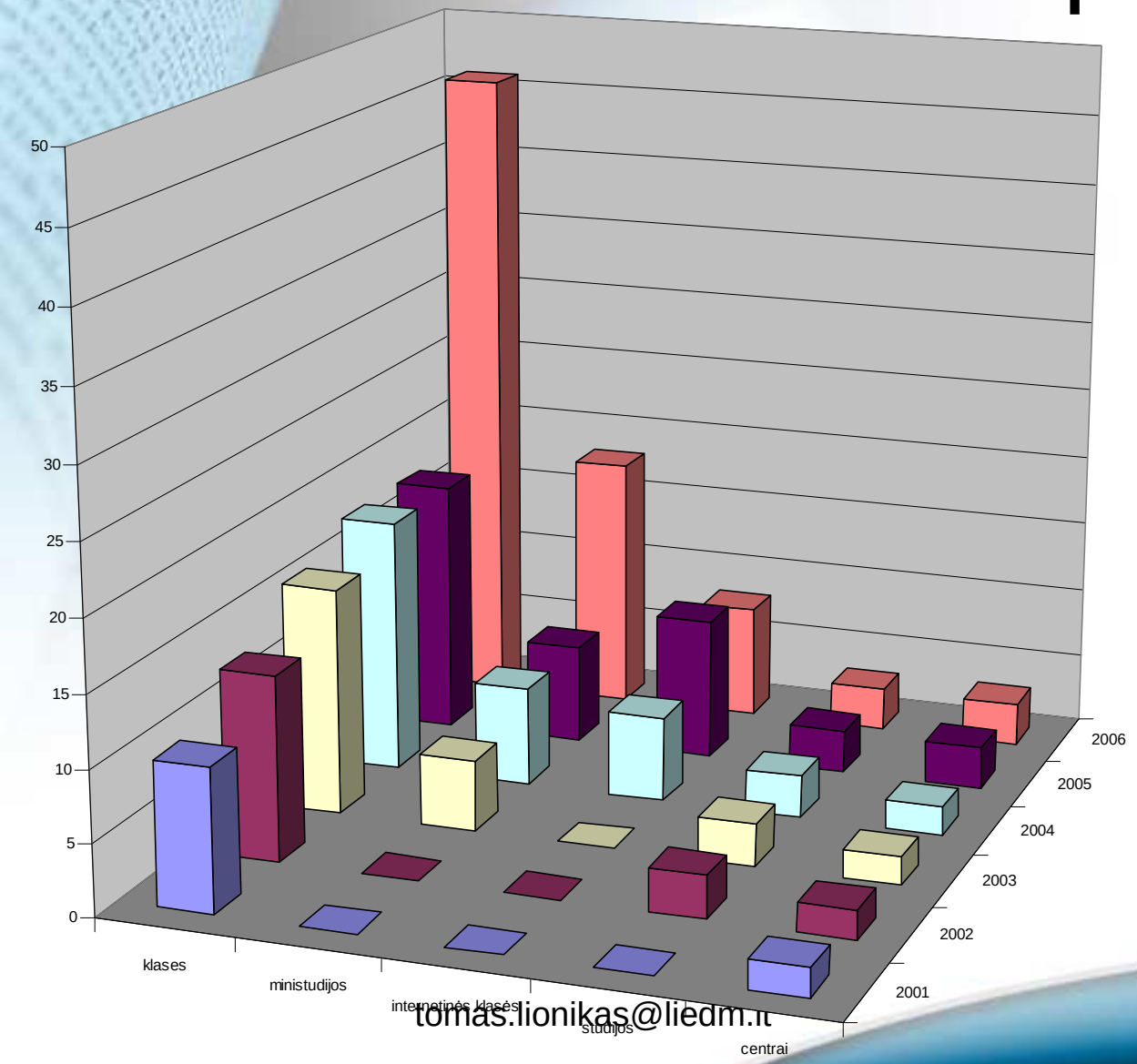
Course attendant number



Distance course numbers



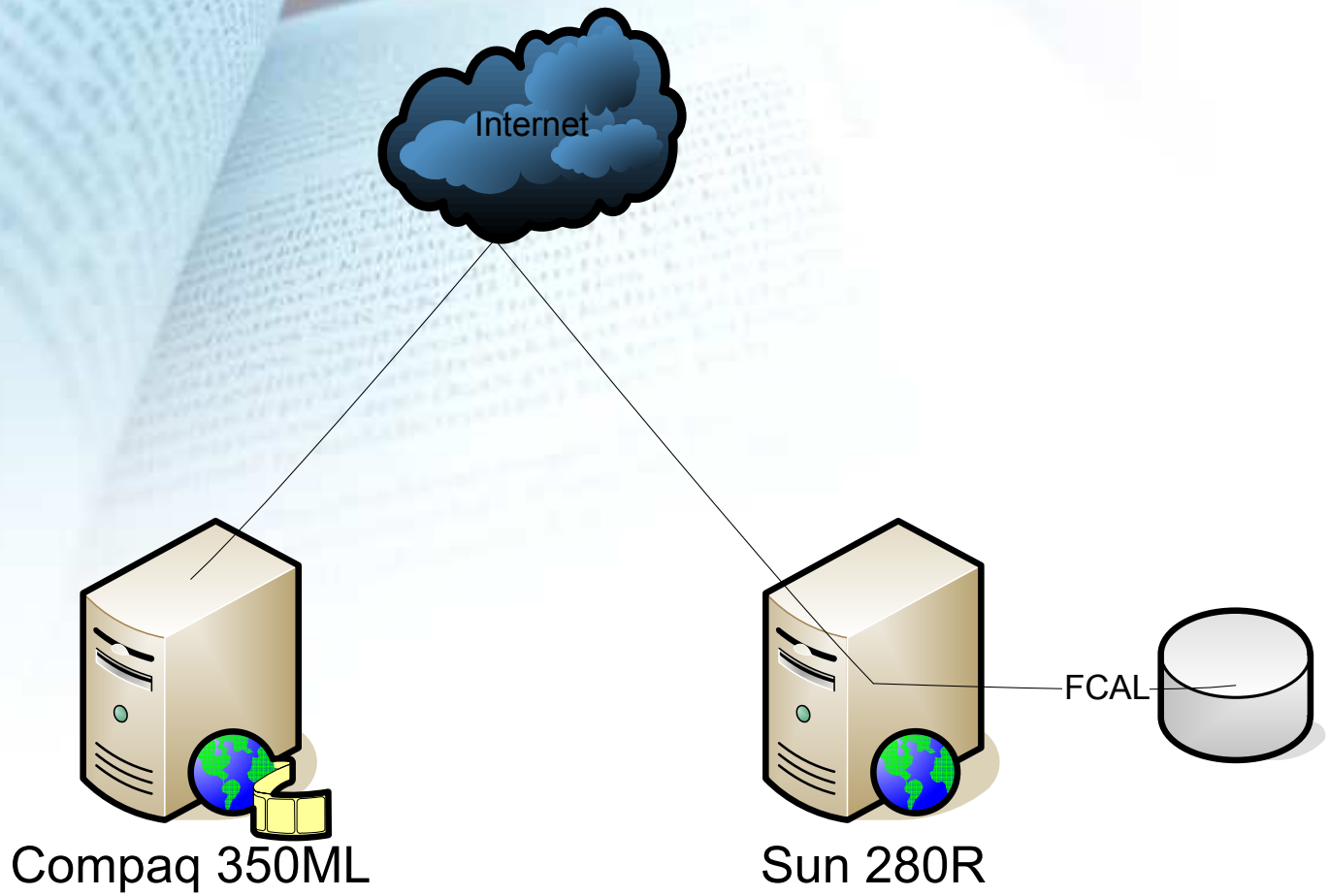
Video conference access points



Situation in 2005

- Sun 280R:
  - Web portal
  - VLE WebCT CE4 – 10 GB of data
- Compaq 350ML:
  - Video conference records – 200 GB of data

Situation in 2005



Dabar

- 19 serverių tinklo aptarnavimui
  - 10 iš jų vaizdo konferencijų aptarnavimui
  - 4 iš jų – VMA aptarnavimas
  - 2 iš jų – Oracle DBVS
  - 2 – video archyvas
  - 1 – dokumentų saugykla, paštas, kt.
- Informacijos kiekis:
  - Daugiau kaip 80 GB produkcinė VMA DB,
  - Daugiau kaip 0.5 TB vaizdo įrašų

Situation now

Data storage

LieDM koordinacinio centro prižiūrimos VMA

- **WebCT Campus Edition 4** (numatoma ekploatacijos pabaiga 2007 rudens semestro pabaiga)
- **BlackBoard Learning System Vista.** Migruojami kursai iš WebCT CE4.
  - Sulietuvinta aplinka vartotojams pristatyta 2006 pabaigoje.

Kitos tinklo narių naudojamos VMA

- First Class
- Moodle
- Learning Space

Lithuanian Science and Study Information System LieMSIS

LieMSIS is:

A two level system:

- IMSIS (institution science and study information system),
- AMSIS (aggregated data, accumulated data bases and information systems of management, evaluating and expert organizations).

It will be accessible to all Lithuanian Science and Study institutions(101).

Planned functions for IMSIS:

1. Institution management (budget formation and implementation, databases, execution of decree control).
2. Support of study processes (students, payments, payouts, study programmes and courses, learning processes).
3. Scientific activity (programme and projects management, scientific and cultural production, financial accounting).
4. Human resource management (departments, positions, staff, payroll, competence improvements)
5. Asset and finance management (finance and inventory accounting, cash flows and connections to treasury).

Implementation phases (for subsystems):

		Specification	Design	Development	Implementation
1	Human Resource	+	+	→	
2	Finance	+	+	+	→
3	Student admin.	+	→	→	

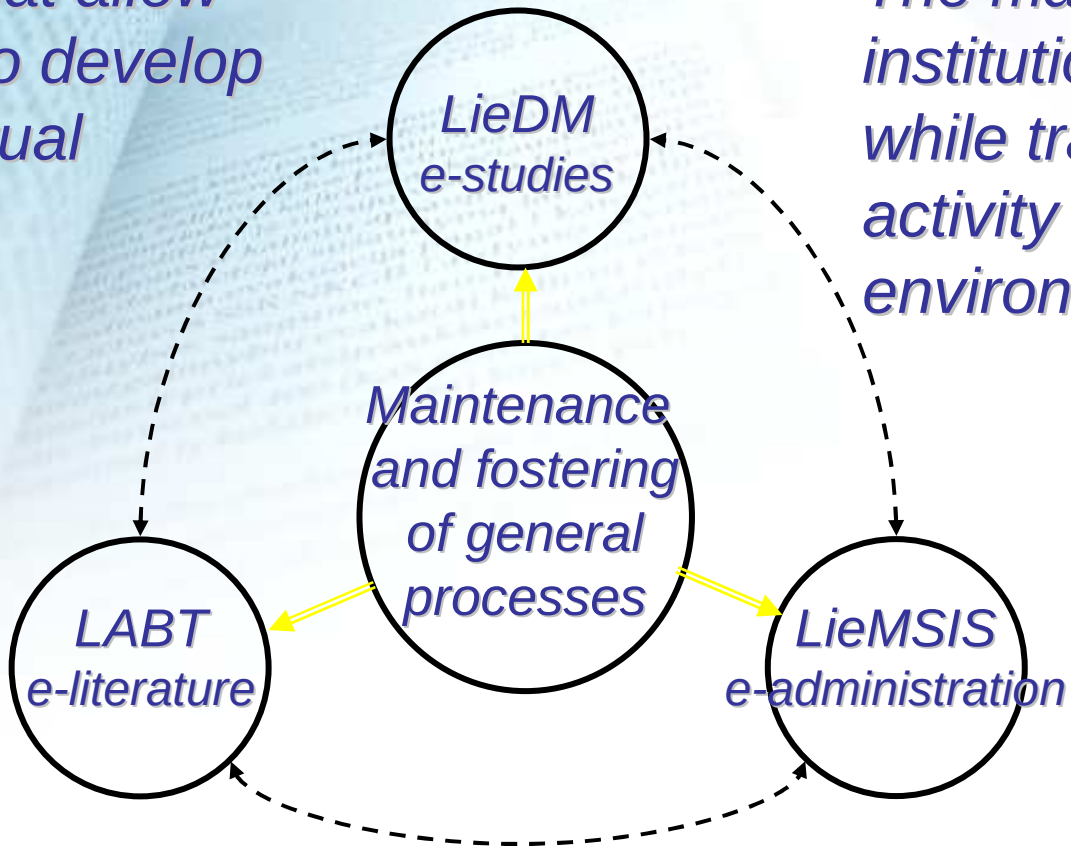
Programme "Lithuanian Virtual University (LVU)"

(Sequel of ITMiS programme)

Idea of LVU Programme

Conditions that allow institutions to develop activity in virtual environment

The main aim: institution support while transferring activity to virtual environment



Aim of LVU Programme

Help programme participants:

- to expand activity in virtual environment,
- to provide services for Lithuanian citizens and compete in the worldwide market,
- to unite institutional efforts while performing according net model,
- to apply common experience and the developed IT infrastructure.

PROGRAMME OBJECTIVES

- to encourage e-learning processes in virtual environment (EMS),
- to develop e-learning infrastructure in Lithuania (LieDM)
- to develop integrated Lithuanian science and study information environment (LABT)
- to develop Lithuanian science and study infrastructure for planning, management and self-service (LieMSIS).

Fostering of e-learning processes in virtual environment (EMS) is necessary:

- To disseminate information about the Programme and achievements in this area.
- Seeking to develop the system ensuring the competence of Programme executives, and maintain the activity.
- Seeking to cerate the system for observing the implementation of the Programme and maintain its activity.
- Seeing to develop a technical centre of the Programme that would consist of one or several departments of Programme participants as well as creating service centre to support the activity.
- Seeking to prepare descriptions of common practice in LVU and join institutions for activity.
- Seeking to support scientific research in the area of e-learning technologies.

IT is necessary to Develop Lithuanian E-learning Infrastructure (LieDM)

- It is important to support and develop e-learning infrastructure.
- It is important to develop possibilities of e-learning in institutions.
- It is important to create and support virtual environment for teacher and student's work and communication.

It is important to develop an integrated Lithuanian Science and Study Information Environment (LABT)

- To maintain and develop basic LABT infrastructure.
- To maintain and develop Lithuanian electronic academic library eLABa.
- To maintain and develop Lithuanian electronic thesis and dissertation document database.
- To maintain and develop Lithuanian science and study publication database PDB.
- To maintain and develop Lithuanian science and study e-publishing system.
- To maintain and develop Lithuanian virtual library LVB.

It is necessary to develop science and study planning, management and self-service infrastructure (LieMSIS)

- To complete the development of institution science and study information system (IMSIS) and roll it over into institutions.
- To develop and implement a generalized system for science and study data (AMSIS).
- To provide possibilities to employees and students to accumulate and manage LieMSIS information, using self-service tools
- To develop and implement institution document and transfer management system.

Programme Management

- Programme implementation is coordinated by a steering committee:

  (discusses annual projects of programme plans and outlay implementation, prepares annual reports, observes programme implementation, provides conclusions for the Ministry and Minister of Education and Science and solves all questions related with the implementation of the programme)

- Implementation of every objective is coordinated by a board:

  (prepared plans and projects for annual plan and outlay implementation, summarizes institution reports and prepares annual reports and provides them to the steering committee, solve questions related with implementation of objectives)

Kiitos

Do you have any questions?