



HUNGARNET

NIIF - HUNGARNET

# Overview of Research Networking in Hungary

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**NIIF / HUNGARNET**

**GARR Conference'05**

**Pisa, 11.05.05**

# NIIF - HUNGARNET

## Academic and Research Network:

- Networking for R & E (Infrastructure)
- R & E for Networking (Leading Edge)



## Network (external-internal):

1993/1994	...	2003/2004
256K	...	10G

HUNGARNET

## Projects:

wide spectrum (see next slide)

## Community:

700 institutions, 600.000 users (6% of population)

## Expertise:

central (NIIFI) + regional (~50 regional centers)

## Development in Hungary (NIIF/Hungarnet)

<i>Year</i>	<i>Event</i>	<i>BWIntl</i>	<i>BWHome</i>	<i>Orgs./Users</i>	<i>M€/yr</i>
86/87	IIF	-	2400	5/100	3
88/89	EARN	64K	9600	20/500	3
90/91	Internet	128K	64K	100/5.000	3
92/93	NIIF	256K	128K	200/30.000	4
94/95*	EuropaNET	2M	1M	250/100.000	4
96/97	TEN-34	10M	2M	300/200.000	4
98/99**	TEN-155	34M	34M	400/300.000	5
00/01	GEANT	155M	155M	500/400.000	6
02/03***	Leading edge	2,5G	2,5G	700/600.000	6
04/05	GEANT-2	10G	10G	700/600.000	7

\* Hungarnet founding member of DANTE

\*\* DataComm.Liberalisation in Hungary

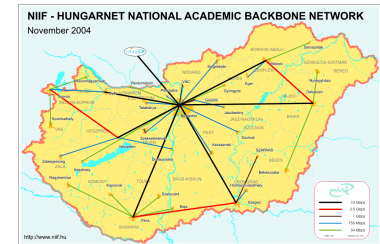
\*\*\* HBONE Gbps/opt. – HPC & grids – multiproject development

Mostly radial topology - Regional mgmt./services

# NIIF/Hungarnet Projects 2004/2005

## A. Network Infrastructure

- 10 Gbps domestic/international connectivity (HBONE/GEANT)
- E2E accessibility (Optical/SDH/ADSL)
- Technology (IPv6, QoS, MPLS, VPN, Multicast, Cache ...)
- Network & traffic monitoring/management
- Hungarian “light” project: 10G on dark fibre connections since 2004
- Traffic: 10 GE transmission on DWDM – aggregate 3-3 Gbps in/out



## B. Network Services

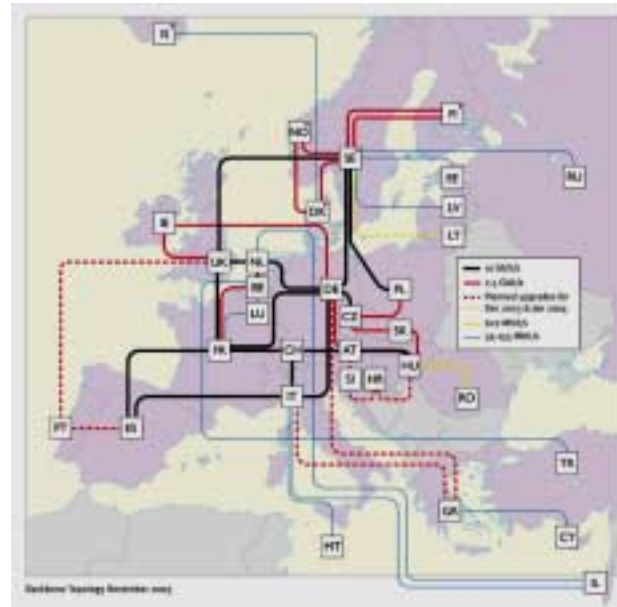
- Supercomputing (phys., chem., biol., geol., astron., technol. ...)
- Home working (R&D&E community)
- VoIP
- Videoconferencing
- Subject gateways/portals
- General services (virtual helpdesk, CERT, directories, PKI/CA ...)

## C. Network Applications

- Distributed/integrated public collection databases/access
- Tele-working, tele-teaching
- Networked applications (health, environment, industry, economy ...)
- Grids (ClusterGrid, SuperGrid, int'l grid projects /EGEE, SEEGRID/)

# NIIF/Hungarnet international relations

- TERENA
- NREN PC
- DANTE
- ENPG
- ISOC
- RIPE NCC
- CEENET
- NATO CNP
- EC



## Projects

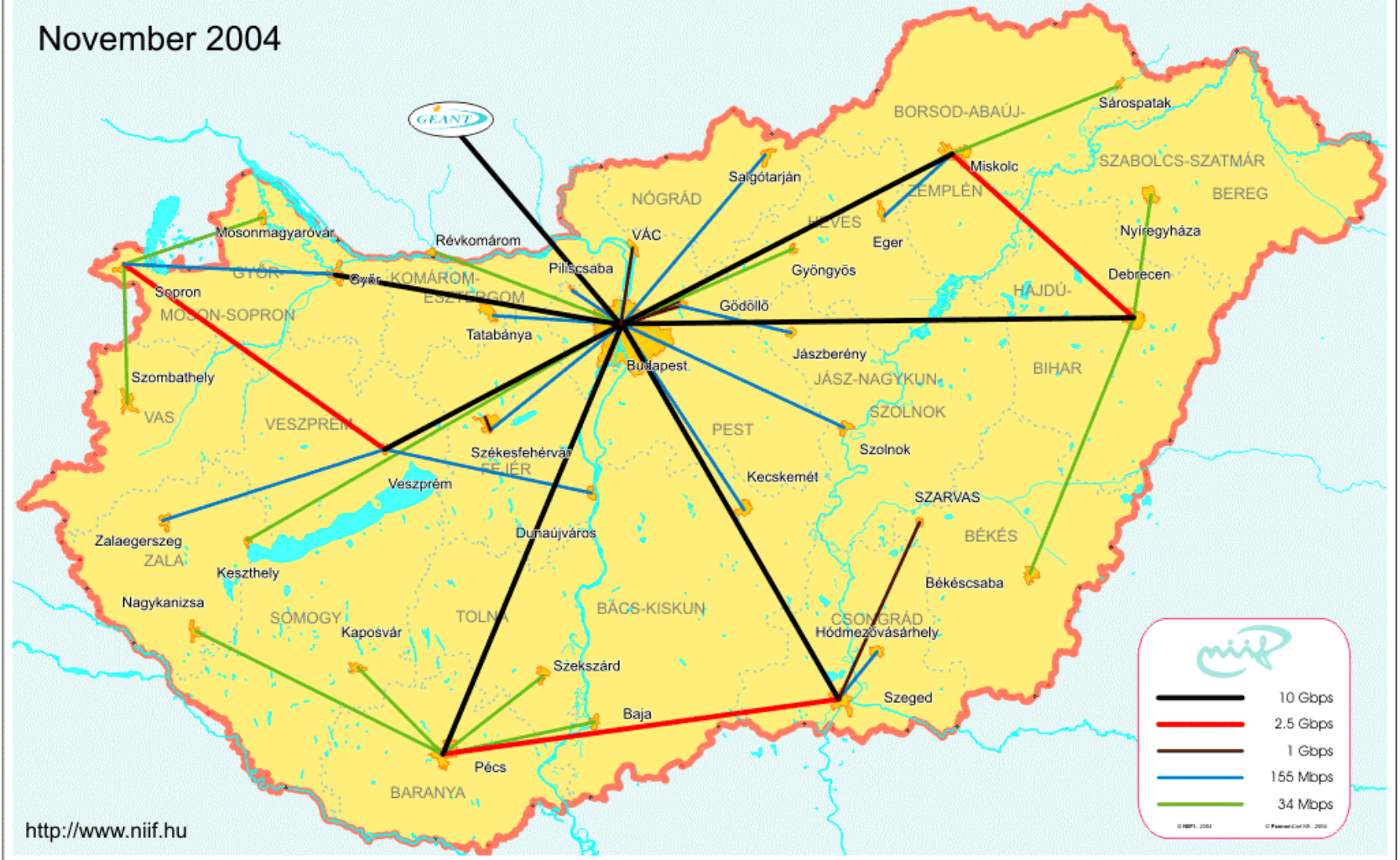
- GN1 / 2 (GEANT)
- 6NET / ...
- SEEREN / SEEFIRE
- EGEE / SEEGRID





# NIIF - HUNGARNET NATIONAL ACADEMIC BACKBONE NETWORK

November 2004



<http://www.niif.hu>

## Resources:

- infrastructure + expertise + interest + int'l relations
- ~ 6...8 MEUR / yr (70 % govt., 15 % users, 15 % EU)
- ~ 30 NIIFI staff + ~ 25 FTE part-time country-wide

## Exploiting the results:

### ◆ Infrastructure/Services for Science and Education:

- Communication and Information Access
- Co-operation and Collaboration
- Competitiveness

### ◆ Contribution to Overall Development:

- Serving the R&E community + nation-wide influence
- Piloting **Technology / Services / Applications**
- Disseminating **Culture / Knowledge / Aptitude**
- Generating **Expertise / Workforce**

Thanks for the opportunity!

