Overview of Research Networking in Hungary

Lajos Balint
lajos.balint@niif.hu
NIIF / HUNGARNET

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NIIF - HUNGARNET

Academic and Research Network:

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

Network (external-internal):

256K ... 10G

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)

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

* 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!