Internet2 and its Resources for Research and Education

Jennifer Oxenford
Associate Director

The Impact of National Directions in Cyberinfrastructure
Rutgers University

April 4, 2006
What is Internet2?

• The Research and Education Network for the United States
• Led by 207 research universities
• Close collaborations with government: NIH, NSF, NLM, NASA, to name only a few
• An organization that serves academic and technology needs at all levels of education
• A venue that brings together academics and scientists from all over the world
**Internet2 Mission** = Develop and deploy advanced network applications and technologies, accelerating the creation of tomorrow’s Internet.

**Internet2 Goals**
- Enable new generation of applications
- Re-create leading edge R&E network capability
- Transfer technology and experience to the global production Internet
Internet2 Today

Motivate

Enable

Applications

End-to-end Performance

Middleware

Security

Services

Networks

Motivate

Enable
## K20 Status and Growth

<table>
<thead>
<tr>
<th>Organization</th>
<th>Total - 9/02</th>
<th>Total - 5/04</th>
<th>TODAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>K12 Schools</td>
<td>7,173</td>
<td>23,388</td>
<td>35,971</td>
</tr>
<tr>
<td>Community Colleges</td>
<td>551</td>
<td>594</td>
<td>677</td>
</tr>
<tr>
<td>Four Year Colleges and Universities</td>
<td>526</td>
<td>852</td>
<td>1,002</td>
</tr>
<tr>
<td>Public Libraries</td>
<td>1,482</td>
<td>2,360</td>
<td>3,325</td>
</tr>
<tr>
<td>Museums, Zoos, Aquariums and Science Centers</td>
<td>102</td>
<td>74</td>
<td>76</td>
</tr>
<tr>
<td>Grand Total</td>
<td>9,834</td>
<td>27,268</td>
<td>46,000</td>
</tr>
</tbody>
</table>
## Europe-Middle East
- ARNES (Slovenia)
- BELNET (Belgium)
- CARNET (Croatia)
- CESnet (Czech Republic)
- DANTE (Europe)
- DFN-Verein (Germany)
- FCCN (Portugal)
- GARR (Italy)
- GIP-RENATER (France)
- GRNET (Greece)
- HEAnet (Ireland)
- HUNGARNET (Hungary)
- Israel-IUCC (Israel)
- NORDUnet (Nordic Countries)
- POL-34 (Poland)
- Qatar Foundation (Qatar)
- RedIRIS (Spain)
- RESTENA (Luxemburg)
- RIPN (Russia)
- SANET (Slovakia)
- Stichting SURF (Netherlands)
- SWITCH (Switzerland)
- JISC, UKERNA (United Kingdom)

## Asia-Pacific
- AAIREP (Australia)
- APAN (Asia-Pacific)
- ANF (Korea)
- CERNET, CSTNET, NSFCNET (China)
- JAIRC (Japan)
- JUCC (Hong Kong)
- SingAREN (Singapore)
- NECTEC / UNINET (Thailand)
- TANet2 (Taiwan)
- NGI-NZ (New Zealand)
- TERENA (Europe)

## Americas
- CANARIE (Canada)
- CLARA (Latin America & Caribbean)
- CEDIA (Ecuador)
- CNTI (Venezuela)
- CR2Net (Costa Rica)
- CUDI (Mexico)
- REUNA (Chile)
- RETINA (Argentina)
- RNP [FAPESP] (Brazil)
- SENACYT (Panama)

## Asia-Pacific
- MCIT [EUN/ENSTINET] (Egypt)
- TENET (South Africa)

---

Last updated: 1 October 2005
MAGPI Defined

MAGPI is a regional aggregation point for Internet2. We serve the Pennsylvania, Delaware and New Jersey research and education communities.

MAGPI Mission

To introduce new technology
To collaboratively develop new applications with our subscribers
To make access to these technologies and applications economical and sustainable
Current Members

- Arcadia University
- Capital Area IU
- Carbon Lehigh IU
- Chester County IU
- Children's Hospital of Philadelphia
- Center for Advancing Partnerships in Education (CAPE)
- Delaware County IU
- DeSales University
- Fox Chase Cancer Center
- The Franklin Institute
- Johnson & Johnson Pharmaceuticals
- Lafayette College
- Lehigh Carbon Community College
- Lehigh University
- Lehigh Valley Hospital
- Mont. Co. Intermediate Unit
- Mont. Co. Community College
- NJEDge.Net – State R&E Network for N.J.
- Princeton University
- CERMUSA / St. Francis University
- Temple University
- Thomas Jefferson University and Hospital
- Tuscarora IU
- University of Delaware
- University of Pennsylvania
- University of Scranton
- Villanova University
- Widener University
The New Jersey State Research and Education Network

INTERNET 2 / SEGP TOPOLOGY:
5- 12 Members
35- SEGP Members

1. NJEdge Loop - 1/2 ATM OC-12
   (45 Mb Extranet PVC, up to 266 Mb for Intranet PVCs)

2. Aggregation and Routing at Rutgers

3. Verizon Loop (Clear Channel OC-12)

4. Routing to I2 “Abilene” backbone at MAGPI
Why Internet2?

- Real-time access to remote resources
- Large-scale multi-site computation and data mining
- Interactive collaboration
- Rich, multi-media digital libraries
- Shared virtual reality
- …
Changing Teaching and Learning in the 21st Century Classroom

The student who will enter medical school in 5-10 years can absorb multiple channels of information:

- Lecture
- Dynamic charts
- Second screen
- Communal note taking
- Messaging

Slide courtesy Parvati Dev, Stanford
Andrea Harmer, Director of Web-based Education
George Motter, Sr. Instructional Technology Consultant

http://www.lehigh.edu/imagination
US/Japan Interactive Dance Event
Leni-Basso - Group Motion Dance Co.

- DVTS 30 Mbps each way
- Keio University in Tokyo and Montgomery County Community College, Blue Bell, PA
- Live rehearsal and critique of “Rondo”

http://www.magpi.net/Sept16.html
• K20 User Group and Virtual Forums
• Tri-State Database
• K20 Portal
• K20 Newsletter
• Training
  • Videoconferencing/I2 Commons Training
  • Curriculum Integration/Professional Development

http://www.magpi.net/k20network.html
I2 Working Groups, SIGs, BoFs

- Health Sciences
- Medical Middleware
- Veterinary Medicine
- Arts & Humanities
- Arts Performance
- High Energy and Nuclear Physics
- Geospatial Apps
- Orthopaedic Surgery
- Radiology
- Bioethics (proposed)
- Astronomy

- Voice over IP
- Digital Video
- VidMid VC
- VidMidVoD
- ResearchChannel
- Network Storage
- Presence & Integrated Communications
- Teaching & Learning
- …
Get and Stay Involved

- Talk with your campus IT folks and local Internet2 liaisons to MAGPI
- Seek/be faculty/student champions
- Follow and join MAGPI K20 User Group/Forums
- Sign-up for MAGPI PD or VC Training
- Host/attend an Internet2 Event
- Participate in Virtual Events - Megaconference, Gigaconference, Collaboranza, Keystone, etc
- Send me feedback/updates/inquiries
Contact Info:

Jennifer Oxenford
jmacdoug@magpi.net
215-898-0341

www.magpi.net