GEANT developments and global Connectivity

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GEANT and GN3

- GEANT = pan-European network interconnecting 34 European NRENs and providing connectivity to other world regions

- GN3 = EC funded project 4 years from April 2009
  - Deliver, operate and develop the GEANT network
  - Carry out a development programme to enhance the services offered by GEANT
    - Backbone service developments (SA1, JRA1)
    - Multidomain service developments (SA2, JRA2)
    - end-user oriented services (SA3, JRA3)

- Some Keywords for GN3: 100Gbps, delivery of circuits, performance management,
GÉANT topology – April 2009

Backbone Topology April 2009. GÉANT is operated by DANTE on behalf of Europe’s NRENs.
The HW

- Juniper T1600, M120
- Alcatel MCC 1678
  - For circuit services
  - Based on NG-SDH
  - Might be replaced, RFI being prepared
    - Could converge in IP or DWDM layer
- Alcatel LM 1626 for DWDM
  - Proven with 40Gbps
  - 100Gbps ?
  - RFI being prepared
# GÉANT IP connectivity to North America

## IP connectivity

<table>
<thead>
<tr>
<th>A End</th>
<th>B End</th>
<th>Capacity</th>
<th>Peering with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington</td>
<td>Frankfurt</td>
<td>10Gbps</td>
<td>I2</td>
</tr>
<tr>
<td>New York</td>
<td>Amsterdam</td>
<td>10Gbps</td>
<td>I2, Esnet, Canarie, NLR, SINET</td>
</tr>
<tr>
<td>New York</td>
<td>Vienna</td>
<td>5Gbps</td>
<td>ESnet</td>
</tr>
</tbody>
</table>
GÉANT Circuit Enabled Connectivity

<table>
<thead>
<tr>
<th>A End</th>
<th>B End</th>
<th>Capacity</th>
<th>To be used by</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>Paris</td>
<td>10Gbps</td>
<td>Internet2, Esnet, Canarie</td>
</tr>
<tr>
<td>New York</td>
<td>London</td>
<td>10Gbps</td>
<td>Internet2</td>
</tr>
</tbody>
</table>

Usage:
7 GE between EU and North American R&E locations
Interoperability testing between GN3 community and Internet2
the GÉANT community reaches today

- 50 NRENs outside of “greater” Europe
  - 19 in the Americas
  - 10 in Mediterranean, Middle East and Africa
  - 21 in Asia and Oceania