“Research and Education Networks, Putting Value into the Links”

Bonny Khunga, Dr Douglas Kunda
OUTLINE

• NRENs CORE FUNCTIONS
• FUNDAMENTAL CHALLENGES
• CONNECTIVITY COST TRENDS
• TIME FOR ADDITIONAL SERVICES
• WAYFORWARD
“Facilitate Broadband Network connectivity for Educational and Research Institutions in order to enable the high capacity demands that are routine in advanced research.”
NRENs FUNDAMENTAL CHALLENGES

① Prohibitive cost of connectivity. Africa was paying in excess of US$70 million annually for less than 1Gbps connectivity.

① Identify, provide and manage ICT services that enable and promote Research and Education. This has a wide spectrum of challenges ranging from infrastructure, collaboration to organizational management.
## Cost/Capacity Profile

<table>
<thead>
<tr>
<th></th>
<th>Pre-ZAMREN</th>
<th>1st Year ZAMREN</th>
<th>2nd Year ZAMREN</th>
<th>3rd Year ZAMREN</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Capacities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>for R&amp;E Institutions</td>
<td>&lt;17Mb/s</td>
<td>155Mb/s</td>
<td>350Mb/s</td>
<td>622Mb/s</td>
<td>1Gb/s</td>
</tr>
<tr>
<td><strong>Cost of 1Mb/s per</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Month</strong></td>
<td>$4,500.0</td>
<td>$900.0</td>
<td>$725.0</td>
<td>$350.0</td>
<td>$250.0</td>
</tr>
</tbody>
</table>
CONNECTIVITY COSTS COMPARISON

Bandwidth Costs/Tariffs


- ZAMREN Tariffs
- Commercial Providers (Min)
ADDITIONAL SERVICES – BROADBAND BASED

- Cloud & Grid Computing
- End-to-end Connectivity
- Federated ID
  - eduroam
  - eduGAIN
  - Sci-GaIA
- E-Learning Platforms
- High Performance Computing Resources
TECHNICAL SUPPORT SERVICES

- Technical Capacity Building
- Direct Engineering Assistance
- Direct Research Assistance
Human Network Support Services

- Broker and Professional Services
- Influencing Policies for ICT development and support:
  - Governments
  - Communities of Practice
SUMMARY

NRENs should actively collaborate and exchange ideas in terms of what value added services have succeeded and thus share experiences and practices. Business Case for each service should be carefully analyzed and justified.

NRENs should collaborate with Communities of Practice to promote and support research initiatives.
Thank You!