

Launch of TERNet

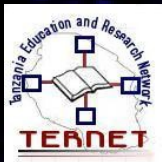
10 September 2008 Dar es Salaam

REN Connectivity **Connecting to the RENs of the World**

Duncan Martin

Director and CEO: TENET

Director (non-exec): UbuntuNet



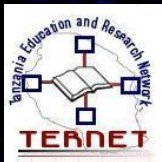
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for Research and Education Networking

What RENs want to do

- Deploy and operate a national network that inter-connects member institutions
- Provide ready access to content, computing power, mass-storage and other resources
 - Via interconnections with other RENs, and, maybe
 - Via interconnection with commodity ISPs



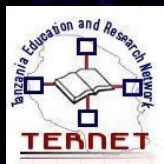
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What distinguishes RENs among ISPs in Internet practice?

- *Exclusive* interconnections with other RENs



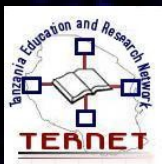
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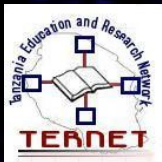
Interconnection agreements

- What does “interconnection” mean?
 - *The two networks have a physical connection through which they exchange specified Internet route announcements and the resulting Internet traffic*
- *REN transit agreements*
 - *Normally when two RENs interconnect, they exchange only routes to other RENs.*
 - *E.g. Géant and UbuntuNet; Géant and Internet2*



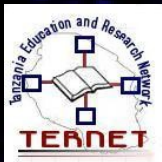
The REN as commodity ISP

- Many RENs provide both REN and commodity connectivity to their members
 - E.g. JANET (UK), UbuntuNet, KENET, TENET,...
- These RENs do
 - interconnect with commodity ISPs
 - announce to these ISPs routes to their members
 - announce to their members both commodity and REN routes
- These RENs do not
 - Announce to the commodity ISPs routes to other RENs
 - Announce to other RENs routes to commodity ISPs.

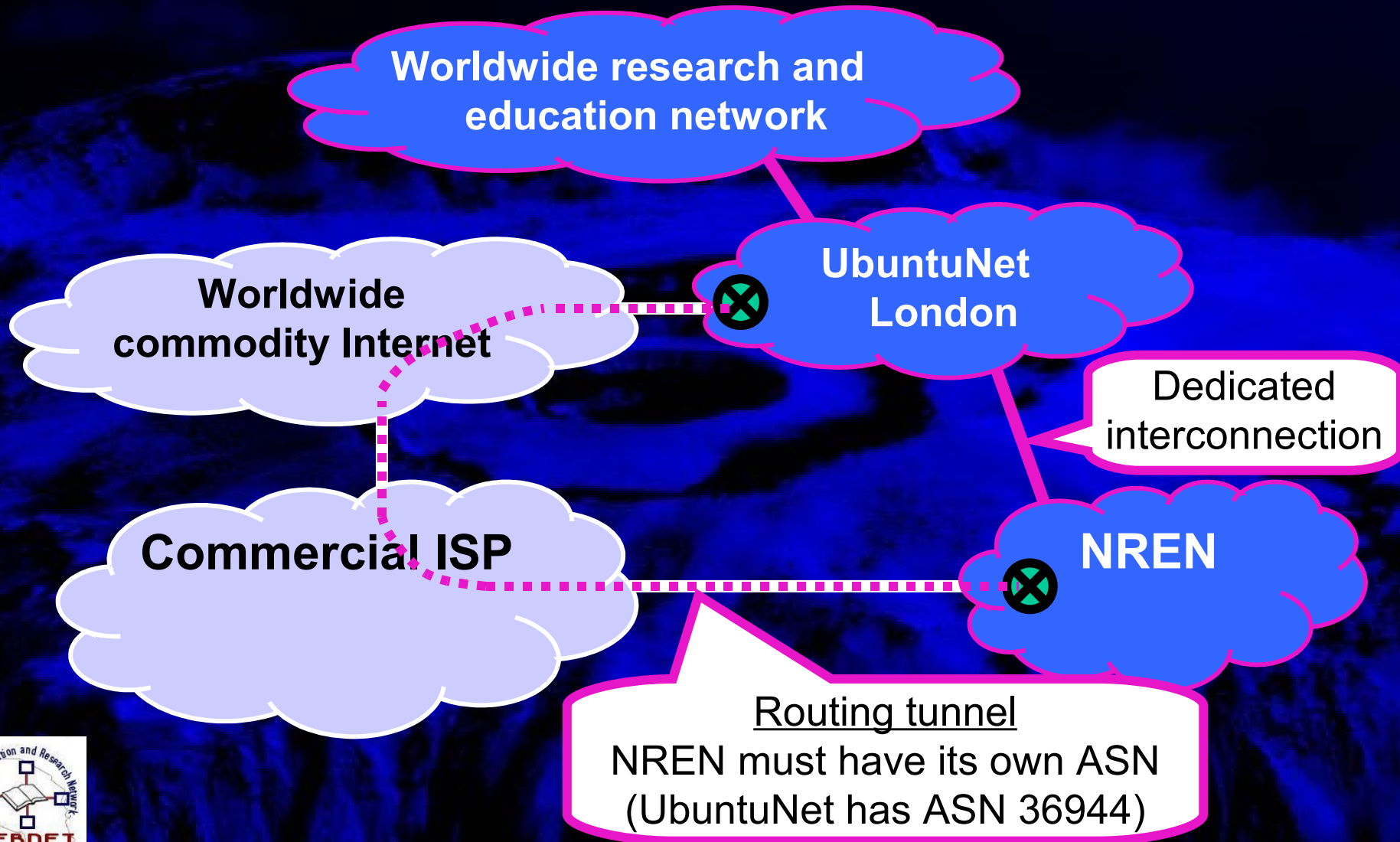


To do this requires...

- Each REN must have its own network identity in the routing tables of the Internet
 - Autonomous System Number (ASN)
- All member networks of the REN must use IP addresses that have been:
 - allocated to them by AfriNIC, or
 - assigned to them by the REN

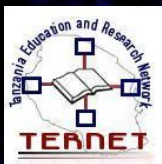


REN connectivity: NREN view

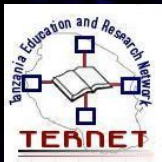
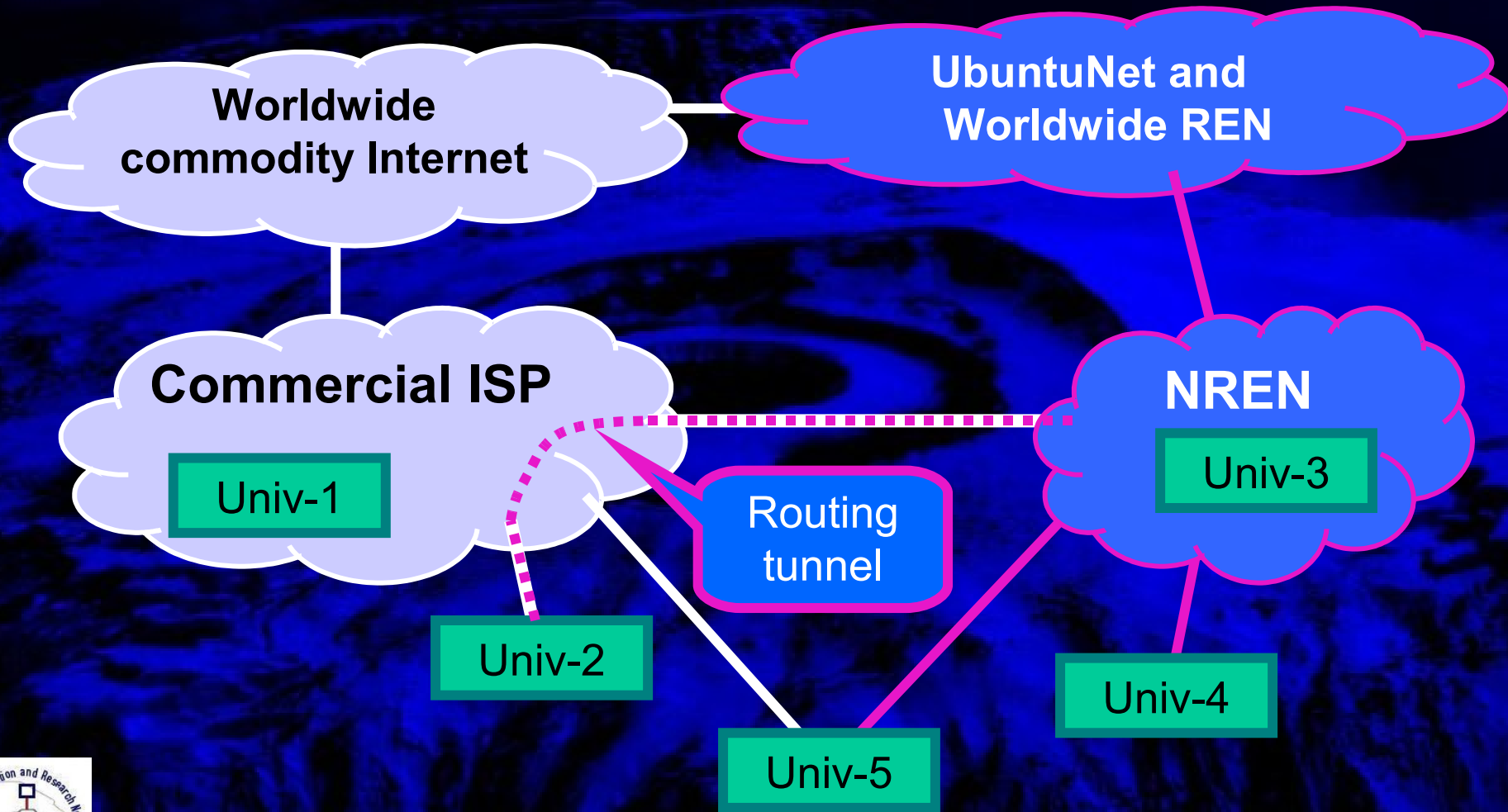


NRENs must have...

- an ASN
 - to participate as independent network in peering and transit connections with RENS and ISPs generally
- A small end-site allocation of IP addresses
 - for numbering own router interfaces, servers etc.
- Apply to AfriNIC for these resources



REN connectivity: Campus view



Each campus network...

- Must be using IP addresses that have been allocated to the institution by :
 - AfriNIC, or
 - its NREN



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Getting IP numbers from AfriNIC

- New blocks of IP addresses can be obtained from AfriNIC
 - IPv4 and IPv6
- AfriNIC will apply a 50% discount to organisations that:
 - justify that they are official academic or research institutions in their countries;
 - demonstrate the exclusive use of assigned/allocated resources for not-for-profit academic or research activities
- UbuntuNet has just announced assistance
 - Support from TENET's FRENIA program

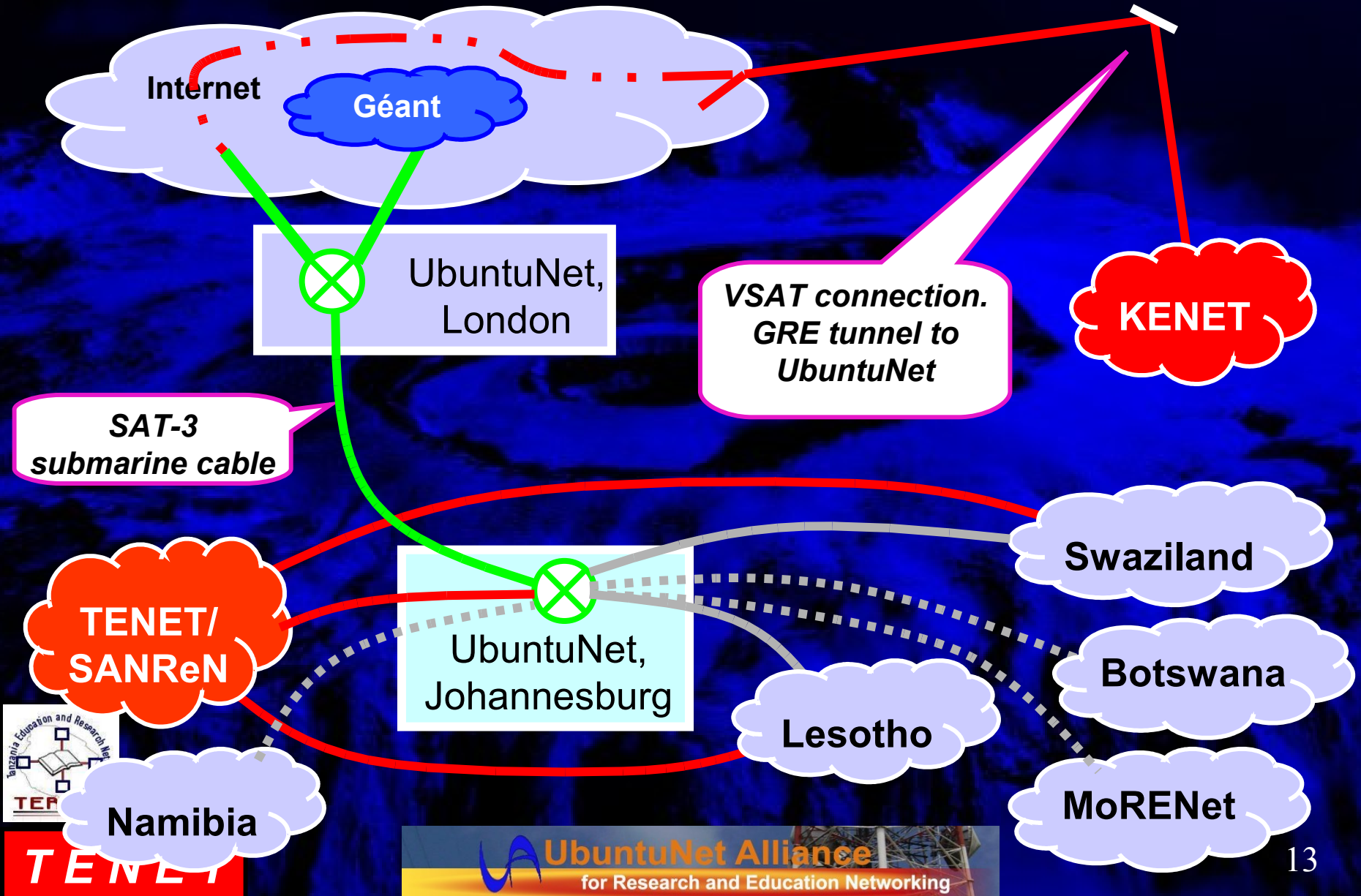


AfriNIC fees for End-Sites (without discount)

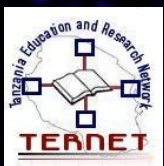
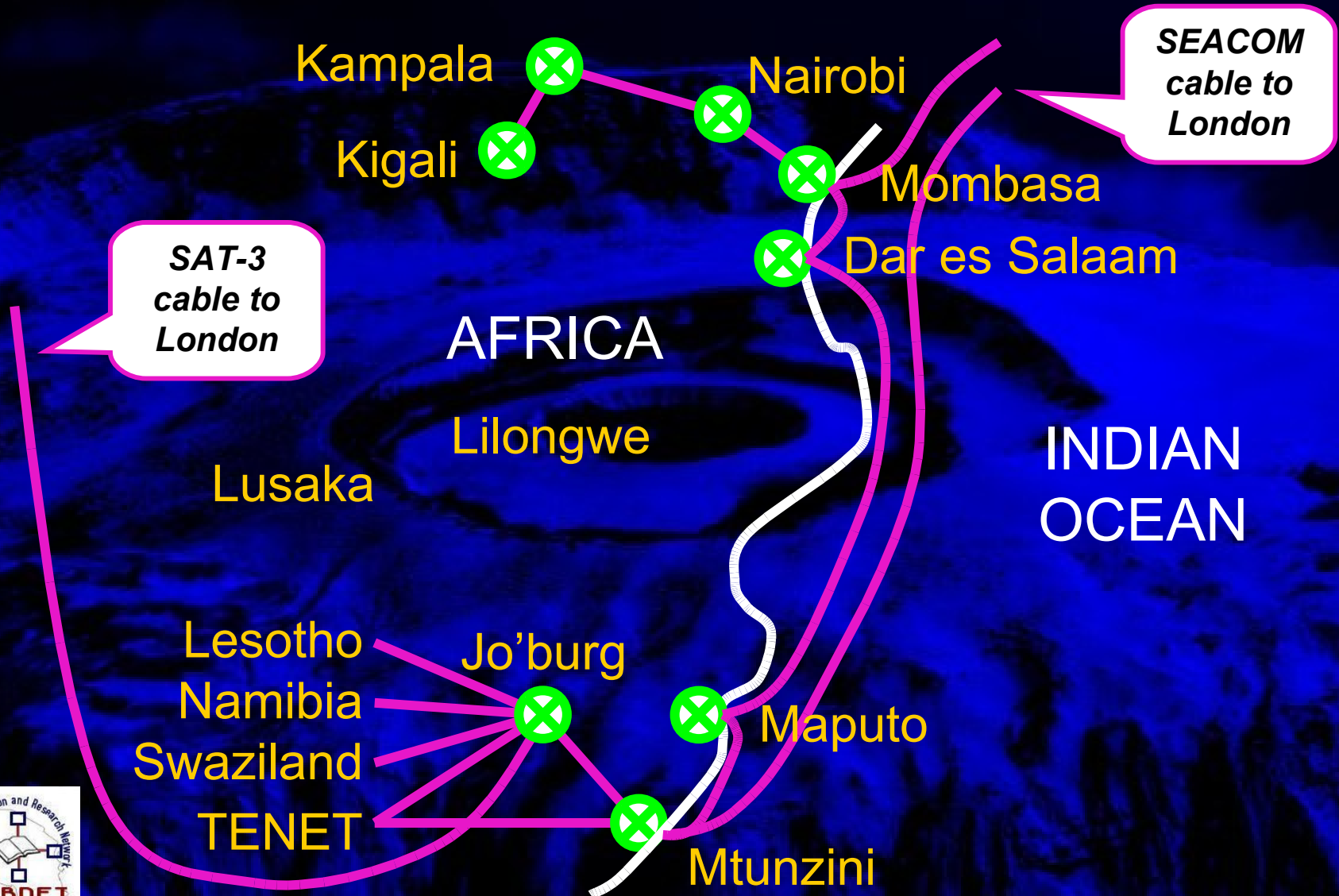
Category	Allocation Size	Initial Setup fee	Membership (Annual)
Small	/24 to /20	USD 2,500	USD 100
Medium	> /20 to /19	USD 5,000	USD 100
Large	> /19 to /16	USD 7,500	USD 100
Extra Large	> /16 to /14	USD 10,000	USD 200
ASN		USD 400	USD 50



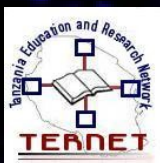
UbuntuNet today



Terrestrial UbuntuNet by end-2009



Thanks for listening!



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