

The SA NREN's Global Network Architecture Compliant Infrastructure

Presented:

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Inputs:

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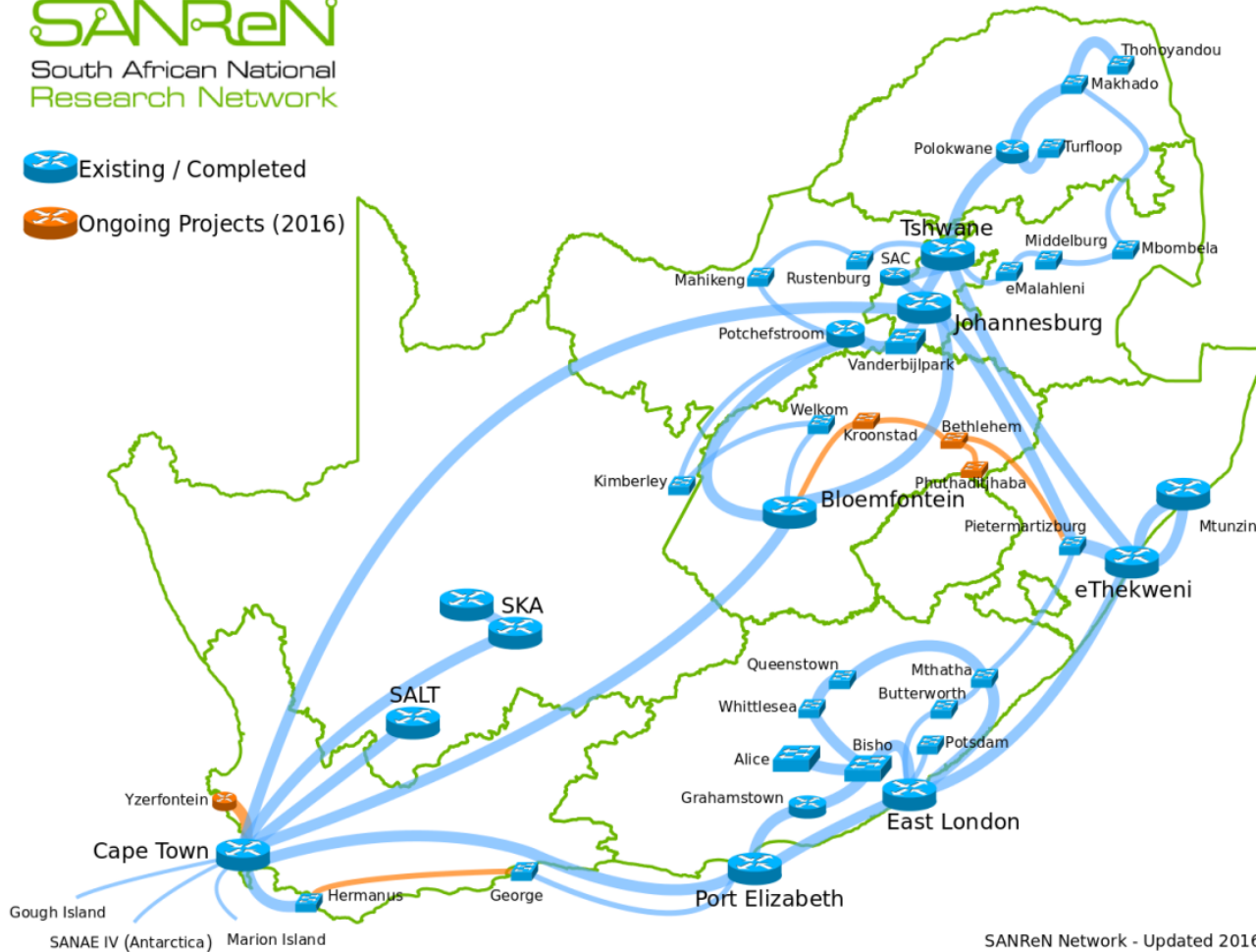
Len Lotz: CTO – TENET

Siju Mammen: Group Leader: Network Engineering - SANReN

Erik-Jan Bos: Policy and Strategy Officer - NORDUnet

- The SA NREN provides broadband connectivity and advanced services to all publicly funded universities, sciences councils, science projects of national interest (e.g. Square Kilometer Array (SKA)), institutions that support innovation, selected schools networks and selected vocational training colleges in South Africa
- The SA NREN consists of the combined efforts of the Tertiary Education and Research Network of South Africa (TENET) and the South African National Research and Education Network (SANReN)

-  Existing / Completed
-  Ongoing Projects (2016)



SANReN Network - Updated 2016/02/26

SANReN + TENET = SA NREN

- **SANReN:**
 - Non-profit business unit inside the Council for Scientific and Industrial Research (CSIR)
 - Primarily funded by the Department of Science and Technology (DST)
 - Designs, plans and manages the infrastructure roll-out of the SA NREN
 - Performs human capital development and R&D in broadband technologies
 - Develops and incubates advanced services (e.g. FIM, eduroam, perfSONAR), hand-over mature services to TENET
- **TENET:**
 - Private non-profit company with membership from its beneficiaries in higher education and public sector research
 - Primarily funded through cost recovery from beneficiaries for services delivered
 - Operates and supports the SA NREN and its production services on a day-to-day basis
 - Handles all contracting with beneficiaries
 - Responsible for selected connectivity projects, such as the Rural Campus Connectivity Projects (RCCPs) and the South African Broadband Education Network (SABEN) project

- Approximately 1 million users use the SA NREN daily
- 10 Gbps managed bandwidth national backbone network, upgrade to dark fibre lit at 100Gbps now in progress
- 5 major metro networks (Johannesburg, Tshwane, Ethekwini, Cape Town, Bloemfontein), several new metros under way (e.g Pietermaritzburg)
- SANReN has connected more than 220 sites, primarily with DST funding
- TENET has connected more than 150 sites, primarily with funding provided by beneficiary institutions
Beneficiary institutions are allowed to indirectly connect eligible sites at their own cost
- SANReN owns a right-of-use of 7.3% on the full design capacity of the West Africa Cable System (WACS)
(between SA and the United Kingdom, drop-offs along Africa west coast)
- 20 Gbps of WACS capacity currently activated, with a further 40 Gbps in progress
- TENET owns a 10 Gbps Indefeasible Right of Use (IRU) on SEACOM (from SA to the Netherlands)
- Average bandwidth available per site more than 3.5 Gbps per site
- Provide mostly 1/10 Gbps fibre connections, but also use various other technologies (e.g. microwave, TVWS)
- In excess of 3000km dark fibre and 6000km managed bandwidth
- Presence at all major Internet exchanges, including JINX, CINX, Teraco Johannesburg, Teraco Cape Town
- Services include: eduroam, SAFIRE, Vidyo, Mconf, CSIRT, perfSONAR, lightpaths, etc.

SA NREN's Contribution to Big Science



Tertiary Education and
Research Network of South Africa

- SKA
- MeerKAT, SALT SKA
- SANAE/SANAP
- HartRAO e-VLBI
- CERN
- CHPC
- Africa-VLBI
- H3ABioNet



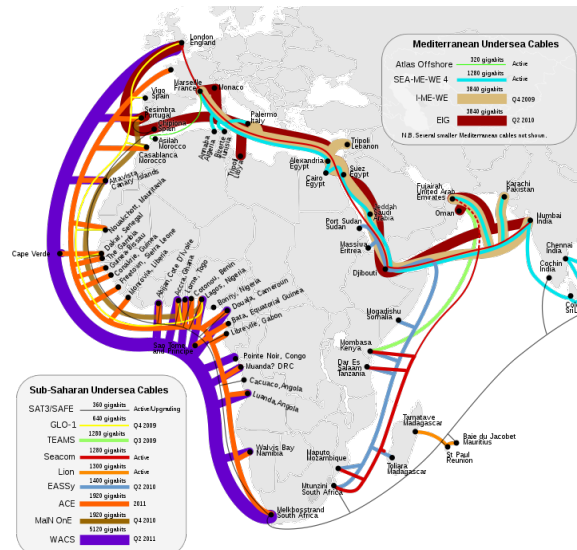
Consortium for Very Long Baseline
Interferometry in Europe



- Cape Town OXP:
 - Located in Teraco open hosting facility in Rondebosch, Cape Town
 - Based on Corsa Software Defined Networking (SDN) device
 - Implementation completed by end May 2017



- Cape Town to London GNA path finder:
 - 10Gbps on WACS
 - From Yzerfontein landing station in South Africa GS-1 landing station in London
 - Operations to commence Q2 2017
 - Initially to carry CERN and MeerKAT traffic
- Potentially future GNA dedicated capacity on SEACOM



Questions and Comments

Please direct all questions and comments to:

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