X86 Blades

- Blade infrastructure
  - 240 “Dell” nodes – 12 core
  - 96 “Westmere” - 12 core
  - 288 “Nehalem” - 8 core
  - 48 “Harpertown” - 8 core

Architectures

- IBM Blue Gene
  - PowerPC
  - 4096 core, 2G RAM each
- Sun M9000 – Solaris
  - 2TB RAM
  - 256 cores

Accelerators

- 9 x Dual 8 core Xeon head node
  - C1060 & C2070 Tesla GPU Accelerator
- 6 x Dual 12 core Xeon head node
  - 60 core Xeon Phi Accelerator
- 6 x Dual 12 core Xeon head node
  - Tesla K20 GPU accelerator

Storage

- 25TB assorted
- Lustre filesystem on blades
  - 1PB new Lustre
  - 4x79TB older Lustre
- 2PB DIRISA large file storage
  - Distributed between 2 sites

Connectivity

- SanREN – South African Research network
  - 10Gbit Fibre ring connecting universities and research institutions

Schedulers

- Torque 2.5.12
- MOAB 7.1.3
- Migrating to PBSPro

Clients

- South African universities
- Commercial clients
- Other african universities

Codes

- Diverse collection
  - Amber, DL_POLY, Gaussian, Materials Studio, Quantum Espresso, ROMS
  - Atlas, CAM, Gromacs, OpenFOAM, Gadget, AIMMS, R, python

Expansion

- Second node, Pretoria
- Replacements in Cape Town

ICTP workshop

- Provisioning?
  - Install new nodes
  - Ensure uniformity of node configuration
- Heterogeneous clusters
  - How are they managed?
  - Are accelerators worth it?
- Next generation Schedulers?