NZ REGIONAL CENTRE ACTIVITIES

MELANIE JOHNSTON-HOLLITT

PERIPETY SCIENTIFIC LTD.

NZ PARTICIPATION IN REGIONAL CENTRE DESIGN

- NZ is represented in AENEAS via Peripety Scientific Ltd. CEO Melanie Johnston-Hollitt. In AENEAS we were initially in WP3 and WP5, but have interest in WP2 also.
- NZ is does not have independent representation on the SKA Regional Centre Coordination Group (SRCCG), rather Peter Quinn (ICRAR) represents both Australia and NZ.
- NZ is represented on the ANZSCC SKA Regional Centre Working Group (ASRCWG) by Melanie Johnston-Hollitt (PSL) and Willem van Straten (AUT)
- NZ is likely to be involved in some capacity in ERIDANUS, which is the Australia-China Regional Centre Work (see talk by Sarah Pearce).

Radio Astronomy Infrastructure

Warkworth Telescopes, AUT

30m and 12m dish
Involved in VLBI, tracking, FRB surveys

MWA, NGAS node, VUW

Data transfer from MWA, onsite data processing capability.
Operated from June 2012 to September 2017. Now closed.

Radio Astronomers

Auckland University of Technology
Willem van Straten
Sergei Gulyaev
Tim Natusch
Jordan Alexander
Nicolas Pradel (postdoc)

Victoria University of Wellington
Steven Curran
Cathie Zheng (postdoc)*

Peripety Scientific Ltd
Melanie Johnston-Hollitt
Siamak Dehghan (postdoc)
Sara Shakouri (postdoc)
Cathie Zheng (postdoc)*

Permanent Staff
Contract Staff (postdocs)

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Cathie Zheng (postdoc)

Other Astronomers in NZ
University of Auckland
University of Canterbury
Massey University

Cosmologists in NZ
University of Otago
Victoria University of Wellington
University of Auckland

Industry Interest in SRCs

National e-Science Infrastructure
HPC capability
NZ's major research infrastructure, currently not used for radio astronomy

Nyriad Ltd.
Working with ICRAR on data transport (scalable erasure encoding)

Catalyst Ltd.
Cloud Compute platform System Software and Platform and including related middleware for shared services infrastructure

Callaghan Innovation
HPC capability

REANNZ (NZ's NREN)
100Gbps domestically and to Australia
50-60GBps pathways to SANREN/TENET via GEANT in Amsterdam.
Anchor tenant for Hawaiki cable 42Tb/s

Open Parallel Ltd.
Specialized software, computing platforms, and Large system design and development

- **WP2: Development of Governance Structure and Business Models**
- Task 2.1 Inventory of national facilities and commercial providers of computing, data storage and networking services
- Task 2.2 User community requirements of an SKA Data Centre
- Task 2.3 Governance and Business models for an SKA Data Centre

- **WP3: Compute Requirements**
- Task 3.1 Inventory of SKA science cases and post-SDP compute and data storage requirements
- Task 3.2 Data storage: Inventory and sizing of SKA science data products and user-derived products
- Task 3.5 Requirements for interfaced to SKA Science Archives & Other Repositories
- Task 3.6 Validation, Verification & Proof of concept activities utilising SKA pathfinder and pre-cursor facilities

- **WP5: Access and Knowledge Creation**
- Task 5.2 Recommendation for the design of user interfaces for data discovery, access and retrieval
- Task 5.3 Recommendations for the design of user interfaces for data processing, reprocessing, analysis and visualization

USERS + PROVIDERS

- There are few radio astronomers in NZ. Current predictions suggest the total number of users at the time the SKA is first constructed with be ~6 permanent staff, 3-5 postdocs + students.
- 2016 user time allocation models predicted NZ would be capable of using 0.8% of SKA data. However, these results were largely driven by the group at VUW which has been disbanded. New user models suggest something considerably less.
- There is a large amount of interest in SKA regional centers from NZ industry, including expertise that is applicable generally and not NZ-specific e.g.
  - Nyriad – collaboration with ICRAR to on new data transport technology
  - Catalyst – global cloud storage company with open stack expertise
- There is little interest from the overall NZ astronomical community (all wavelengths).
- Existing HPC facilities such as NeSI and Callaghan Innovation may be sufficient for the expected user base, if access to larger facilities in Australia and elsewhere is available.

SUMMARY

- The NZ Government has yet to formally decide on investment in an SKA Regional Centre.
- The research and industry communities in NZ appear to have differing levels of interest in SKA Regional Centers. Discussions with the wider, non astronomy, research community have yet to happen so the possibility to boost user group of compute via addition of other science/industry hasn't been explored.
- Regardless of if a small facility were established in NZ, access to larger facilities in in the Regional Centre Alliance will be needed so NZ has a strong interest in governance models for Regional Centre Networks.