

The role of collaboration between data services and NREN's

Nobubele Angel Shozi

Senior Software Developer + Researcher (DIRISA)

PhD Student at University of South Africa (UNISA)

**West and Central African Research and Education Network (WACREN) Conference 2019,
14-15 March, Accra, Ghana.**

Content

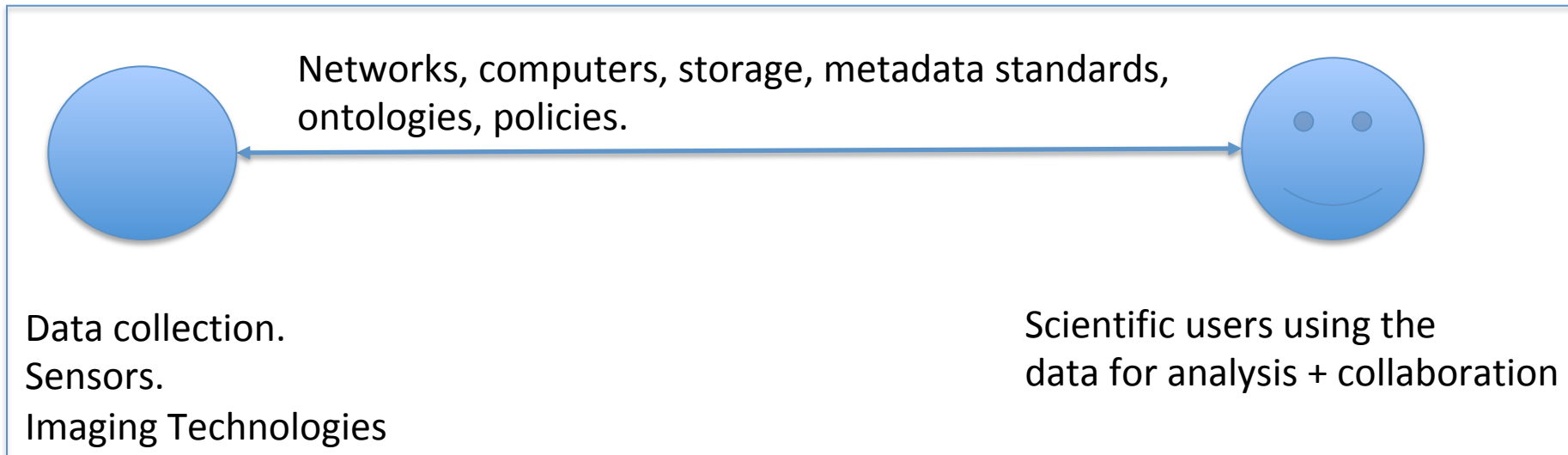
- Motivation for paper/presentation
- National Integrated Cyber Infrastructure System (NICIS)
- Data Intensive Research Initiative of South Africa (DIRISA)
 - Objectives
 - Federated nodes
 - Storage architecture
 - Services
 - Roadmap
- Role of data services within NRENs

Motivation for Paper/Presentation

- To discuss the work that DIRISA currently does.
- Use South Africa as a case study.
 - Highlights the role of collaboration between data services and networking services.

Cyberinfrastructure

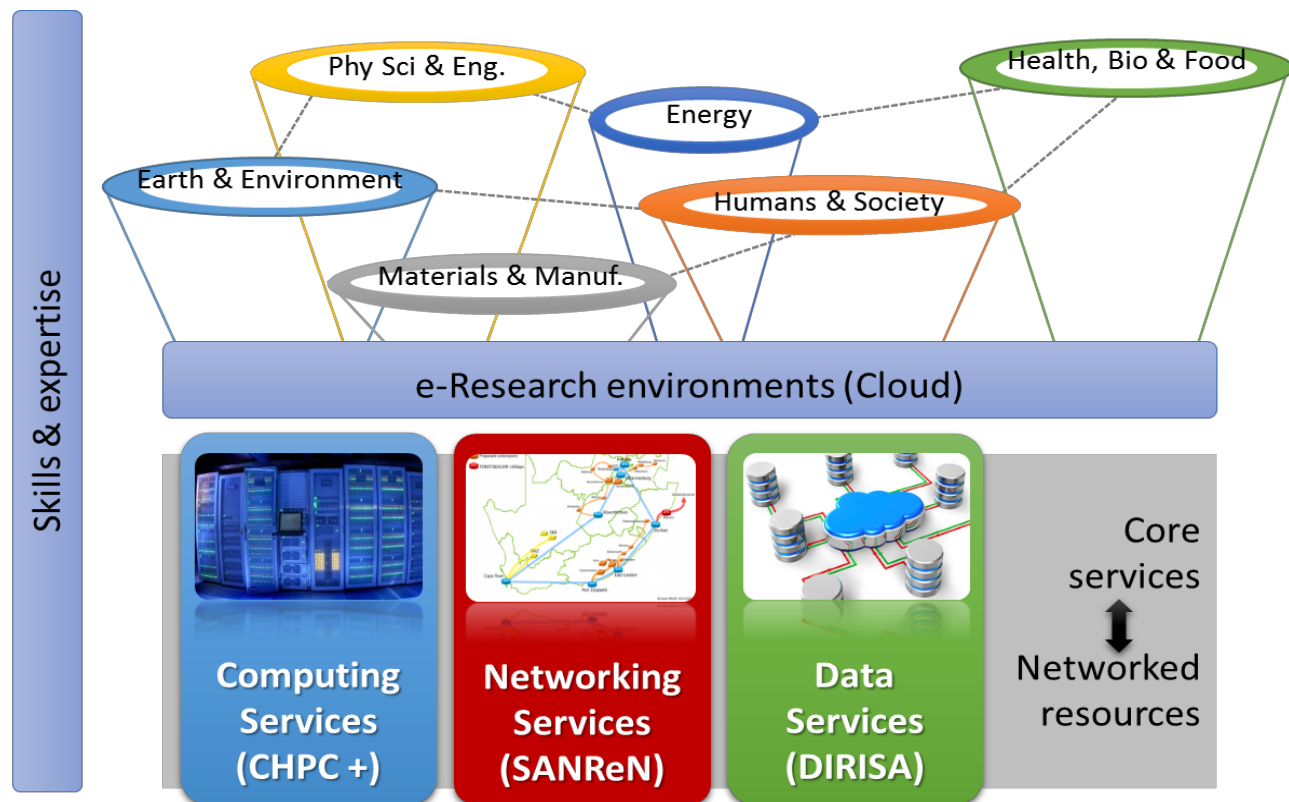
- Cyberinfrastructure “Infrastructure based on **computer networks, distributed computers** and **information technologies** used for developing **collaborative scientific research** ... without the **geographical, time boundaries** ...” [1]
- Key driver = data growth + scientific experiments.



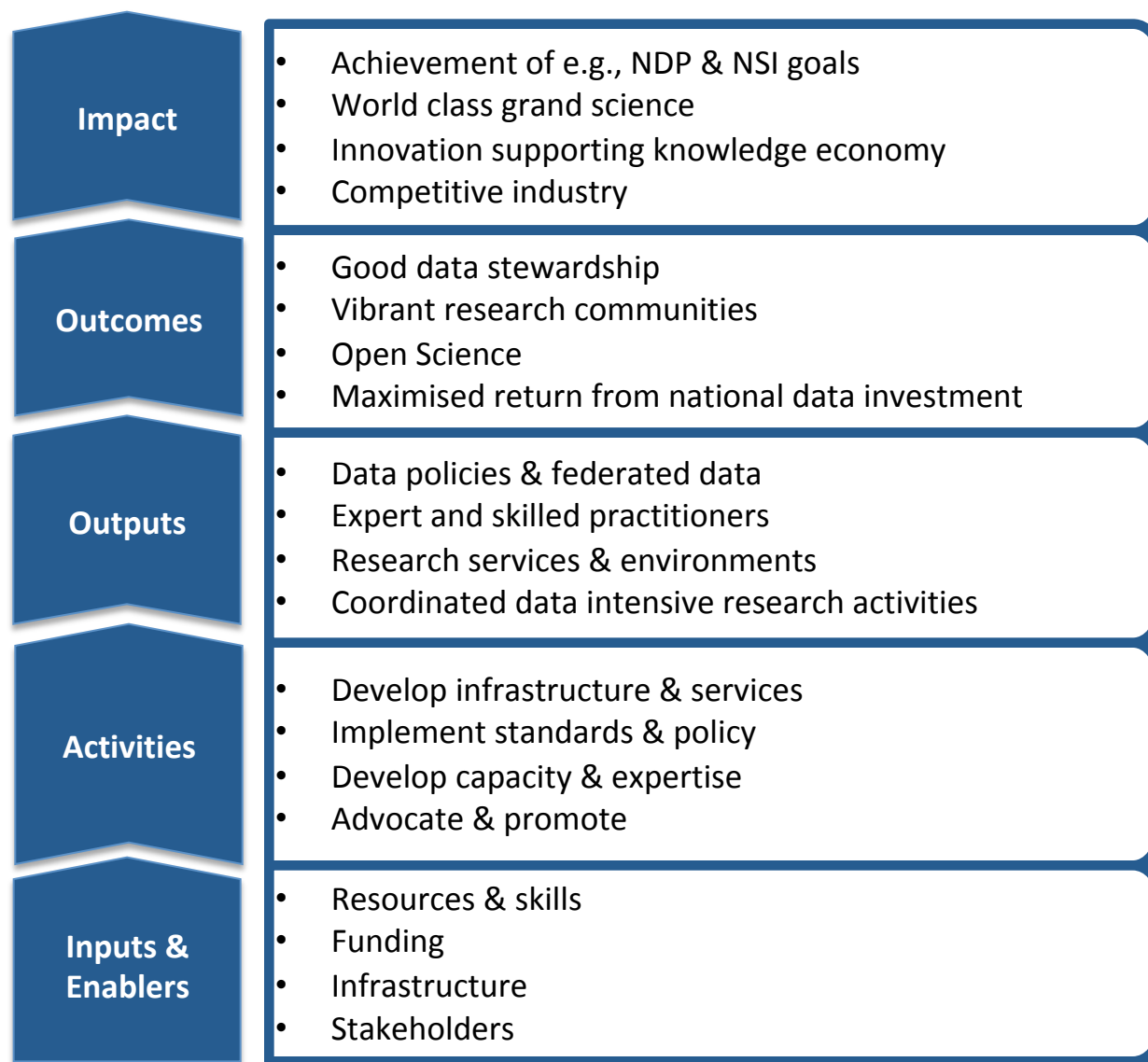
Adapted from [2]

National Integrated CyberInfrastructure System (NICIS)

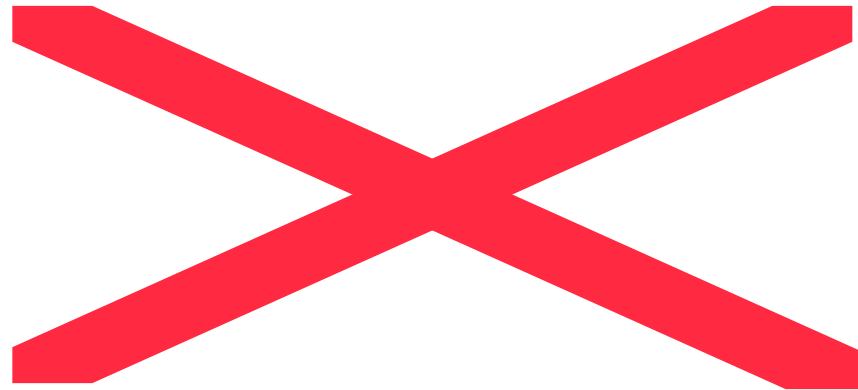
- The National Integrated Cyberinfrastructure System (NICIS) is an advanced integrated cyber platform that offers services for:
 - High Performance Computing
 - Networking
 - Data



Data Intensive Research Initiative of South Africa (DIRISA)



Data Intensive Research Initiative of South Africa (DIRISA) Objectives



National Research Data Infrastructure

Federated access to research data: **One-Stop-Shop (Single Sign-on)**

Tier 0 (International)

Link into Tier 0

SKA, CERN,
etc

Tier 1 (National)

Build & maintain

NICIS

ANDS

EUDAT,...

Tier 2 (Regional)

Ilifu
(Astronomy)

SAEON
(Environmen)

SANBI
(Bioinform)

Support

Tier 3 (Institutional)

IDIA
(Astronomy)

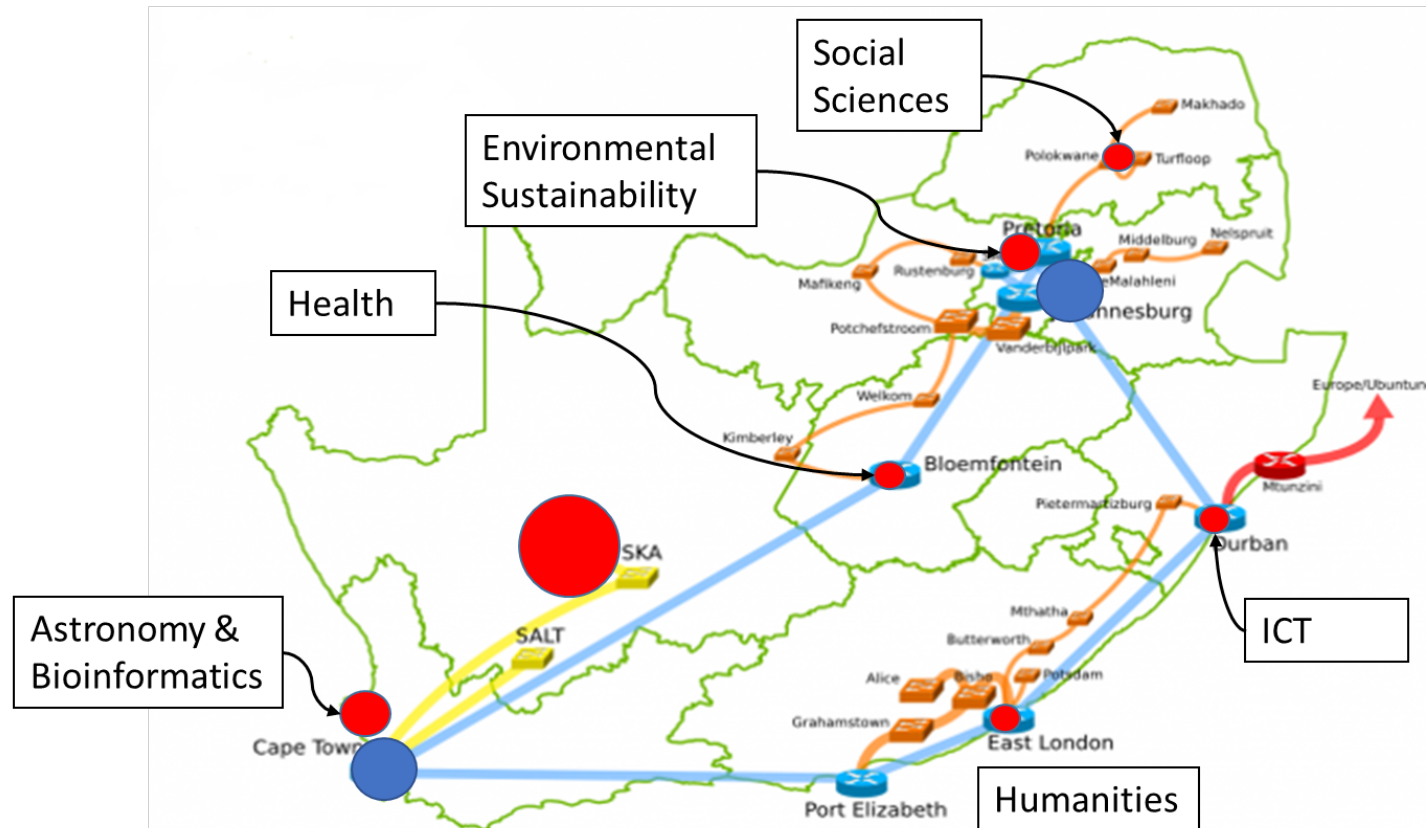
H3BioNet
(Diplomics),...

Support

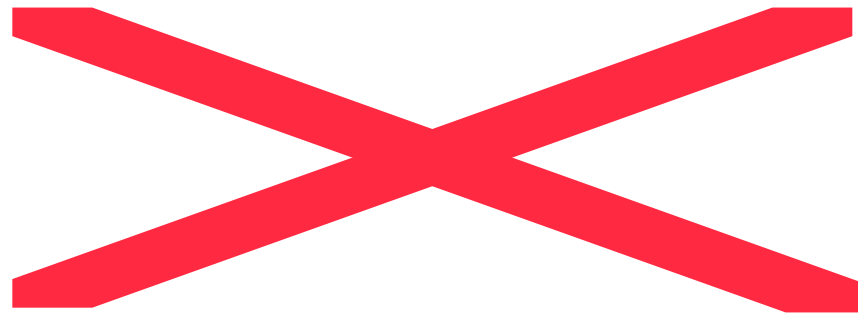
Federating Tier 2 and Tier 3 Nodes

Tier 2 nodes
development
Thematic/
Regional

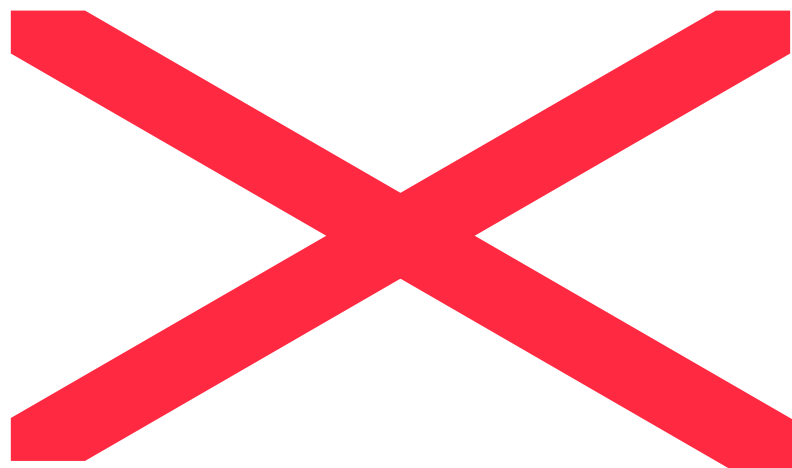
Tier 3 nodes
(not shown)
SANSA
SAEON
Wits
UP



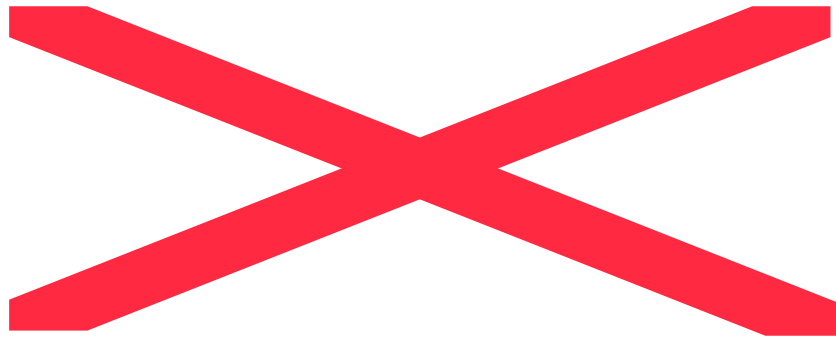
Tier 1 Storage Architecture



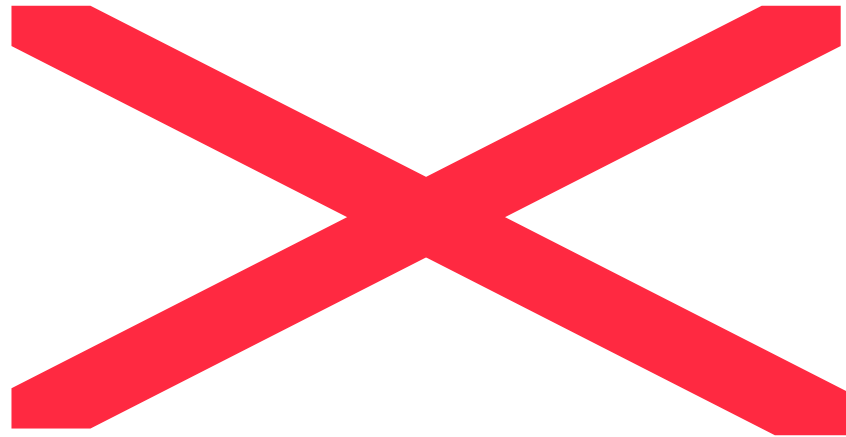
DIRISA' s Services



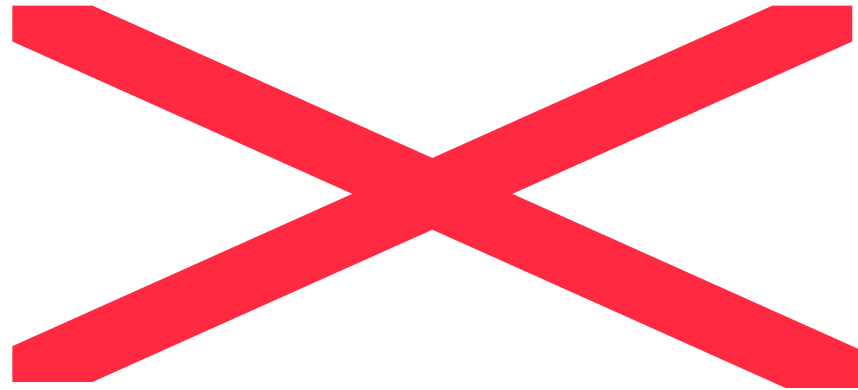
Access



Research Data Management + Policies



Road map



Collaborative role of Data Services, Networking + Computing Services in South Africa

- A researcher view as an example:



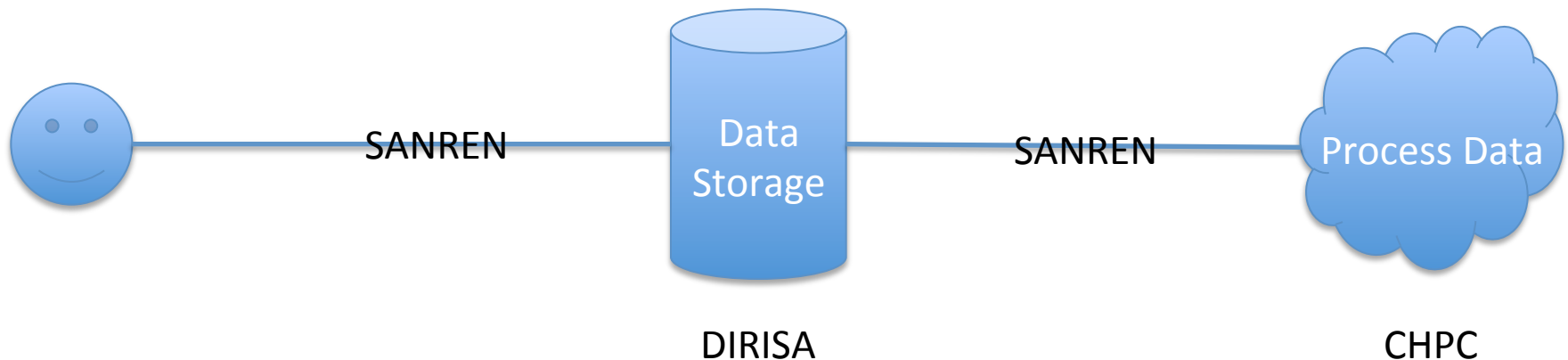
DIRISA



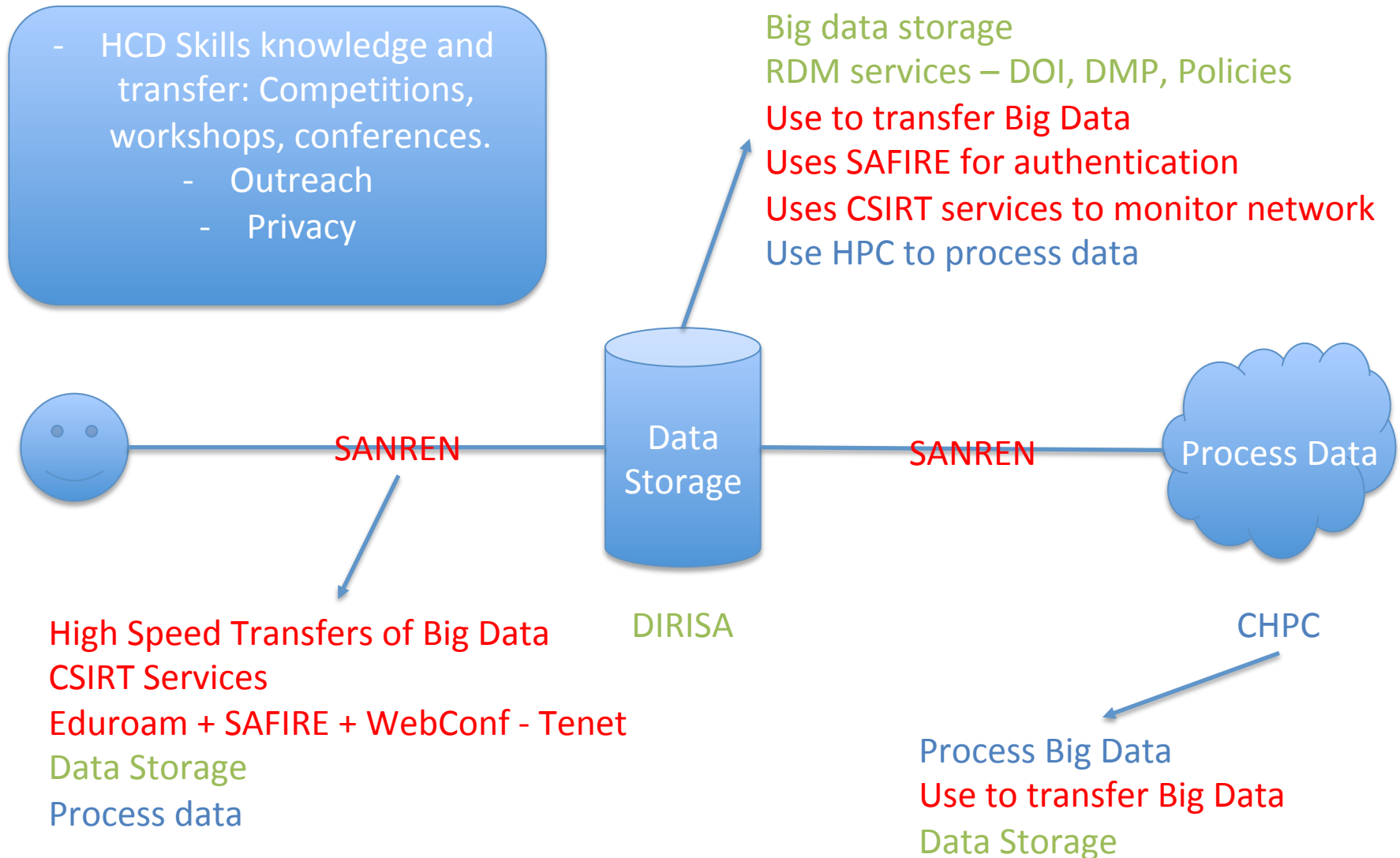
CHPC

Collaborative role of Data Services, Networking + Computing Services in South Africa

- A researcher view as an example:



Collaborative role of Data Services, Networking + Computing Services in South Africa



Conclusion

- No component takes away from the other.
- NICIS shows the importance of – HPC, Networking and Data.
- Model that balances the CI system.
- Each component independent yet reliant on the other.

Thank you

Website - <https://www.dirisa.ac.za>

Email - dirisa@csir.ac.za

Twitter - @dirisanicis

24-28 June 2019 – Outreach to highschool learners to teach them python.

2-4 July 2019: DIRISA Workshop – all invited.

Training for student datathon competition participants

First week of December – Student datathon competition

References

- [1]. Ursuleanu, M. F., Graur, A., & Dimian, M. (2010, June). Developing cyberinfrastructure for advanced research with high performance computing. In *9th RoEduNet IEEE International Conference* (pp. 364-367). IEEE.
- [2]. Ribes, D., & Lee, C. P. (2010). Sociotechnical studies of cyberinfrastructure and e-research: Current themes and future trajectories. *Computer Supported Cooperative Work (CSCW)*, 19(3-4), 231-244.