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Evolution of a South African eResearch support service

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INTRODUCTION

Given the complex relationship between eResearch stakeholders within universities and research organisations, a "one size fits all" solution to the development of a national eResearch support service is not practical. Services contributed by Libraries, IT and research administrations are at different stages of maturity, and the South African landscape is characterised by scarce skills in areas of software and systems support. To advance national eResearch capability, a considered approach requires both costly infrastructure investment and collaborative support services.

BACKGROUND

The emergence of a new paradigm, "sometimes called eResearch", gave rise to the examination of a national information service framework in 2005.( ) The need for joint action was identified to meet the challenges of eResearch cost-effectively in South Africa. A specialized agency was proposed to provide support services, with a governance model that should work well for all participants. Two reports commissioned by the Department of Science and Technology assisted in conceptualising strategic plans for the further development of South Africa's research infrastructure, including the cyberinfrastructure component. The recommendation to establish of a National Integrated Cyberinfastructure System (NICIS) was accepted and plans for follow-up activities approved in 2013. NICIS comprises several core components of the Tier 1 infrastructure: a national Center for High Performance Computing (CHPC), the South African Research Network (SANReN), and the more recently established Data Intensive Research Initiative for South Africa (DIRISA). Experience of the Research Data Management project component of the DIRISA Tier 2 ilifu infrastructure has provided valuable lessons the collaborative development of shared services that can now be evolved to the wider community.

FROM INFRASTRUCTURE DEVELOPMENT TO SERVICE ORIENTATION

As research becomes more multidisciplinary, more collaborative and more global, researchers seek to leverage the South African investment in specialist scientific equipment and domain-specific infrastructures, often generating massive data outputs for analysis in international collaboration. As the national research infrastructure moves from an experimental testbed to a user-oriented environment, a challenge faced by most eResearch infrastructures is the provisioning of sustainable services, and the monitoring of user experience (UX), to improve the interaction of researchers with the infrastructure. This critical component is seldom defined explicitly in the infrastructure development, and the research community have little interest in the expansion of cost-effective services beyond their own needs, and especially beyond the duration of their funded project. Responsibility at present, falls to the host entity to realise the full potential of the national cyberinfrastructure, and the collaboration enabled with global infrastructures. A limited science system suggests a federation of distributed support services, including multiple universities and institutional partners to meet the ever-increasing need to meet both current user support and ongoing data access.

A pilot project to support a South African eResearch support service will build on the eResearch Africa conference hosted bi-annually at the University of Cape Town since the initial event in 2013. An annual training workshop aimed at professional development and career enhancement opportunities recognizes the varied job roles associated with eResearch. Institutional eResearch capacity building will focus on selected teams of information professionals through sponsored participation in designated training programmes and national events.

CONCLUSIONS

The development of a national support service model is intended to improve distributed efficiency, rather than to centrally consolidate a limited pool of existing human resources. The effect of overextending the existing capacity poses serious threat to the realisation of the national cyberinfrastructure, with discussion of actual use cases in this presentation.

Due to the complex relationship between eResearch stakeholders within institutions, a “one size fits all” solution is impractical, and a phased approach is recommended, leveraging a brokerage model to access third party services and avoid scenarios where services are developed and implemented and then subsequently “orphaned” by lack of support and changing financial priorities.

The potential administrative overhead of service development projects, established by individual service level agreements with multiple institutions, warrants further consultation on the project governance with university executives, senior researchers and infrastructure managers.

Capability approaches to advanced computing technologies must address more than the big shiny stuff. A considered approach requires both costly infrastructure investment and collaborative support services. The user experience of researchers, and their improved interaction with the national cyberinfrastructure should ultimately direct the project and its evaluation.

Supported Student

Primary author: PETERS, Dale (UCT)

Presenter: PETERS, Dale (UCT)

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