Geophysical Research Abstracts
Vol. 21, EGU2019-15213, 2019
EGU General Assembly 2019

Working towards a cross-disciplinary National FAIR Research Data Infrastructure

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AARNet, the Australian Academic and Research Network has been supplying high speed internet and communication services to the Australian Academic and Research Community for 30 years enabling them to connect Nationally and Internationally to share data and collaborate. AARNet is a not for profit company owned by all the Australian Universities and CSIRO. We exist because our owners and customers see the need for a sustainable National Research Infrastructure to continue to support Australian research and education.

AARNet's vision is of a globally networked data-sharing ecosystem that accelerates knowledge creation and innovation to benefit future generations of Australians and in recent years through enabling data movement, data sharing and data storage this vision is starting to be realised.

A research focussed OwnCloud Instance Cloudstor made available to all AARNet research customers was established initially to allow file sharing but it now provides each Australian researcher with up to 1TB of storage for free. But AARNet supports the FAIR data principles of Findable, Accessible, Interoperable and Reusable and is working with university and research institute IT departments, libraries and repositories and the Australian eResearch and Library Communities to enable an Australian ecosystem of FAIR data tools built on and connected to Cloudstor for Australian Researchers. Initially this meant that research data has been rescued from memory sticks, computer or portable hard-drives or unknown cloud accounts and being attached to individual research data owners in persistent storage. But recently Cloudstor has been expanded to enable datasets to be analysed using Python, R or C++ notebooks run directly within Cloudstor using the SWAN Service (Service for Web-based Analysis). And new Cloudstor services like Collections enables a researcher to package their project data with appropriate metadata for publication or retention.

AARNet is in a unique position. We connect every Australian University Researcher and a majority of research institutes and publically funded research agencies. All of these customers have access to Cloudstor. In fact we have over 61,000 research users registered currently storing approximately 898TB of research data and documentation within Cloudstor. AARNet also enables cross-disciplinary and cross-community collaboration and interoperability because everyone is using the same tool enabling notebooks and data to be easily shared.

This presentation will demonstrate existing services within Cloudstor that are useful to the Earth and Space Research Communities including how to discover and process openly accessible datasets from the Australian National Geophysical Collection stored at the National Computational Infrastructure (NCI). This presentation will also present the roadmap for future development of tools to enable researchers to more easily make their data and research FAIR. Including enabling global interoperability and reusability through API connections to OwnCloud Instances across the globe.