

Platforms EOI: Research Compute - lowering the barrier for entry/providing guidance on which platform(s) to use depending on circumstances

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Project title

Research Compute - lowering the barrier for entry/providing guidance on which platform(s) to use depending on circumstances

Field of Research code(s)

- 08 INFORMATION AND COMPUTING SCIENCES
- 09 ENGINEERING
- 10 TECHNOLOGY
- 12 BUILT ENVIRONMENT AND DESIGN
- 13 EDUCATION

EOI Lead Name

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EOI lead Research Group

Research Portfolio - Information Management and Technology Services

EOI lead Organisation

University of Wollongong (UOW)

EOI lead Email

Collaborator details

Name	Research Group	Organisation
Dr Andrew Janke	Research Technology Strategic Engagement and Planning, Information and Communications Technology	The University of Sydney
Gavin Kennedy	Cloud Services	AARNet
Paul Hutchings	Higher Education Lead (APAC)	Google Cloud Platform

Project description

Problem statement:

One of the barriers in utilising HPC is the complexity and volume of choices one is presented with using either NCRIS facilities or commercial cloud. Even if a researcher is able to successfully navigate this it is not clear which facility would be the most appropriate to use based on the specifics of the compute job the research domain they are in and where the community is. Many researchers utilise these facilities based on merit based schemes, such as NCMAS and have no clear way of understanding what costs would be, should/if they are able to procure HPC outside of these schemes.

Proposed Solution:

<https://ronin.cloud/> is a platform that would address most of this and is currently in use at a number of research

facilities, including UQ, ANSTO & RMIT with many others considering. UOW is keen to manage its HPC using Ronin and this project aims to streamline the onboarding process for the sector as well as facilitate the inclusion of Azure (underway), GCP and Nectar /other NCRIS facilities.

The project will also produce recommended guidelines for which platform to use based on type of job and where specific domain community is predominately located.

Existing technology

Adopt

Ronin

AWS

GCP

Azure

NCRIS HPC Facilities

Ronin currently is configured for AWS only and development for Azure is underway with GCP looking to do the same in collaboration with UOW / USyd. There is potential to also include NCRIS HPC facilities, in particular Nectar. The latter will be more about ease of selecting common HPC jobs that can be pre-packaged, speeding up the process and allowing allocations to be more efficiently used.

Adopt sector experience in putting together guidelines for researchers regarding facilities and communities/applications for specific research domains.

Adapt

Ronin: incorporate Azure, GCP and other national compute services such as Nectar, NCI, Pawsey & MASSIVE.
ReDBox: has the ability to provision services and by utilising Ronin as an orchestrator for compute services would save creating a workspace for each one individually. For the researcher, the advantage is an easier UI to work with for common compute / HPC processes and launched through the same pane of glass as their RDMP application.

Build

*AAF Authentication integration into Ronin

*Research data lifecycle management through API capability from Ronin to other research data management systems, such as ReDBox (see other ARDC projects), where a research project's metadata can incorporate Ronin compute configurations and data input/outputs flowing to institutional research data storage and into archives (UTS ARDC projects for OCFL & RO-Crate).

*ReDBox integration

*An AARNet offering of Ronin SAAS

*Produce doco that explains most appropriate compute based on type of analysis and located where domain community user activity is.

Anticipated requirements

Annual funding

\$300,000 - \$399,000

Proposed length

3 years

Other information

Other information you wish to provide

This EOI covers tight integration of compute/HPC with existing sector data management and authentication applications. It will close gaps of managing disparate research data sources with research project metadata, compute configurations, datasets, analysis with data storage/metadata (through ReDBox or other similar systems that have API capability).

As the saying goes - a picture paints a 1000 words - please have a look at the images here: <https://ronin.cloud/>. One concept is for AARNet to offer Ronin as SAAS, providing better value for the sector with optional surfacing through RedBOX.

Terms

I agree to the terms

Yes

