



# Nectar at the University of Auckland

**5 years on**

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# What is Nectar

The **ARDC Nectar Research Cloud** is Australia's national OpenStack-based **federated** research cloud, providing cloud computing services and tools to Australian and University of Auckland researchers.

**Launched in 2012** as the first national research cloud designed for Australian researchers, and is used by scientists and researchers throughout Australia, from their offices and homes.

**Hosted at:** The University of Melbourne, Monash University, The Tasmanian Partnership for Advanced Computing (TPAC), Queensland Cyber Infrastructure Foundation (QCIF), Intersect, Swinburne University, University of Auckland.

# How Nectar operates

Each site is responsible for operating their own hardware in their own data centres

Central **core services team** operate central services (OpenStack services, wiki, puppet server, Jenkins, etc), test and coordinate roll-out of software updates and new services, advice

**Distributed helpdesk**, using Freshdesk as ticketing system, excellent researcher-facing documentation.

Communication channels:

Daily communications via Slack, biweekly video calls, biannual Tech & Ops workshops, monthly technical advisory committee meetings, meetings on director level

# Role of Nectar at UoA

2006: ~~BeSTGRID~~: Access to moderate cluster computing via Grid

2011: NeSI. Gaps: Windows workflows, batch, technical

2013: Managed VMware-based virtual machine service inside perimeter firewall: collaboration between Connect (ITS) and Centre for eResearch (CeR). Gaps: External collaboration, flexible, tooling, lifecycle management

2016: Nectar, currently outside of UoA perimeter firewall. Operated entirely by CeR

We're going to migrate more and more workflows from VMware to Nectar.

# Advantages for researchers

Self-service cloud computing: virtual machines, block storage, object storage, database service, advanced networking,...

Easy collaboration with external researchers

Ready-made applications and virtual labs

Excellent support and documentation

Important  
at  
scale

## What about security (log4shell, etc)...

# Security

Concerns from central IT: can CeR do it? Lack of control

Raised awareness of the risk across Nectar sites

Security working group, knowledge exchange, up-to-date Linux images, auto-patching

On the horizon: Self-service security scanning service

UoA: Access to researcher VMs a requirement, Tenable scanning, documentation on how to maintain VMs

# Advantages for the institution

## **Allocation management and automated life-cycle management**

Give a second life to ageing but still valuable hardware to build a useful service. This would not have been possible without the Nectar federation.

Knowledge transfer. We couldn't have built a research cloud without Nectar. Shared support and knowledge transfer from core services and other site operators immensely valuable.

# Lessons learnt

You need excellent staff with broad skillsets: DC operations, hardware hosting → advanced Linux knowledge → Python → Scripting → Support

Support through Nectar community is better than from within the institution. Central IT is often tied up.

Security is a concern.





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Thank you!