# SRCP - Secure Research Computing Platform

Mark Sharpley Research Computing Platforms October 2019

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#### Talk to me about:

- Orchestration Terraform; k8s
- Cfg Mgt Ansible
- Devops/CI/CD

#### What is the SRCPS?

- ISO 27001 Certified Managed PaaS
- Runs on our private cloud
- Each customer gets an Openstack tenancy into which we deploy tailored services

- Useful for researchers with data that may not be stored or processed on our main systems
- Closed beta access starts next week

#### 27001 Feet View of The Platform...

#### ISO 27001

Is a specification for an information security management system (ISMS). An ISMS is a framework of policies and procedures that includes all legal, physical and **technical** controls involved in an organisation's information risk management processes.

Those controls are turned into procedures which we use to develop and operate the SRCPS.

These procedures, where possible, follow a devopsy approach to development and lifecycle management

#### The good stuff - Infrastructure as Code [ IAC ]

- We create templates for what our customers want... High Performance clusters, web servers, application servers...
- ALL vms and services with in the platform are expressed as code
- Terraform for creating VMs, networks, storage etc within Openstack
- Ansible deploys configuration out onto VMs



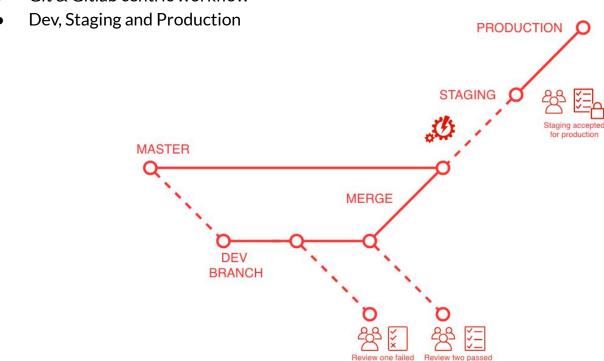


- Each Ansible role gets a Git repo
- Each Terraform Module gets a Git repo\*
- Each SRCP Template gets a repo and can pull in ansible roles and terraform modules as needed
- Each Customer gets a repo that calls a version of a template
- All secrets are in the customer repo and encrypted with ansible-vault
- We make **heavy** use of Git tags

<sup>\*</sup> Still working on this

#### The good stuff - Infrastructure as Code [ IAC ]

• Git & Gitlab centric workflow



#### The good stuff - Pipelines and Tests

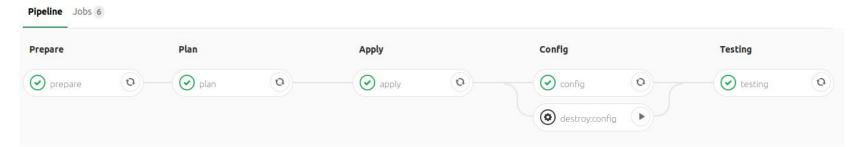
- Test Driven Development (TDD)
- Molecule framework for testing Ansible roles
- Pytest and test infra for testing both Ansible roles and deployed infrastructure
- We test git pushes and Gitlab Merge Requests





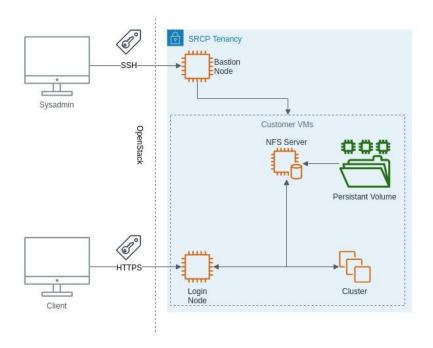






### The good stuff - A Demonstration

• Let's deploy a cluster & application server with NFS mounted homes



#### The good stuff - A Demonstration

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