SRCP - Secure Research Computing Platform

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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
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

* Still working on this
The good stuff - Infrastructure as Code [ IAC ]

- Git & Gitlab centric workflow
- Dev, Staging and Production
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