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

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

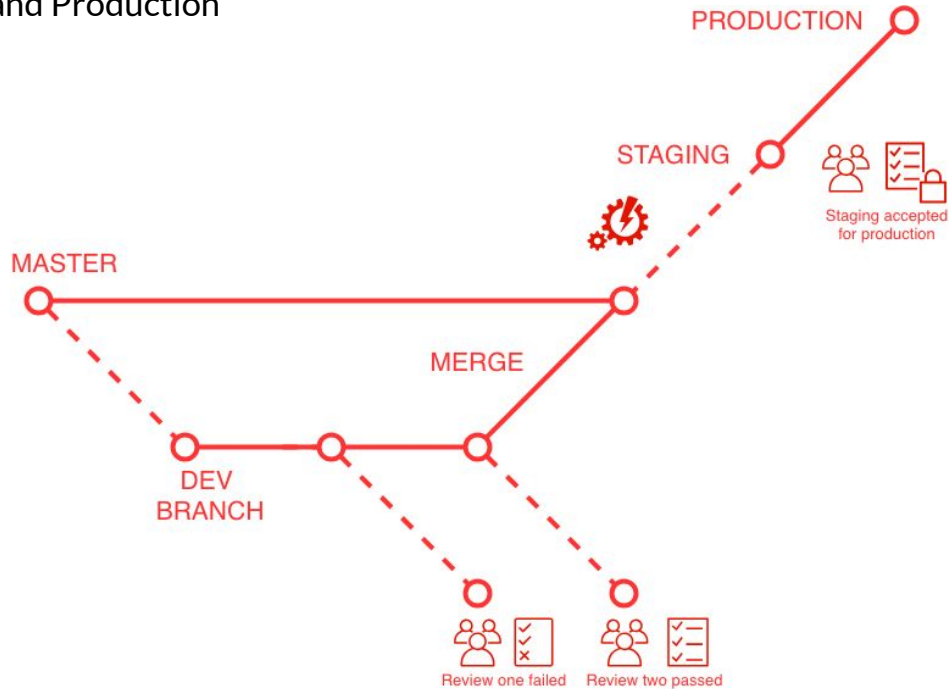# The good stuff - Infrastructure as Code [IAC]

- 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
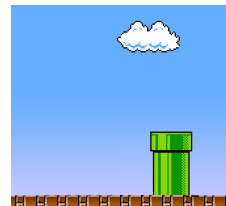
* Still working on this

The good stuff - Infrastructure as Code [IAC]

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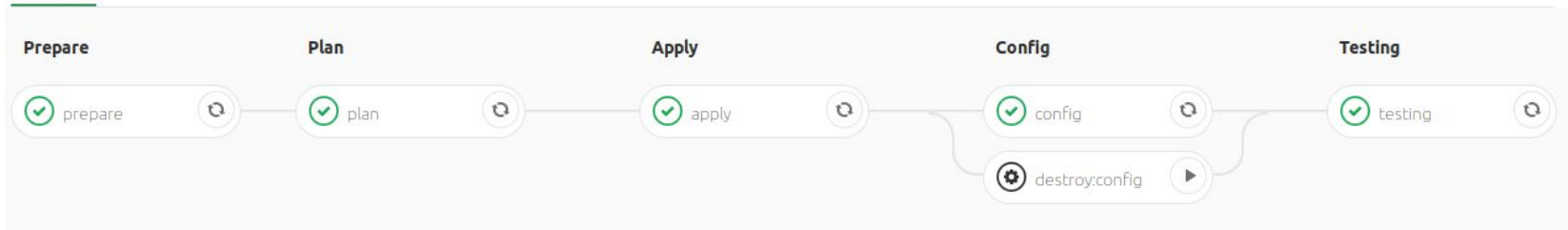- Dev, Staging and Production

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

Molecule

test infra

GitLab

Pipeline Jobs 6

Prepare	Plan	Apply	Config	Testing
✓ prepare ↻	✓ plan ↻	✓ apply ↻	✓ config ↻	✓ testing ↻
			⚙ destroy:config ▶	

The good stuff - A Demonstration

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

The good stuff - A Demonstration