vRealize Automation & Terraform: a New Way to Deploy

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vRealize Automation Cloud

VMware vRealize Automation (vRA) Cloud allows you to provide multi-cloud infrastructure and application delivery to your end users. It enhances visibility of your machines across your different private and public cloud providers and enables collaboration and provides continuous delivery and release automation.
vRealize Automation Cloud is comprised of three services: Cloud Assembly, Service Broker and Code Stream.

- Available on-premises (vRA 8) or SaaS (vRA Cloud)
- Easy to Get Started – All you need is a Credit Card
- Cheap to Learn – List Price ($ per Node) $0.03555/hour *
- Available Globally – US, Frankfurt, Sydney and Singapore
- Familiar to vRA 8 – Same code base, updated monthly

* Source: https://cloud.vmware.com/vrealize-automation-cloud/pricing

What is Infrastructure as Code?

- Manage and provision infrastructure through machine-readable configuration files
- Store configuration files in a version control system
- Speed up deployment times
- Reduce risk with consistent builds
- Repeatable – Reuse the same code to deploy across Dev / UAT / Prod

Two Approaches: Imperative vs Declarative

Imperative language

- Define the steps to be performed to achieve a result
- Examples include PowerCLI, vRO / JavaScript, Python

Declarative language

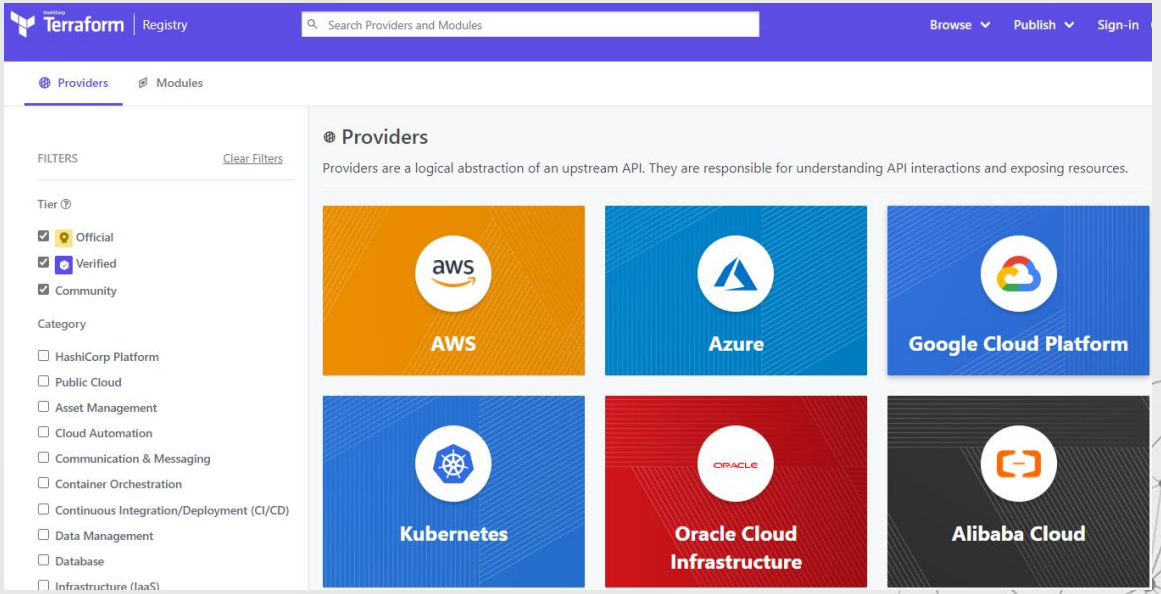
- Define what end result you want, not the exact steps (how)
- Examples include Terraform, Ansible, Puppet, Chef, PowerShell DSC

What is Terraform (OSS)?

Open source, free and simple executable file

Write Infrastructure as Code in the Hashicorp Configuration language (HCL)

Over 200 provider integrations including vSphere, AWS, Azure, GCP, K8s, Datadog, Grafana, F5, MongoDB, Artifactory, GitLab



Source: https://registry.terraform.io/browse/providers

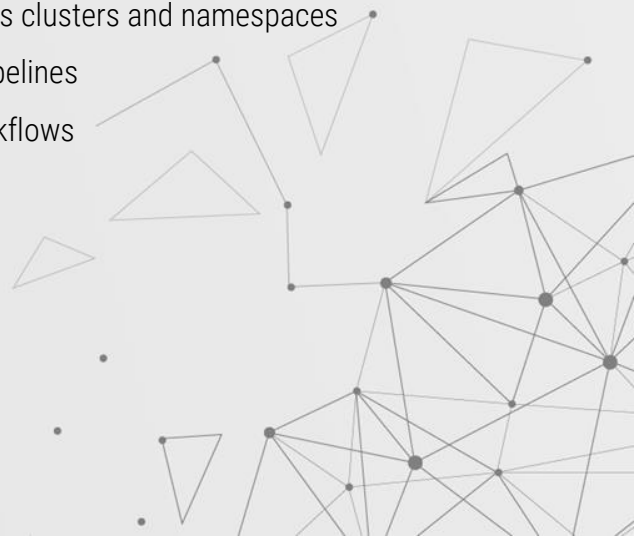
Terraform: How

- Create your Terraform configuration file (*.tf)
    - Specify your provider
    - Retrieve data sources from the provider
    - Create your resources
    - Run any post-provisioning tasks using local-exec or remote-exec
- Run the “terraform plan”
- Terraform takes your configuration file + TF state file, to calculate a PLAN
- Review your PLAN before running the APPLY command
    - Review the resources to be created / updated / deleted

Demo: VMware vSphere Terraform Provider

vRealize Automation Terraform Provider

- Setup your Infrastructure
  - Create Projects
  - Create Cloud Accounts
  - Create Blueprints Cloud Templates
  - Create Image, Size & Network Profiles
- Deploy your infrastructure
  - Deploy VMs to public and private clouds
  - Deploy Kubernetes clusters and namespaces
  - Deploy CI / CD pipelines
  - Request vRO workflows



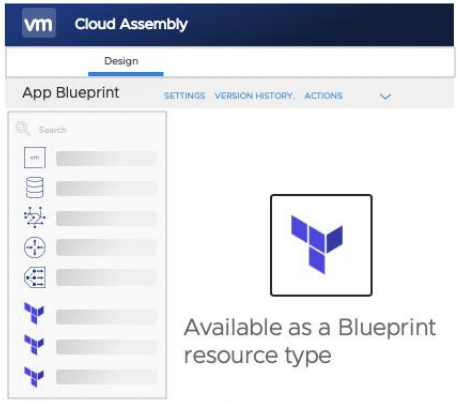
Demo: vRealize Automation Terraform Provider

vRealize Automation Terraform Service

- Extend vRA beyond its own built-in capabilities
- Enable users to consume Terraform configurations from within vRA

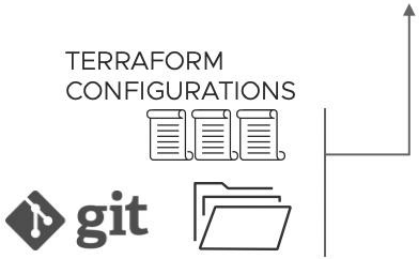
TF Service in vRA

Blueprint Designer

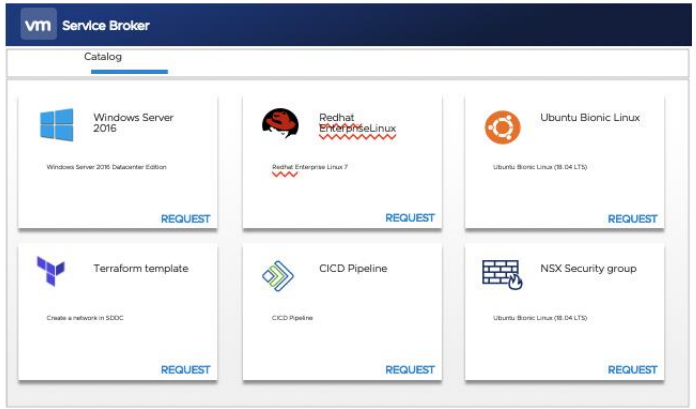


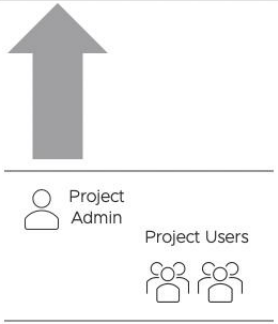
Available as a Blueprint resource type

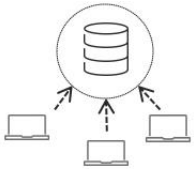
Terraform config files managed as vRA resource types



Self-service catalog

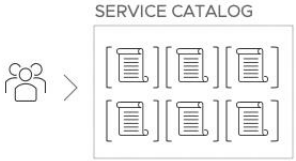






Shared State

Shared deployment state, Day 2 actions, brownfield workloads

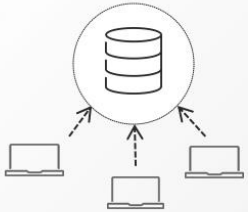


Self-service Catalog

Deploy Terraform templates from catalog, ServiceNow

Source: https://blogs.vmware.com/management/2020/09/terraform-service-in-vra.html

Terraform Service in vRA



Shared State

Shared deployment state, Day 2 actions

Hybrid TF-vRA Blueprints

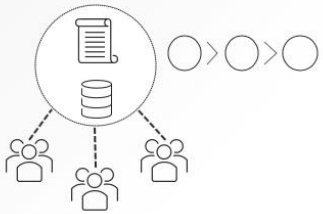
Combine .tf configurations with vRA resource types

Provisioning Policy

Enforce project policies – lease, approval, cost, version check, resource type

Collaboration and pipelines

Infrastructure Pipelines, reusable modules, Git integration

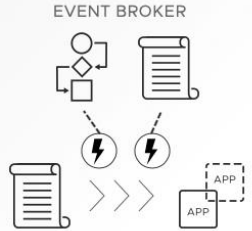


Self-service Catalog

Deploy Terraform configuration files from custom catalog forms or ServiceNow ITSM

Event based extensibility

Run extensibility actions, and workflows on lifecycle events



Source: https://blogs.vmware.com/management/2020/09/terraform-service-in-vra.html

Demo: Provision to Anything

Resources

- Examples from today: https://garyflynn.com/technology/hashicorp/vra-and-terraform-a-new-way-to-deploy/
- vRealize Automation Cloud: https://cloud.vmware.com/vrealize-automation-cloud
- Hashicorp Terraform: https://www.terraform.io/downloads.html
- vRA Terraform Provider Examples: https://github.com/vmware/terraform-provider-vra/tree/master/examples

THANKS

Does anyone have any questions?

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