ENABLE AGILITY WITH INFRASTRUCTURE-AS-CODE

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What we will cover today

- What challenges do we see in the field?
- What is Infrastructure as Code (IaC)?
- Principles, Practices and Goals
- Red Hat’s Dynamic Infrastructure solutions
- How can Red Hat help in your journey to Infrastructure as code?
INFRA TEAM CHALLENGES
Challenges faced by IT
And some Sysadmin tales...

- Server Sprawl
- Configuration Drifts
- Snowflake Servers
- “Fragile Infrastructure”
- Erosion
The Automation Fear Spiral

I make changes outside my automation tool

My servers are inconsistent

FEAR!

I’m afraid that running my automation will break something
The WHAT and the WHY of Infrastructure as code
WHAT is Infrastructure as Code?

- Infrastructure as Code = Approach to Infrastructure automation based on Practices from Software Development.

- Emphasizes **consistent, repeatable routines for provisioning and changing systems** and their configuration.

- The premise is that **modern tooling can treat infrastructure as if it were software** and data.
WHY Infrastructure as Code?

Virtualization, cloud, containers, server automation, and software-defined networking should simplify IT operations work.

Adopting cloud and automation tools immediately lowers barriers for making changes to the infrastructure.

Legacy change management processes are sometimes ignored, bypassed, or overruled by people who need to get things done and struggle to cope with the pace of change offered by cloud and automation.
Infrastructure as Code - Principles

- Systems can be easily reproduced (with confidence)
- Systems are disposable
- Cattle, not pets
- Systems are consistent
- Processes are repeatable
- Design is always changing
Infrastructure as Code - Practices

- Use Definition files (json, yaml or xml)
- Self-documented Systems and processes (embedded in the code, captured in scripts, definition files and tools)
- Version all the things (with VCS): traceability, rollback, correlation, visibility, actionability
- Continuously Test the systems and processes
- Small changes rather than batches
- Keep Services Available continuously
Infrastructure as Code - Goals

- IT infrastructure supports and enables change
- Changes to the system are routine
- IT staff spends their time on valuable things that engage their abilities
- Users can define, provision, manage resources they need
- Teams are able to easily and quickly recover from failures
- Improvements are made continuously
- Solutions to problems are proven through implementing, testing, and measuring them
Red Hat Dynamic Infrastructure Solutions
Red Hat OpenStack Platform director (RH OSP-d) is built on Triple-O project, which uses the IaC paradigm.

The configuration for the Overcloud is defined in templates.

All the templates are YAML files that define how the OpenStack cloud will look.

Any modifications to the OpenStack cloud should be done by modifying the templates and then running RH OSP-d to update the overcloud.

The overcloud can be completely rebuilt just by using the configuration defined in the templates.
How can Red Hat Consulting help?
Red Hat’s Consulting Methodology

ITERATE

DISCOVER

DESIGN

DEPLOY

ENABLE
Let’s schedule a Discovery workshop...

With your Business, Technology and Operations stakeholders and a white-board...

Objectives:
- Identify your business drivers, use cases, and challenges
- Articulate what solutions can help solve your Business needs
- Establish an action plan and an iterative roadmap...
Red Hat Services Solutions Program

**BUILD BETTER APPLICATIONS**
- Accelerate agility with business automation
- Integrate apps & data
- Migrate: IBM MQ to Red Hat JBoss A-MQ
- Migrate: TIBCO to Red Hat JBoss Middleware
- Migrate: JCAPS to Red Hat JBoss Fuse

**MIDDLEWARE & APPLICATION SERVICES**
- Red Hat Open Innovation Labs
- Application Platforms
  - Modernize application delivery with container platforms
  - Migrate & modernize apps
  - Create an integrated mobile enterprise
- Infrastructure
  - Optimize IT with open management for virtualization
  - Migrate to the cloud
  - Modernize application delivery with container platforms

**OPTIMIZE DELIVERY AND OPERATIONS**
- Accelerate IT automation with Ansible
- Cloud migration
- Modernize application delivery with container platforms

**BUILD BETTER INFRASTRUCTURE**

**RED HAT TRAINING AND CERTIFICATION**

**RED HAT OPEN PARTNER ENABLEMENT NETWORK**
QUESTIONS?
LEARN. NETWORK. EXPERIENCE OPEN SOURCE.