

When flexibility met simplicity:

The friendship of OpenStack and Ansible

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Intro: Robyn Bergeron



Community Architect
Ansible

Sysadmin, Industry Analyst, Business Analyst

Red Hat in 2010

Fedora Project Leader

Operations Advocate @ Elastic

Community Architect @ Ansible

Back at Red Hat :)

Intro: Major Hayden



Principal Architect
Rackspace

At Rackspace since 2006

Working on OpenStack since 2012

Contributor to the Fedora Project and Ansible

I created icanhazip.com and stopdisablinglinux.com

I have an addiction to buying domain names
(please do not give me any ideas)

Agenda

Why are we here?

What is Ansible?

What is OpenStack?

Automation for
everyone

Let's build something

What's next?

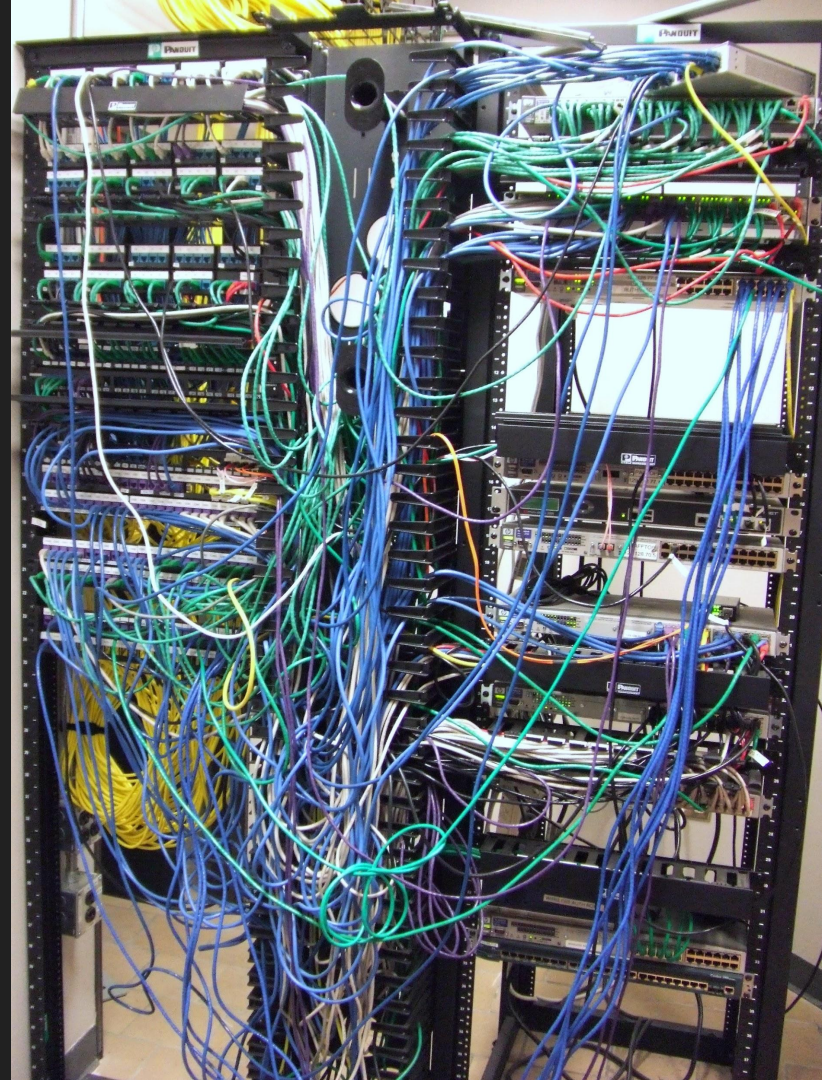




Why are we here?

IT is **complex** **and difficult**

(IT = information technology)



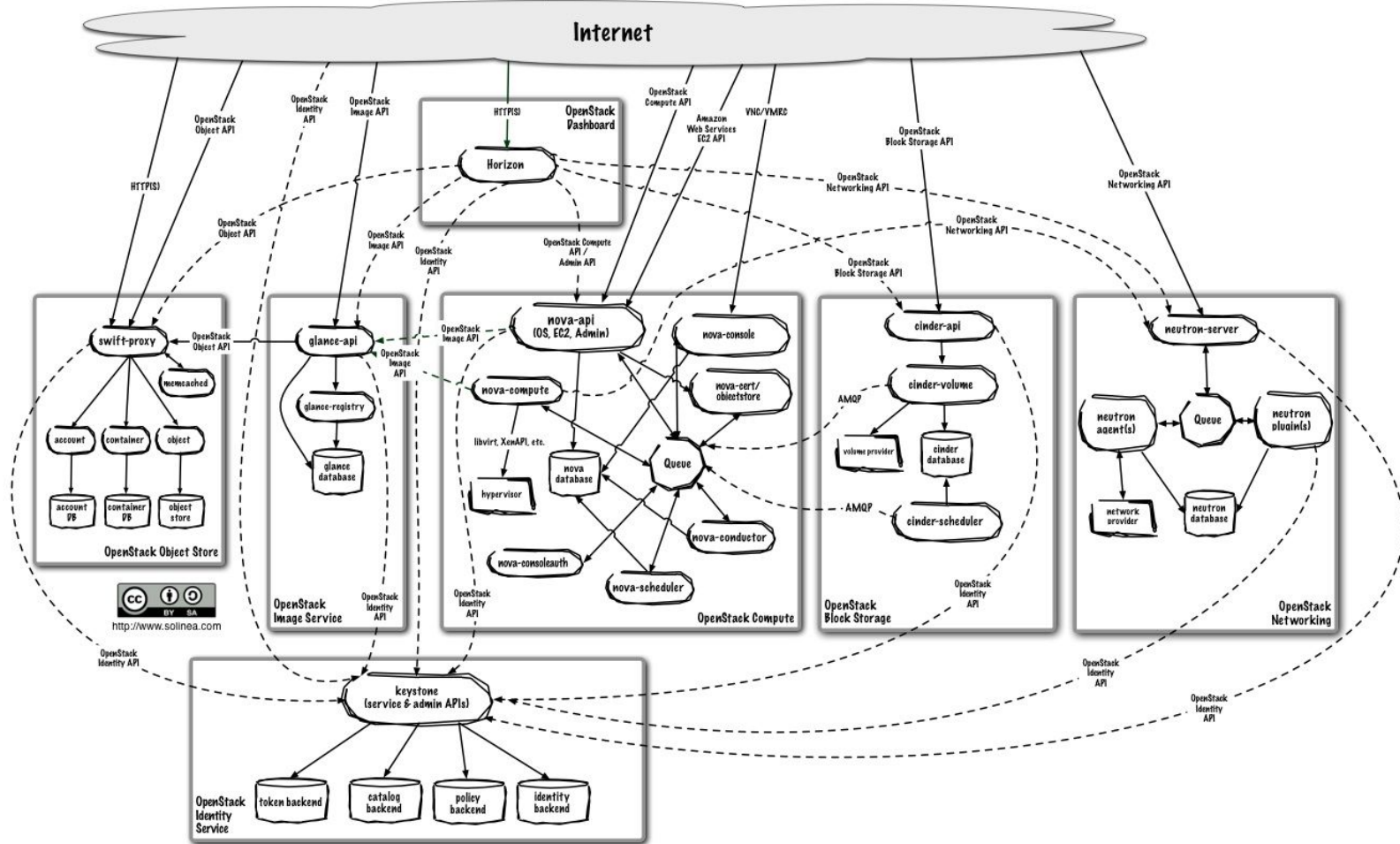
Ansible makes IT less difficult by
making it easier to manage

OpenStack makes IT less difficult by
delivering resources on demand

But clouds are difficult, too



- Command-line interfaces (nova, neutron, swift, and so on.)
- Cloud Management Tools (Rightscale, Enstratus, and so on.)
- GUI tools (Dashboard, Cyberdock, iPhone client, and so on.)



We need a flexible tool that
handles the plethora
of OpenStack operations

But is **simple enough** for
anyone to get the(ir) **job done**

What is **Ansible**?



What is Ansible?

Configuration management

Orchestration

Application Deployment

Kinda like a lot of things.

Which makes it kinda like nothing else at all.

AUTOMATE



ALL THE THINGS

Ansible is **simple** but **flexible**

Python under the hood, open source

No DSL, just YAML

No daemons or agents

Every task does one thing and one thing only

Uses ssh with existing authentication (keys, Kerberos, etc)

Easy to use, easy to learn, easy to share

Powerful enough to do lots of things

What is OpenStack?



What is OpenStack?

Open source software for creating private and public clouds

Based on microservices that focus on a single purpose

Rapidly evolving with new features and new projects

OpenStack is **complex** but **flexible**

Python under the hood, open source

Offers standards-based, portable APIs

Manages compute, storage, networking and other resources

Great fit for private clouds and scales up for public clouds

Ansible

reduces the complexity
of OpenStack but
keeps the flexibility.



Ansible and OpenStack:

Automation for everyone

Three groups of OpenStack users

Consumers

Build instances and connect resources with OpenStack APIs and dashboards; usually called the “end users”

Operators

Administrators that **manage projects, users, and cloud resources** (VMs, block/object storage, networks) they troubleshoot problems from consumers

Deployers

Engineers that **deploy, maintain and upgrade** the OpenStack cloud itself (servers and networking); they support the operators and consumers

How can Ansible help?

Consumers

Easy automation for builds using existing Ansible cloud modules. **No need for custom code.**

Operators

Administer the OpenStack infrastructure itself and manage the infrastructure it creates **with the same tasks, tools, and playbooks.**

Deployers

Ansible already deploys many OpenStack clouds and it has ad-hoc capabilities for quick fact gathering and adjustments.

A yellow excavator is shown in a construction setting, positioned on a pile of dark, loose soil. The excavator's arm is extended upwards and to the right, with its bucket open. The background features a line of green trees under a blue sky with scattered white clouds. A red metal fence is visible on the left side of the frame. The excavator's body has some text on it, including "220US" and "16".

Enough talk.
Let's build something.

WE'LL DO IT LIVE



I'LL WRITE IT AND WE'LL DO IT LIVE



Major Hayden

@majorhayden

When you're practicing your live demo and the conference wifi at the #redhatsummit has wild latency spikes.



Operator & Consumer Scenario

Marketing needs to launch a
website ASAP for a new
campaign

New project and user

Set up a network and subnet

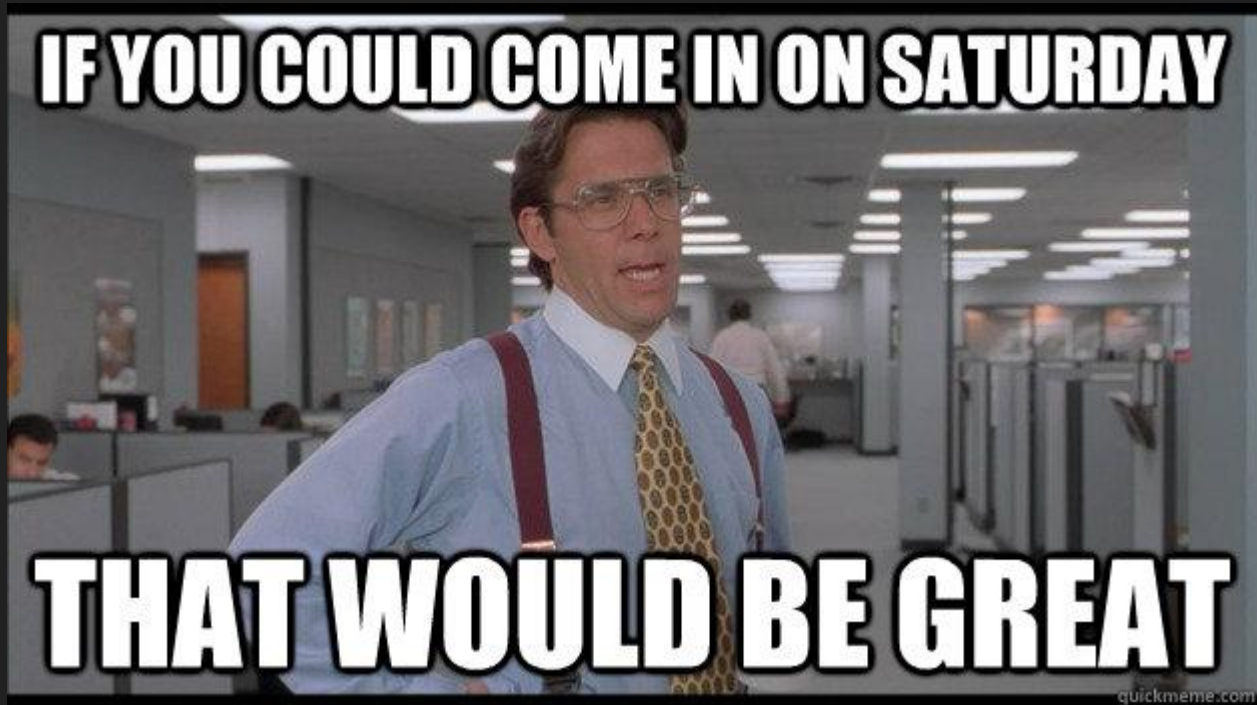
Add public ssh key

Add a security group with rules

Build an instance

Launch a website

Live demo time



You have Ansible.
Nobody needs to come in on Saturday.

You've seen the simple stuff.
What happens when you try
to solve **tougher problems**?

Use case: OpenStack's Zuul project

Zuul launches thousands of jobs per hour across 10 clouds to test OpenStack patches

Ansible runs the tests using dynamically-generated playbooks, inventory, and tasks

Ansible allows for horizontal scalability and more flexibility than traditional shell scripts



Use case: OpenStack-Ansible

OpenStack-Ansible is an OpenStack project that deploys production OpenStack environments using Ansible roles

Consists of over 3,000 commits from 30 different companies

It's the backbone of the OpenStack Innovation Center's (OSIC) clusters (2,000 nodes) as well as the Rackspace Private Cloud product

```
- name: Set nova get_venv fact
- set_fact:
  - nova_get_venv: "{{ get_venv }}"
- when: nova_venv_enabled | bool
- tags:
  - nova-install
  - nova-pip-packages

- name: Remove existing venv
- file:
  - path: "{{ nova_venv_bin | dirname }}"
  - state: absent
- when:
  - nova_venv_enabled | bool
  - nova_get_venv | changed
- tags:
  - nova-install
  - nova-pip-packages

- name: Create nova venv dir
- file:
  - path: "{{ nova_venv_bin | dirname }}"
  - state: directory
- when:
  - not nova_developer_mode | bool
  - nova_venv_enabled | bool
  - nova_get_venv | changed
- tags:
  - nova-install
  - nova-pip-packages

- name: Unarchive pre-built venv
- unarchive:
  - src: "/var/cache/{{ nova_venv_download_url | basename }}"
  - dest: "{{ nova_venv_bin | dirname }}"
  - copy: "no"
- when:
  - not nova_developer_mode | bool
  - nova_venv_enabled | bool
  - nova_get_venv | changed
- notify: Restart nova services
- tags:
```

More Ansible-powered projects

Kolla

Bifrost

Ursula

openstack-ansible-security

(these are the easy-to-find, open source things!)

A workshop wall with various tools hanging on a pegboard. The tools include hammers, wrenches, screwdrivers, and power tools. The text "How do I get started?" is overlaid in the center.

How do I get started?

RTFM*

<http://docs.ansible.com/>

* read the fabulous manual :)

Find your fellow **Ansi-bulls**

#ansible on Freenode IRC

ansible.meetup.com (35,000+ members)

ansible.com/community



JULY 28, 2016

#ANSIBLEFEST
SAN FRANCISCO
2016



A nighttime aerial photograph of Barcelona, Spain, featuring illuminated historic buildings, palm trees, and modern architecture. The city lights create a vibrant backdrop for the event information.

devs
openstack
summit
users

October 25-28, 2016

BARCELONA

Thank you! Questions?

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Photo credits

San Francisco at night (title slide): Anh Dinh <https://flic.kr/p/pqPouz>

Digger: Richard Carter <https://flic.kr/p/dh2QpH>

Cable spaghetti: Cloned Milkmen <https://flic.kr/p/6uyyCC>

Tools on pegboard: mtneer_man <https://flic.kr/p/xlyUj>

All other photos not mentioned here are provided courtesy of Rackspace and Ansible.