OPENSTACK DAY FRANCE - 2016/11/22

Jean-Philippe Evrard -- @evrardjp

OPENSTACK-ANSIBLE

Simple flexible deployments of OpenStack

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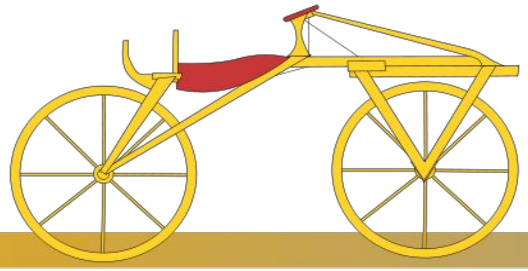
rackspace®

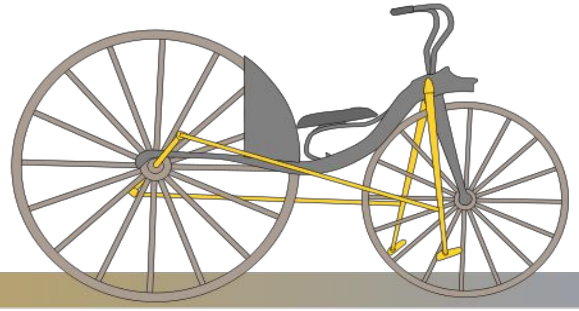
YOUR CLOUDS.
OUR EXPERTISE.

Agenda

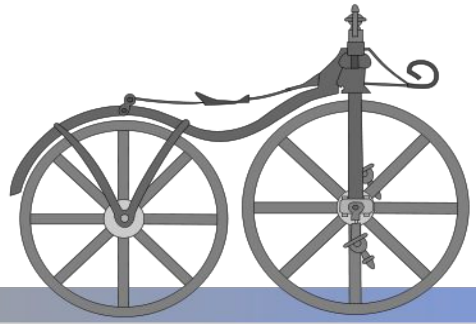
1. Genesis - My story
2. Ansible?
3. OpenStack-Ansible?
4. Get involved! Try it, join the community



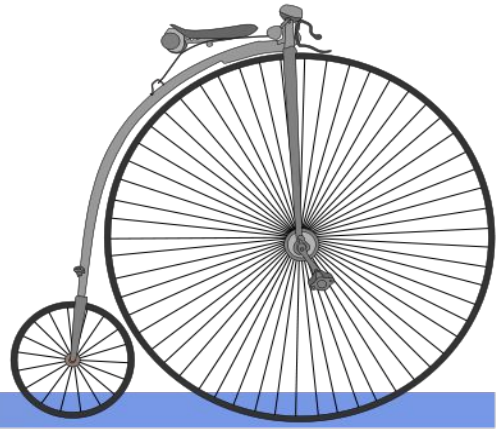
1818
draisine



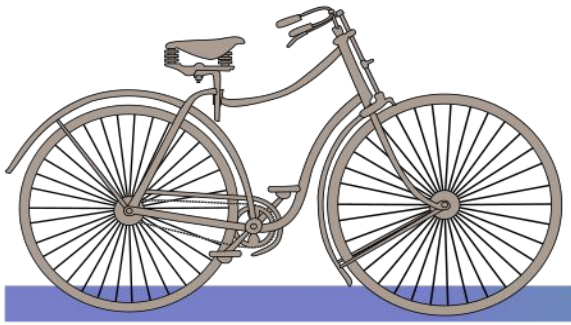
1869
two-wheel velocipede



1860
pedal-bicycle



1870
high-wheel bicycle



1890
safety bicycle

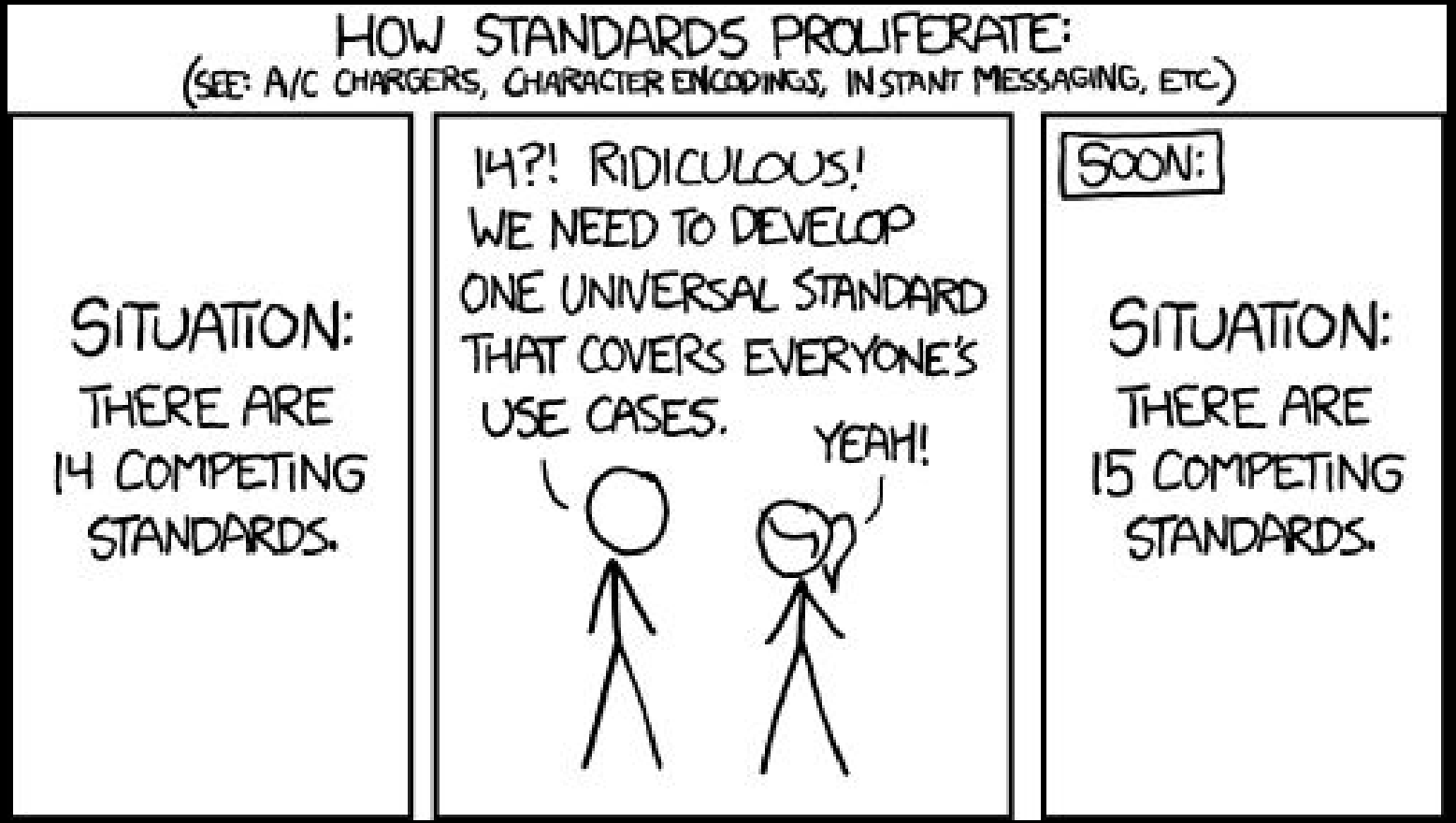
1960s
racing bike

Mid 1970s
mountain bike

rackspace. YOUR CLOUD IS. OUR EXPERTISE.

We **seriously** needed **another** way to deploy OpenStack clouds?

Standards



https://xkcd.com/927/

About me

Jean-Philippe Evrard
Software Developer
Rackspace

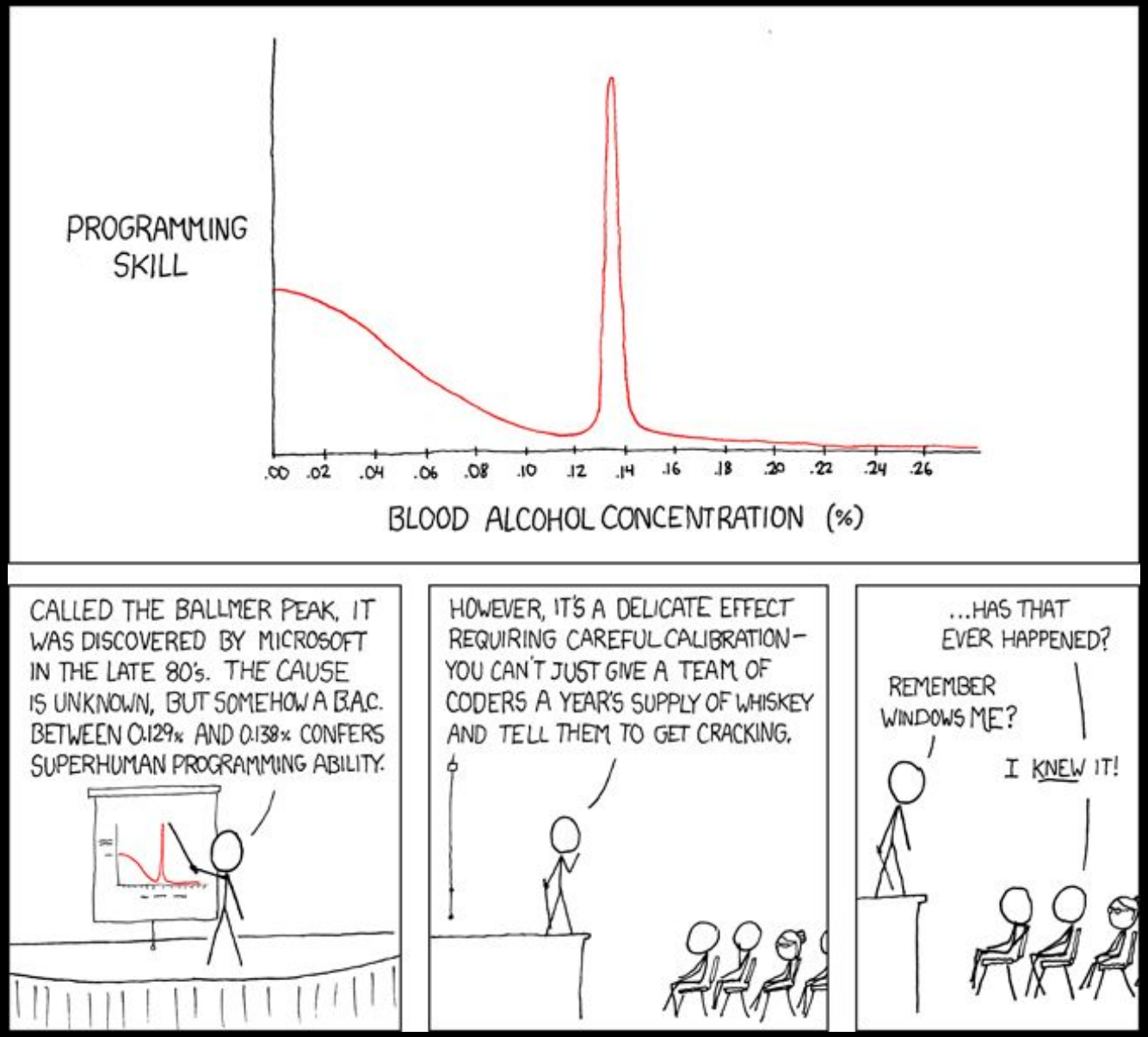
- Worked in Banks/ISP/IT
  as PL/PM/Dev
- Passionate about automation
- Previous proud owner of gôôgle.be
  until it was not funny anymore
- Wait, did I tell you I love automation?
- Love XKCD
- OpenStack-Ansible contributor

Different use cases
demand **different**
deployment methods

We want it all.

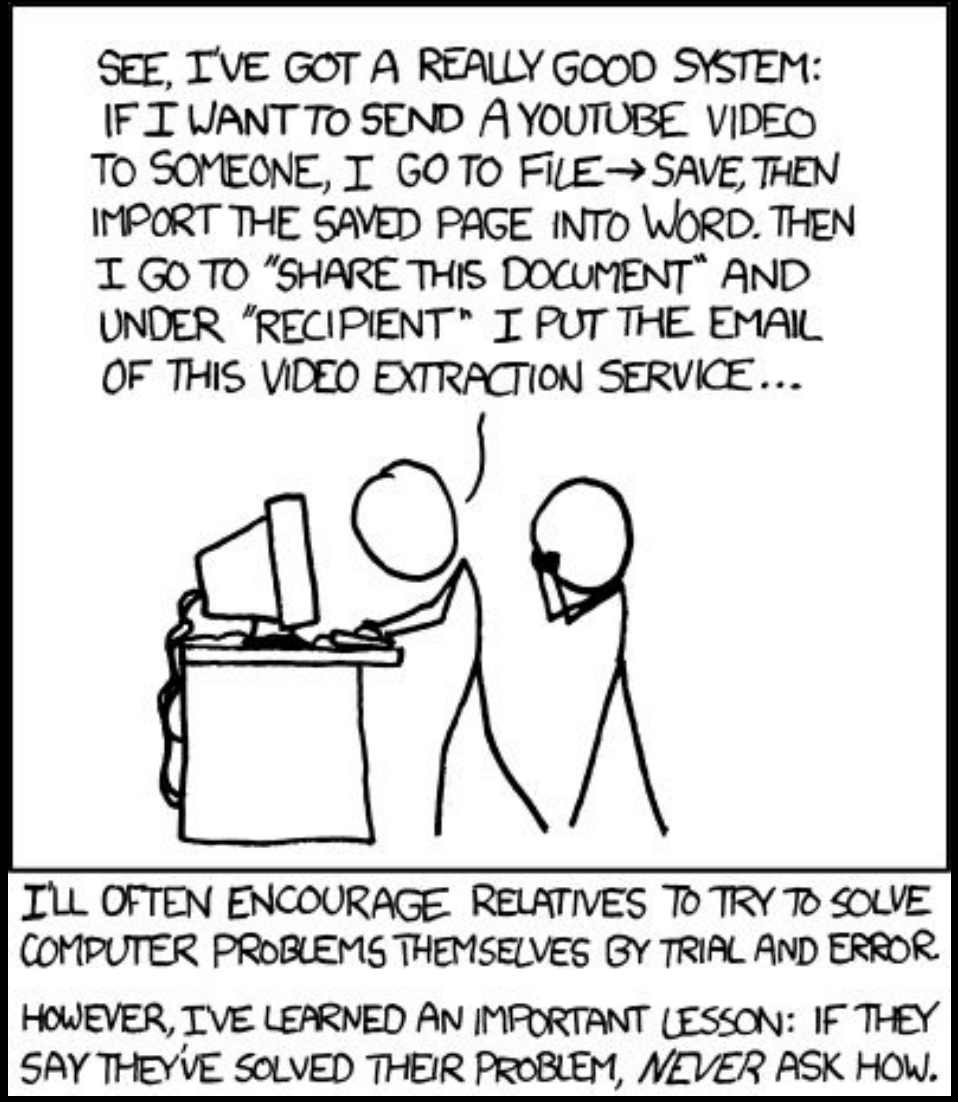
We want it now.

Expectations



https://xkcd.com/323/

Workaround



https://xkcd.com/763/

Guess what?

https://xkcd.com/1172/

Existing deployment methods had limitations

Rigid configuration

Upgrade challenges

Small or no community available (vendor lock-in)

Why Ansible?

Highly extensible

Each task does one action

Tasks are grouped into roles

Roles are tied together with playbooks

Simple variable scope

Every role or task **variable** can have a **default** value

Additional variables **per env**ironment

Deployers can **override all** of these variables **easily**

Dependencies make sense

If you can read top-down, you understand Ansible’s dependencies

Very little baggage

No daemons or agents

No clients or servers

Everything uses ssh

Use your existing keys, users, and auth mechanisms (like Kerberos!)

Why OpenStack-Ansible?

Large collection of roles

A backbone of playbooks that links multiple roles together

Each openstack service has its own role

We define “standards” defaults in roles

We give an overridable, opiniated override

OpenStack-Ansible is
built by **operators**
for **operators**

Isolation

Each service deploys into a different lxc container

Each service gets unique message queue and database credentials

Each service queries different databases and message queue virtual hosts

Coordination and testing

Every change is tested as part of the whole stack

If a keystone change breaks nova, automated testing will fail

We test multiple scenarii per role when possible

Deprecated configurations and imports are handled gracefully

Documentation

Lots of installation documentation and reference guides

Real-world use cases and integrations

We have openstack docs cores reviewing it on a daily basis!

Growing, diverse community

Over 5k commits from 42 companies

Top 5 contributors overall: Rackspace, Comcast, Independants, Walmart, Intel

Deploy, **maintain**, and **upgrade** with ease

Deploy

Maintain

Upgrade

Deploy to one host, 100 hosts, or 1,000 hosts

High availability is built-in

Control over quantity and location of Openstack services

Comes with opinionated defaults from OpenStack operators

Deploy

Maintain

Upgrade

Change configurations with little or no downtime

Rebuild any container quickly after a failure or disruption

Add, remove or replace control plane nodes as needed

Comprehensive host security hardening

Deploy

Maintain

Upgrade

Upgrading between and within major releases is a first class feature

Services are carefully upgraded along with database migrations

Deprecations are handled gracefully

What about **security**?
UNIQUE
WORLD BALL

OpenStack-Ansible has a security role

Applies 200+ security configurations
on hosts and virtual machines

Follows the guidelines from the DISA STIG

Lots of auditor-friendly documentation

Supports Ubuntu 14.04/16.04, CentOS 7 and Red Hat Enterprise Linux 7

Get involved

```
- 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:
```

Join our community

Freenode IRC: #openstack-ansible

Mailing list: openstack-dev@lists.openstack.org
(use the `[openstack-ansible]` tag in the subject line)

Code: https://github.com/openstack/openstack-ansible

Docs: http://docs.openstack.org/developer/openstack-ansible/

AIO quickstart:
http://docs.openstack.org/developer/openstack-ansible/developer-docs/quickstart-aio.html

Try an AIO!

```
> git clone https://git.openstack.org/openstack/openstack-ansible \
    /opt/openstack-ansible
> cd /opt/openstack-ansible
> scripts/bootstrap-ansible.sh
> scripts/bootstrap-aio.sh
> cd playbooks
> openstack-ansible setup-everything.yml
```

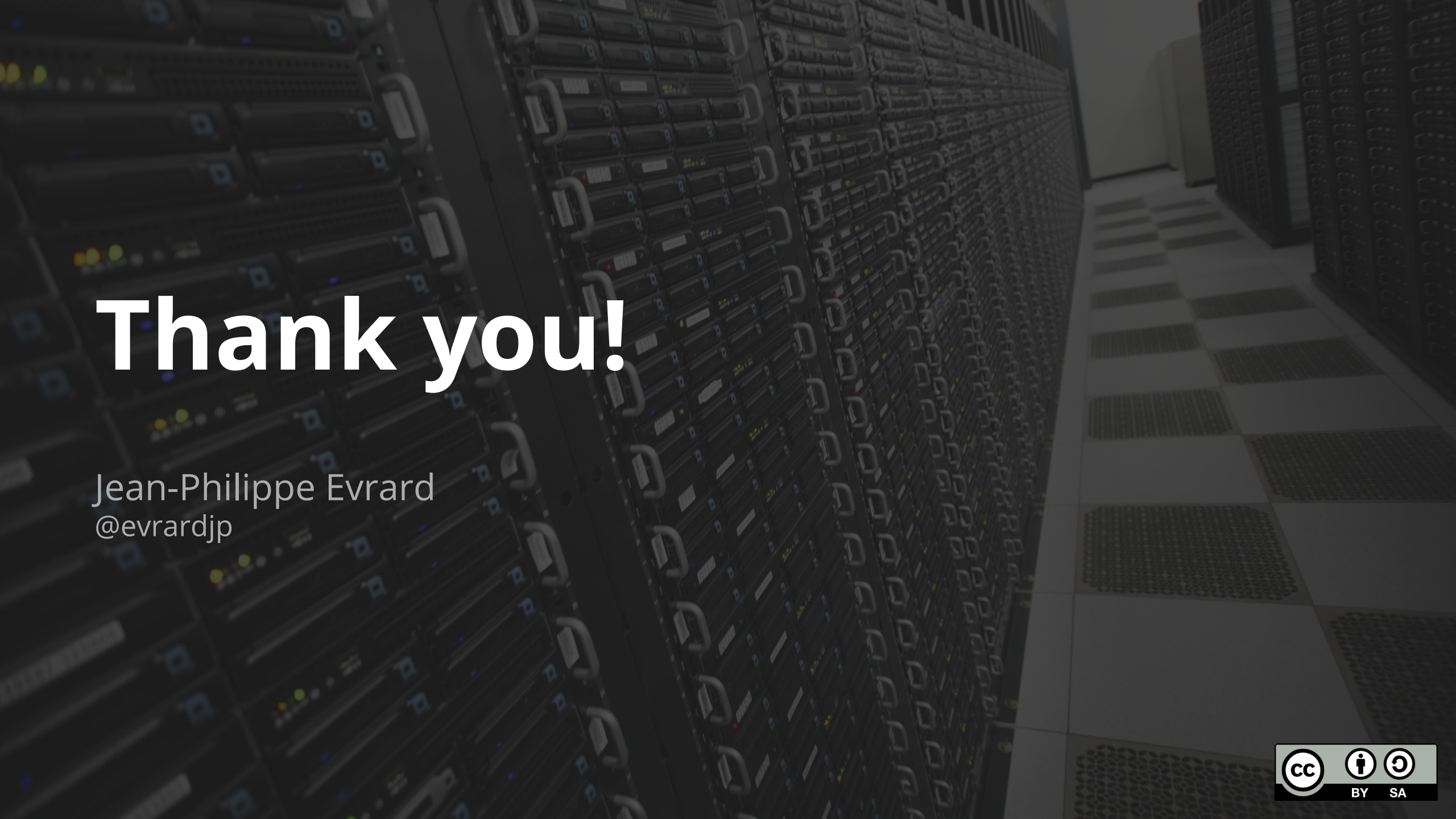
Future

Improve test coverage (scenarii, upgrades)

Add more roles

Improve the inventory

Blueprints: https://blueprints.launchpad.net/openstack-ansible



Thank you!

Jean-Philippe Evrard
@evrardjp

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Credits

Lock on old door: Denise Krebs (Flickr) https://www.flickr.com/photos/mrsdkrebs/13006945815/

Bike evolution: https://commons.wikimedia.org/wiki/File:Bicycle_evolution-en.svg

16th Avenue Tiled Stair Project: Ed Bierman (Flickr) https://www.flickr.com/photos/edbierman/13360393053

Cyberbunker datacenter: https://commons.wikimedia.org/wiki/File:CyberBunker_Data_Center.jpg

Freddie Mercury: https://commons.wikimedia.org/wiki/Freddie_Mercury#/media/File:Freddy_Mercury_statue_in_Montreux.jpg

Operator: https://commons.wikimedia.org/wiki/File:Offutt_Air_Force_Base_operator.jpg

All other photos are provided courtesy of Rackspace

Original slide deck from Major Hayden