



# Deploying OpenStack

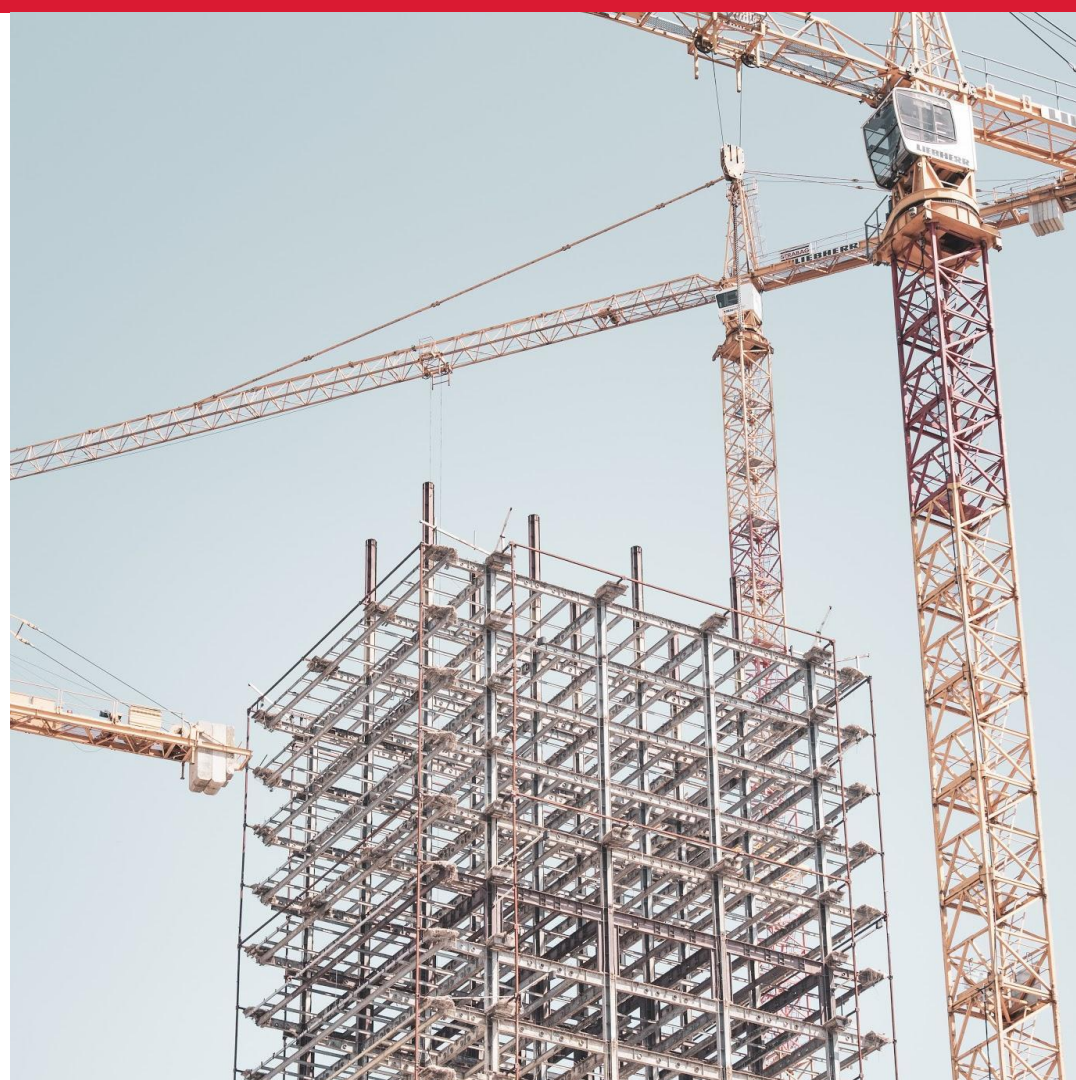
What options do we have?

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**Maciej Kucia**  
**Maciej Siczek**

# Agenda

- Introduction
- Deployment projects
- LCM projects
- Commercial offerings
- Summary



# Preconditions

## Use case

POC, private cloud, public cloud

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## OpenStack projects

Keystone, Nova, Neutron ...

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## Bare metal provisioning

Ironic (Bifrost)? Kickstart?

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## Lifecycle management

Upgrades, Scaling, Troubleshooting ...

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## Ecosystem

RPM (RedHat, Fedora) or  
DEB (Debian, Ubuntu)?

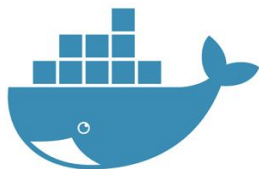
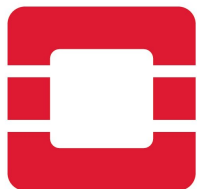
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## Containers

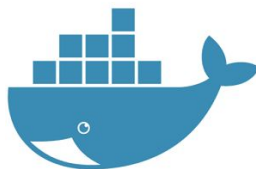
Kubernetes? Containerized control plane?

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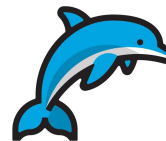
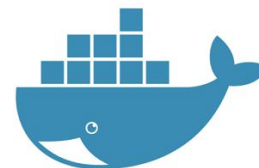
# Containers



Containerized OpenStack  
(CO)



OpenStack on K8s  
(OOK)



OpenStack with containers  
(OwC)

## Focus areas



OpenStack foundation



Vendor lock-in



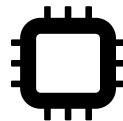
Docker containerized



Community maintenance



Kubernetes

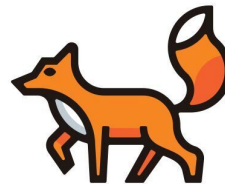


Bare-metal provisioning

# Manual Installation

<https://docs.openstack.org/install-guide/>

- Great way to learn
- Suse, RedHat, Ubuntu
- If something goes wrong, long time to fix
- Lack of automation is a bad sign...



**DOCUMENTATION**

*an OpenStack Community Project*





# DevStack

<https://docs.openstack.org/devstack/latest/>

- Suse, RedHat, Ubuntu
- For developers who work on core services
- Simple `./stack.sh`
- Optimized for single node (preferably VM)
- Uses bleeding-edge codebase (a.k.a unstable)



# Kolla & Kolla-Ansible

<https://docs.openstack.org/kolla/latest/>

- Kolla - build containers
- Kolla-Ansible - deploy and manage containers
- Download from docker hub or build yourself
- Quite flexible
- Limited bare-metal provisioning and configuration



# KOLLA

*an OpenStack Community Project*





## Other

Project	Key points
OpenStack Ansible	LXC
OpenStack Helm	Kubernetes
OpenStack Puppet	RDO, Packstack
OpenStack Chef	Low activity
OpenStack Charms (Juju)	Canonical
OpenStack Salt	Dead
Fuel	Dead
Stackanetes	Dead

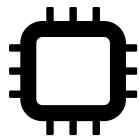
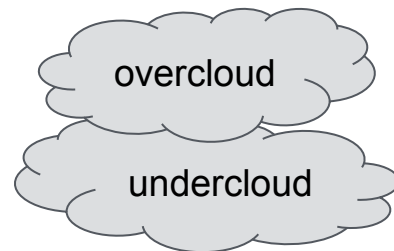
# Triple-O

<https://docs.openstack.org/tripleo-docs/latest/index.html>

- OpenStack on OpenStack
- Supports upgrades and ops
- Puppet manifests and heat templates
- Manage bare-metal via Ironic
- Heavy
- Currently transitioning to CO and Kubernetes in the future



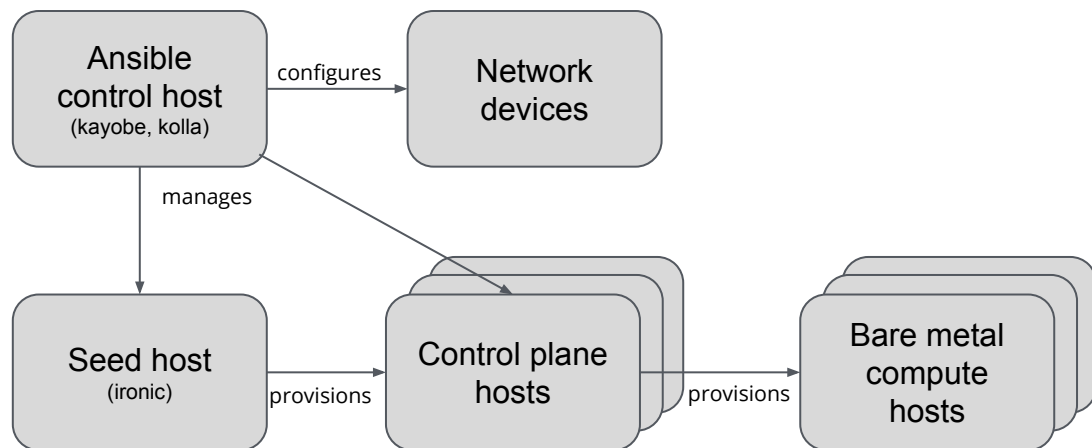
**TRIPLEO**  
*an OpenStack Community Project*



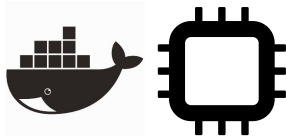
# Kayobe

<https://kayobe.readthedocs.io/en/latest>

- Kolla on Bifrost (K-O-B)
- Combines Kolla + Kolla Ansible with Bifrost (Ironic) to create start-from-scratch-like package
- Kayobe vs container orchestrators
- Architecture
- Installation

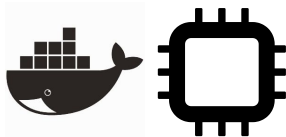


source: <https://www.slideshare.net/MarkGoddard2/to-kayobe-or-not-to-kayobe>



## Kayobe (cont.)

- Extends pure kolla-ansible with:
  - bare metal provisioning
  - physical network device management
  - managing host configuration
  - command-line interface
- Supports Ansible Vault
- To be added: monitoring and log collection with Monasca
- Community & license

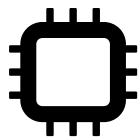


# Airship

<https://www.airshipit.org>



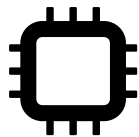
- Integrates components to provide all-in-one framework for containerized software delivery  
From bare metal provisioning, to managing lifecycle
- Architecture  
Infrastructure services run in containers  
Kubernetes orchestrates containers, uses OpenStack Helm  
"self-hosted"
- Declarative approach  
Manifests (YAMLs) define various layers of desired conf.  
Manifests are validated and versioned



## Airship (cont.)



- Single workflow for operations  
No difference for operator between cloud creation, reconfiguration, scaling, upgrade
- Bare metal provisioning, host configuration
- Rolling upgrades and roll-backs thanks to Kubernetes
- One can adopt only selected components of Airship
- Very recently released 1.0

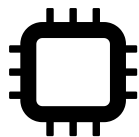


# StarlingX



<https://www.starlingx.io>

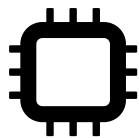
- Cloud infrastructure software stack optimized for edge clouds  
Components, optimization areas
- Based on Wind River Titanium Cloud
- Deploy single / double / multi server / multi region architecture
- Central management for multiple (distributed) edge clouds



## StarlingX (cont.)



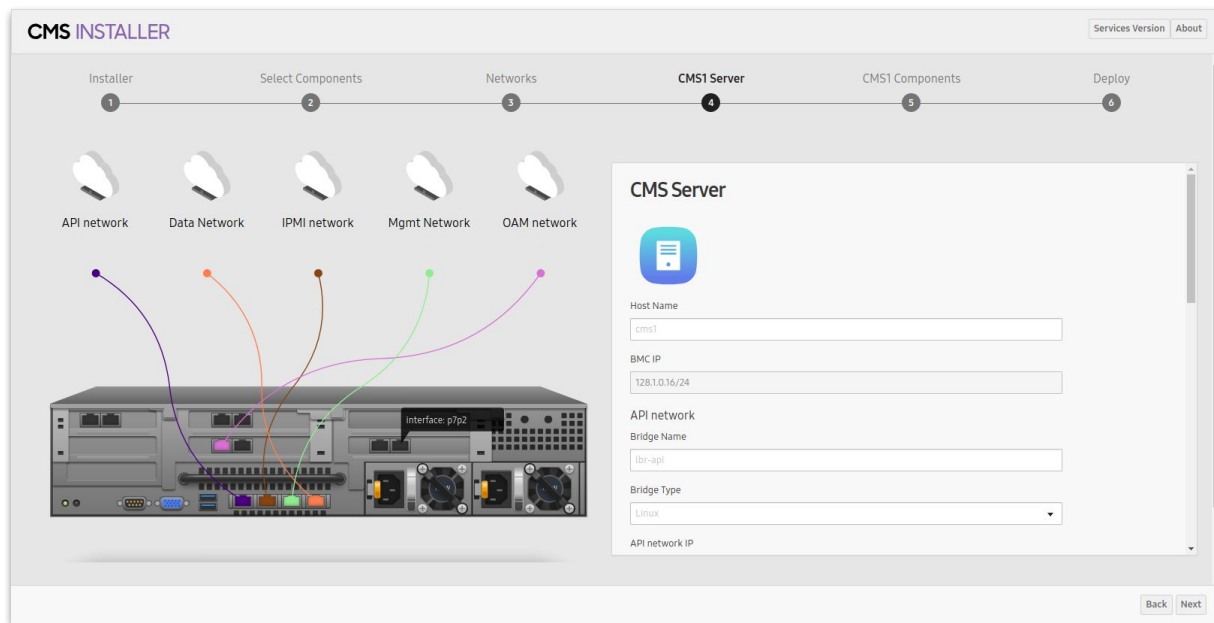
- StarlingX infrastructure services
  - Configuration Management
  - Fault Management
  - Host Management
  - Service Management
  - Software Management
- Releases
  - First release - 10/24/2018
  - Second release - coming in August
  - Release plan
- Working on containerization of OpenStack and own services (Kubernetes, OpenStack Helm, Airship Armada)
- Apache 2 license





# Commercial offerings

- Additional value for money
- Frequently based on community projects
- Vendor lock-in
- Reduce OpenStack complexity
- Support



# Summary

Project	Weak points	Strong points
Manual	Not for production	Good to learn
Kolla-Ansible	Lack of node provisioning	Good to learn
Kayobe	Small community	Lightweight & elastic
Triple-O	Heavy, hard to master	Complete LCM
Helm	K8s is not always needed	Advanced features like rolling upgrade
Airship	Recent development	Complete LCM on k8s
StarlingX	Release 1.0 not containerized	Complete LCM with advanced services
Commercial	Costs money	Individual approach and niche features

# THANKS.

Questions?

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**SAMSUNG**