



# ITALY

*OpenInfra Days*



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OpenStack Foundation

# Open Infrastructure for Cloud Native Applications

# OSF: We Help People Build and Operate Open Infrastructure



- A global, **diverse community** of open infrastructure architects and operators
- **Builders** of open source infrastructure tools, world-class CI and integration testing
- The **place for collaboration**, learning & problem solving for infrastructure operators and users, online and at events around the world...where work gets done!
- The **largest footprint** of open source cloud deployments around the world

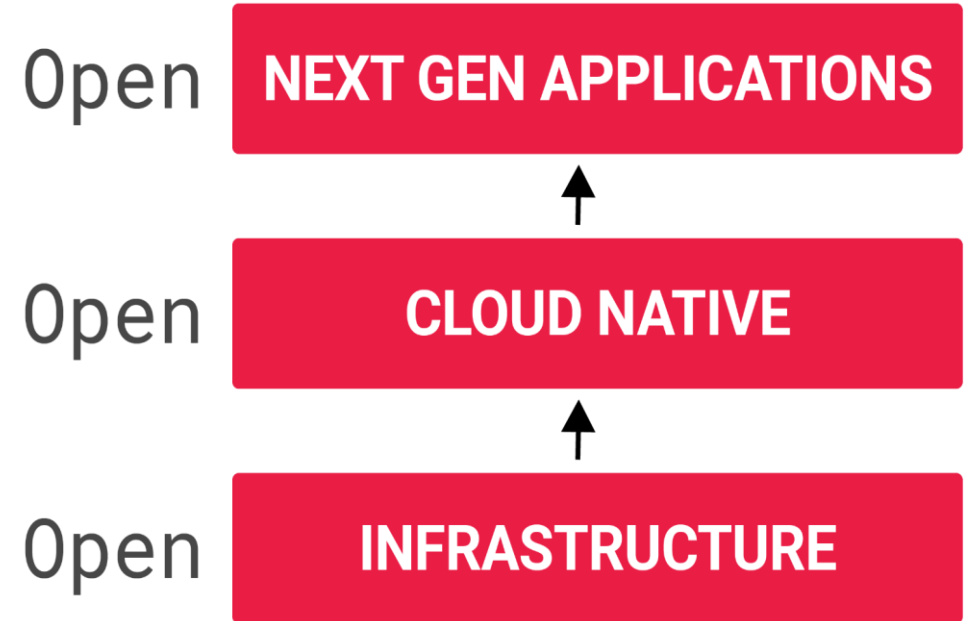
# Open Infrastructure

## What is it?

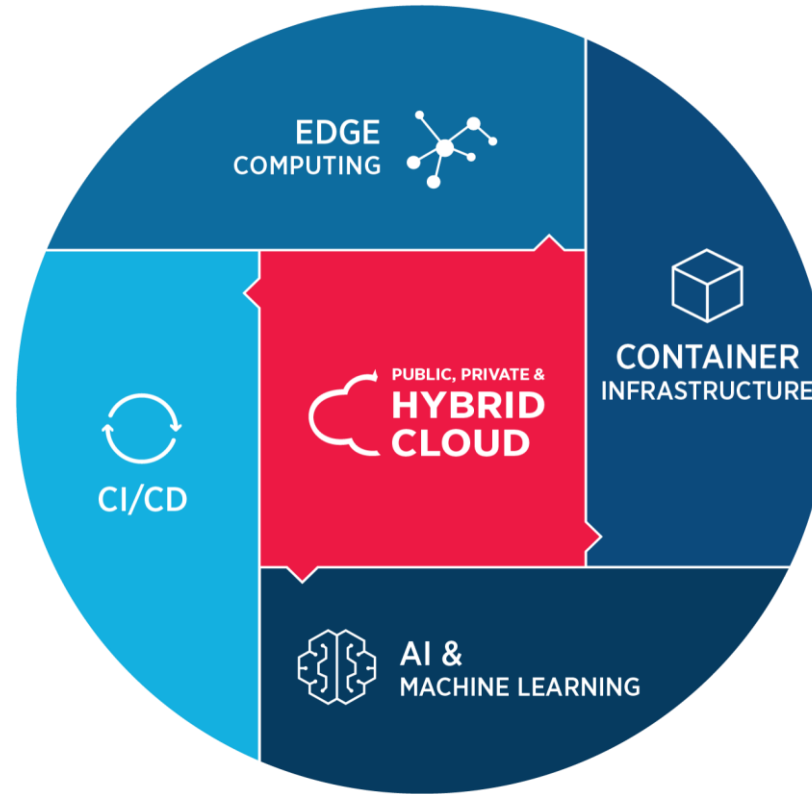
- IT infrastructure built with open source components

## Why is it important?

- Brings benefits of open source to the infrastructure layer by providing:
  - Flexibility
  - Innovation
  - Interoperability
  - Collective knowledge of the open source communities!



# Open Infrastructure Markets Today





# Integration Challenge

- The biggest challenge for open infrastructure users is the increasing complexity caused by an explosion of **open source tools at every layer**.
- OSF will lead the effort to squash this complexity by **collaborating across projects and communities** to integrate these systems and test all of the components together.
- Rapidly emerging areas including edge computing, 5G, AI and machine learning all require agile, programmable infrastructure.
- **OSF is evolving to meet the needs of these new use cases**, with a strong focus on integration across the open infrastructure landscape.

# OSF Integration Strategy



# Building New Technology: OSF Projects



# OSF Projects



Making lifecycle management for open infrastructure simple, repeatable & resilient

Pilot



Secure, lightweight CRI compatible virtualized containers

Confirmed



Programmable infrastructure for VMs, containers and bare metal

Confirmed



Edge cloud computing Infrastructure for high performance, ultra-low latency applications

Pilot

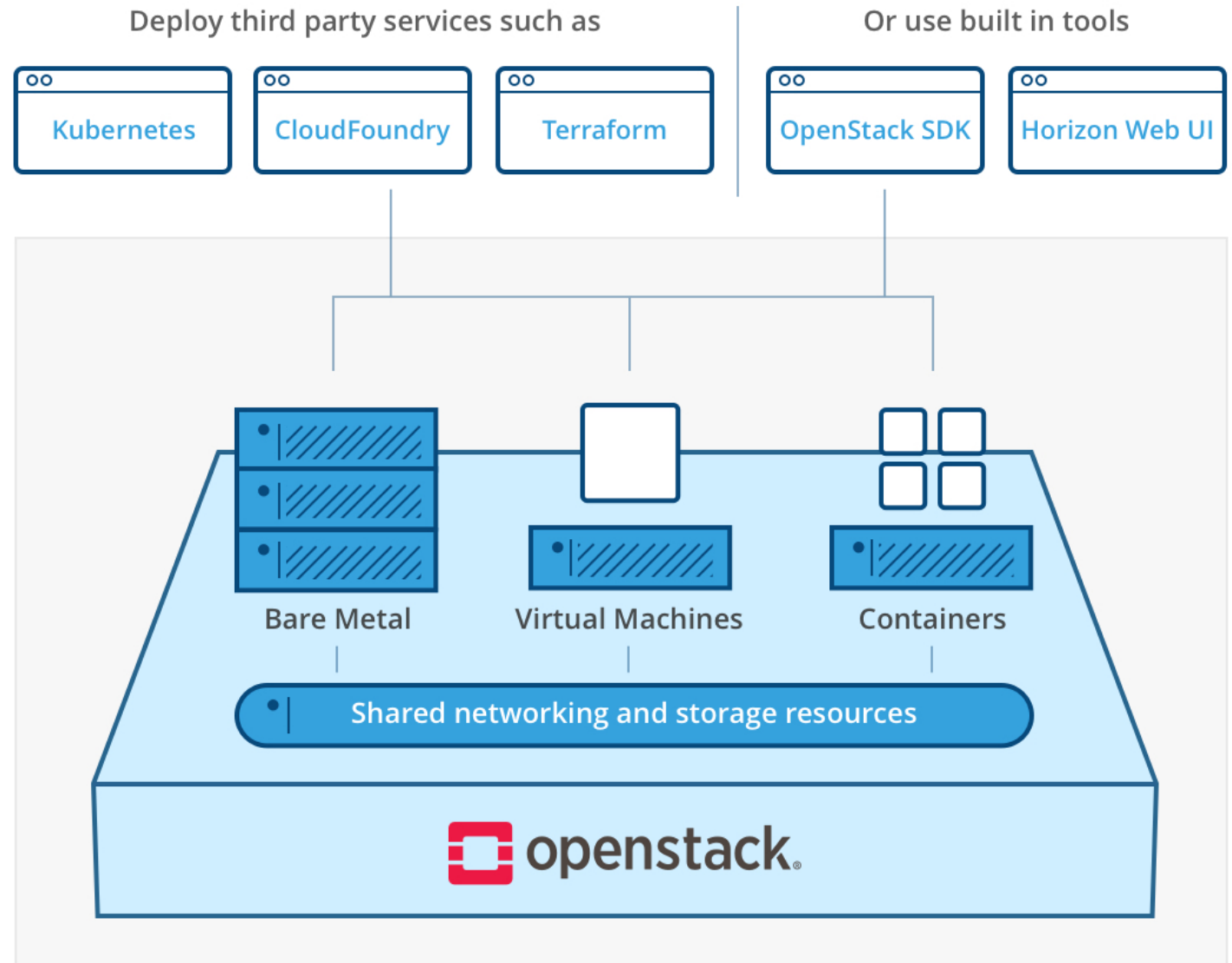


CI/CD platform for gating changes across multiple systems/repos

Confirmed



OpenStack is a cloud operating system that controls large pools of compute, storage, and networking resources throughout a datacenter, all managed and provisioned through APIs with common authentication mechanisms.



[OpenStack.org](https://OpenStack.org) | [@OpenStack](https://twitter.com/OpenStack) | [Lists.OpenStack.org](https://lists.openstack.org) | [Info@OpenStack.org](mailto:Info@OpenStack.org)





# 65,000

COMMITTS IN 2018

**Average of 155 changes/day  
during Stein cycle**

(Only 3 projects achieve this level of activity: OpenStack,  
Linux kernel and Chromium.)

# 10 MILLION OpenStack Compute Cores

## RETAIL/E-COMMERCE



## FINANCIAL SERVICES



## ACADEMIC/RESEARCH



## TELECOM



## ENERGY/TRANSPORTATION/GOVERNMENT



## MANUFACTURING



## WEB & ENTERTAINMENT



## PUBLIC CLOUD



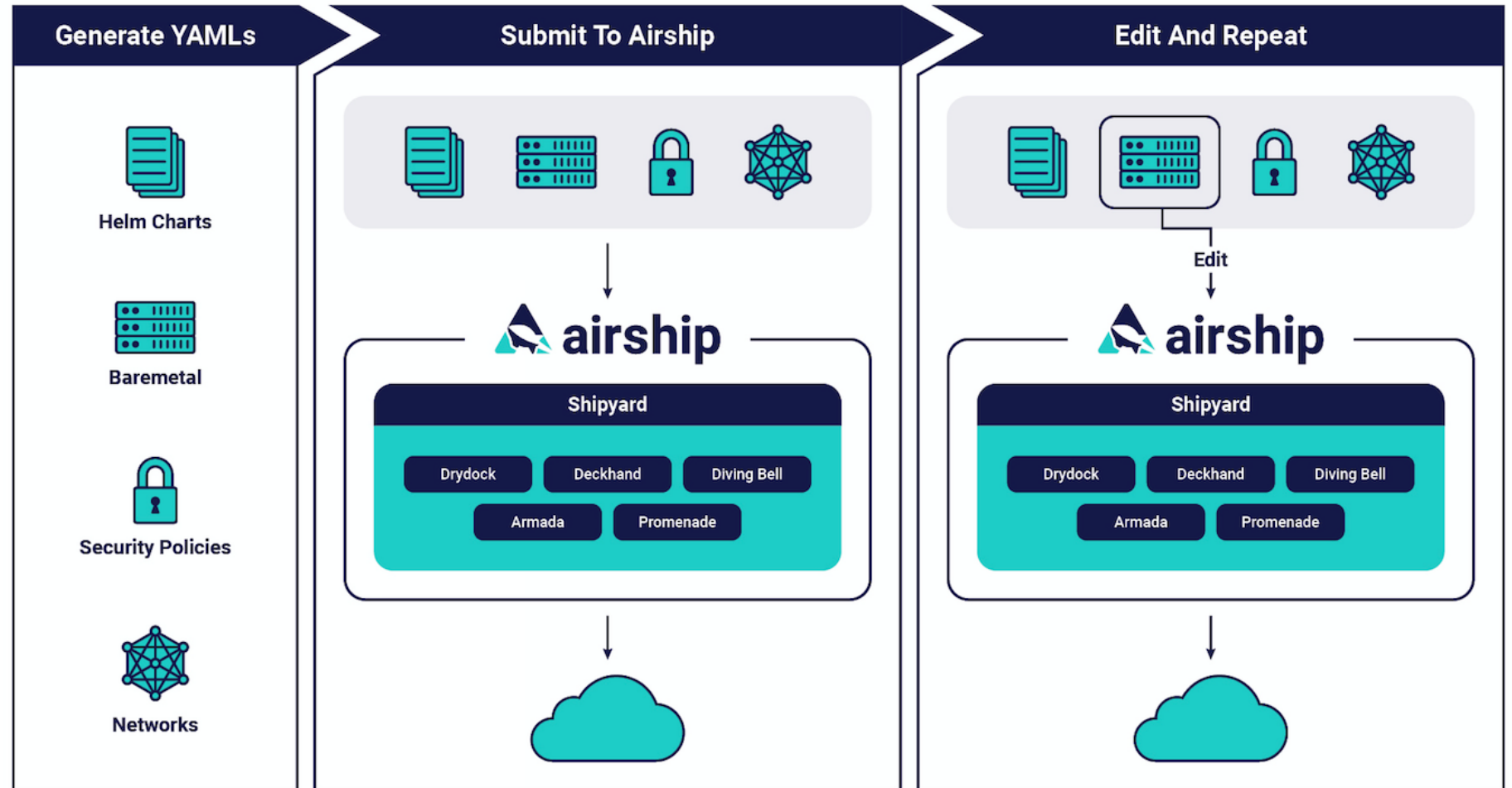
[openstack.org/users](https://openstack.org/users)





Airship is a collection of loosely coupled but interoperable open source tools that declaratively automate cloud provisioning.

*Integrates both  
OpenStack &  
Kubernetes*





Airship elected Technical and Working Committees, and has received ecosystem support from companies including **AT&T, Dell, Ericsson, Mirantis, and SUSE**

V1.0 released in April 2019

**LightReading** Networking the Communications Industry

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► CARRIER SDN / **SDN TECHNOLOGY**

## Dell Flying to 5G Cloud on AT&T-Led 'Airship'

Dell is signing on to Airship, an AT&T-led initiative to automate provisioning telco cloud infrastructure for 5G. With Dell on board, the Airship project plans to extend automation from cloud infrastructure software to hardware as well.

"The crux of it is we're bringing Dell into the Airship community, to accelerate the overall growth of the SDN ecosystem by making it as easy as possible for operators to deploy and manage infrastructure," Ryan Van Wyk, AT&T system VP, network cloud software engineering, tells Light Reading. Dell provides expertise in bare metal servers, focusing on hardware and node management for deploying and managing open infrastructure.

Airship, [launched this year](#), with version 2 due in mid-2020, is a software project for declaratively provisioning cloud infrastructure, stating the parameters for servers, storage and networks in broad strokes and letting the infrastructure itself automatically decide on detailed parameters for provisioning resources. Airship manages lifecycle including creation, update, configuration and major upgrades, using plain text files called YAML documents.

"You say this is what I want, I want X number of machines, I want these networks, this type of storage, you define that in YAML, feed that into a machine

**"Dell sees Airship as a means toward eliminating the complexity of open, standards-based infrastructure"**



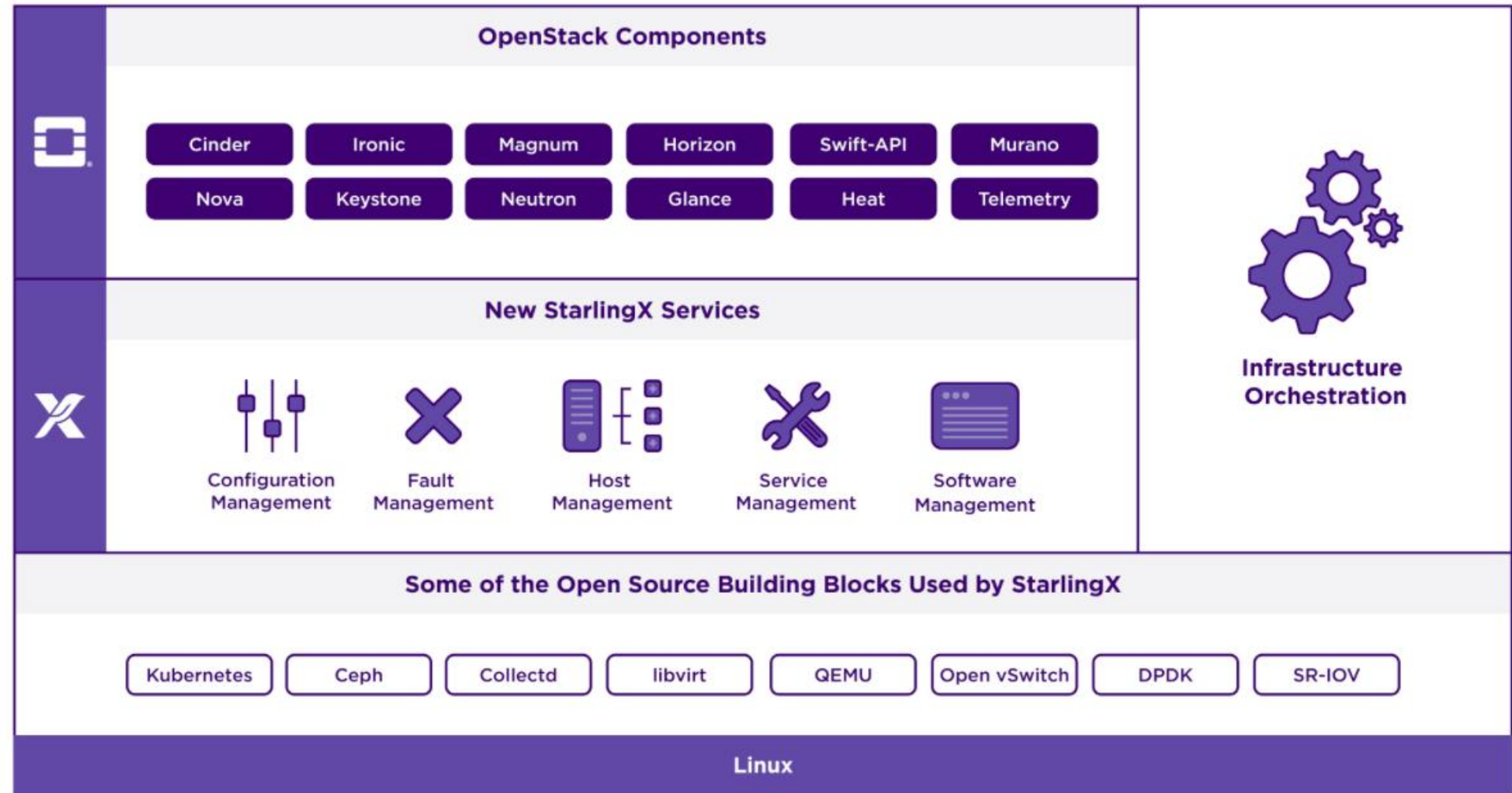




**STARLINGX**

A fully featured cloud for the distributed edge; specializing in high performance, ultra-low latency applications, including Industrial IoT

*Integrates both  
OpenStack &  
Kubernetes*



StarlingX.io | @StarlingX | Lists.StarlingX.io | Info@StarlingX.io







StarlingX adoption by **China UnionPay**, a leading financial institution in China, who will be sharing their use case at the Shanghai Summit.

V2.0 released Sept 2019

## StarlingX Release 2.0 - Turning everything up side down

By [Ian Jolliffe](#) on 9/2/2019.

Learn more about the new StarlingX 2.0 release.

The StarlingX is a relatively new open source project - announced in May of 2018 and things have changed, grown and evolved very quickly. It is a very different project now than when we started for sure.

In the past year we have made a tremendous amount of progress as a community. We have fully operationalized community governance, attracted new contributors from around the world, and elected a diverse set of members to the Technical Steering Committee from four different companies. There are a wide range of opportunities for people to contribute to the project; please reach out to us if you are looking to learn more. We have a group of people in our [First Contact SIG](#) working to improve the on boarding experience.

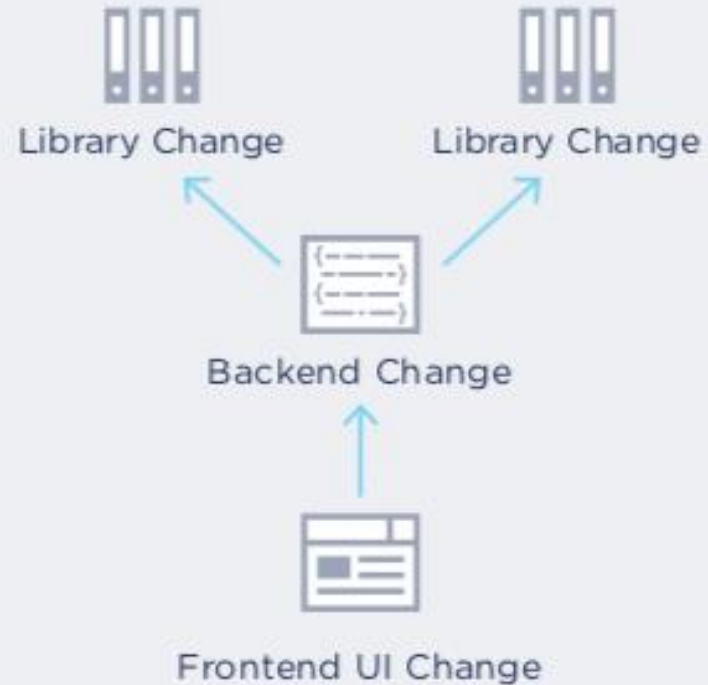
At the same time the community has made huge strides in evolving the architecture of the



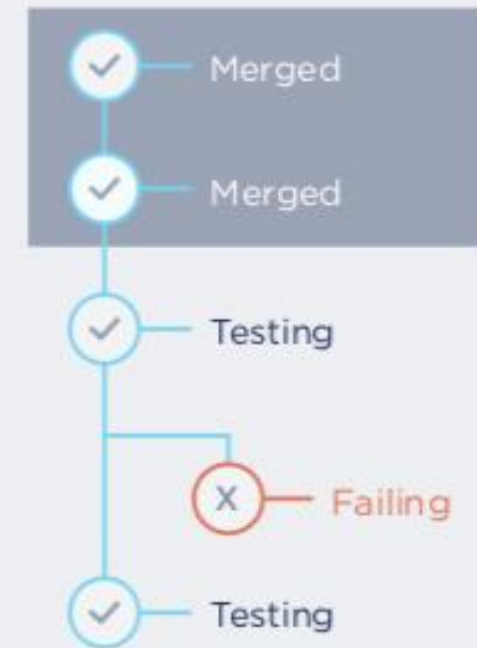


CI/CD platform  
specializing in gating  
changes across multiple  
systems & applications  
before landing a patch

### CROSS PROJECT DEPENDENCIES TESTED IN CI



### GATING PROJECT CHANGES



ZUUL-CI.ORG

Zuul-CI.org | @ZuulCI | Lists.Zuul-CI.org





Zuul adoption has accelerated with speaking sessions and case studies by **BMW, leboncoin, GoDaddy, the OpenStack Foundation** and more.

V3.10 released Aug 2019



### Volvo Cars Shifts to Continuous Integration

In 2014, the upper technical management of Volvo Cars decided to introduce best practices and approaches that originated in the advanced software industry. In the present-day software industry, Continuous Integration (CI) and Nightly Builds are used to ensure that different components of a software system can be integrated into a full-blown software system easily, so that existing legacy functionality will not be corrupted by new features. In addition, individual developers receive swift feedback on their contribution to the software system, and regression tests and intense test processes are carried out on a larger server overnight. By using regression tests, Nightly Builds and Continuous Integration, the "integration nightmare" that usually unfolds when people wait for release day to merge their parts into the release branch can be successfully avoided. The vital principles of CI were introduced to VCC's entire line of electronic control modules.

An additional development was introduced in 2018, namely a new CI system based on Zuul from OpenStack. Zuul's motto is: 'Don't merge broken code.' Therefore, only tested and analyzed code is allowed to merge on master. Zuul has many benefits, but one of the most significant is the speculative merge step, which allows for large parallelization. Zuul is based on the change management system, GIT, a fast, scalable, distributed revision control system. Moreover, the GIT add-on, Gerrit, is used to provide for collaborative code reviews. Hence, Zuul is the brain and listens to events in Gerrit and sends jobs to Jenkins. The newly introduced CI-based development chain is referred to as the Volvo Cars ECM CI chain. From implementation of the software, every single new commit automatically triggers a set of integration and regression tests. The changes committed by the developers are validated by running automated tests against the code. This new development approach fully adheres to the concept of frontloading quality assurance processes. In addition, the key objective to reduce the number of post integration issues to an absolute minimum was achieved fairly quickly.

"An additional development was introduced in 2018, namely a **new CI system based on ZUUL** from OpenStack."

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"The newly introduced CI-based development chain is referred to as the **Volvo Cars ECM CI chain.**"

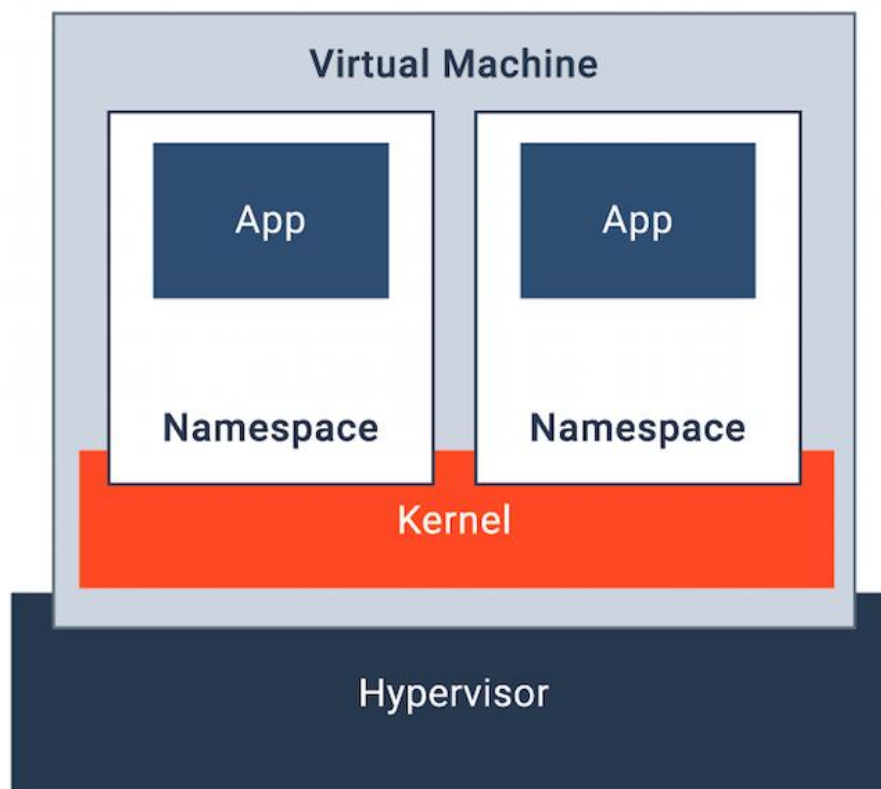
MES Tools Deployment at Volvo Cars

<https://model-engineers.com/en/company/references/success-stories/volvo-cars/>



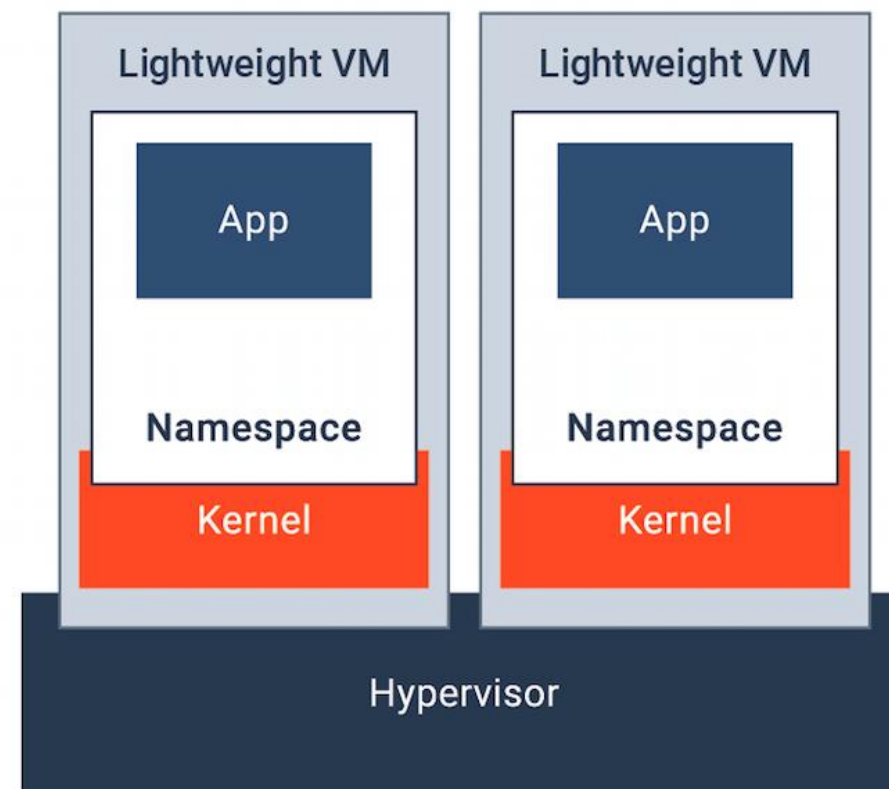


OCI compliant,  
secure container  
runtime.



## Containers in Cloud Today

*(Shared kernel, isolation within namespace)*



## Kata Containers

*A lightweight virtual machine isolates each container/pod and provides a separate kernel for each container/pod.*





Kata Containers is supported by infrastructure donors including **Google Cloud, Microsoft, AWS, IBM, openSUSE, Vexxhost, PackageCloud, and Packet.com**

V1.8 released July 2019

V1.9 expected mid-October

## Kata Containers Contributor Growth

**Project Launch**  
(December 2017)

→ **Today**

 **HYPER.SH**







# 开源基础设施峰会上海

## OPEN INFRASTRUCTURE SUMMIT SHANGHAI

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4-6 November, 2019  
Shanghai Expo Center

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- Sponsorships available now
- Registration is open now
- Previously the “OpenStack Summit”
- All information available on [openstack.org/Shanghai](https://openstack.org/Shanghai)



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Foundation

We help people build and operate

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