



Open Infrastructure  
FOUNDATION

# Open Infrastructure Project Updates

Akraino Virtual Event March 2021

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# The Home of Open Infrastructure

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## Open Infrastructure Projects



**OpenStack**

# OpenStack Overview

- ➔ Current release cycle is Wallaby
  - Release planned for the week of April 12, 2021
  - <https://releases.openstack.org/wallaby/schedule.html>
- ➔ Latest stable release is OpenStack Victoria
  - Released on October 14, 2020
  - <https://releases.openstack.org/victoria/highlights.html>
- ➔ <https://www.openstack.org>

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## Nova Highlights

### ➔ Victoria highlights

- Support for [mixed CPU pinning policy](#) within the same Nova server
- Ability to [create servers with virtual TPM devices](#)
- Support for [fast cloning of Glance images](#) from Ceph RBD cluster

### ➔ Wallaby highlights

- Nova already has support for UEFI boot, the next step is to allow Secure Boot for QEMU and KVM guests
- Add support to attach a port with QoS minimum bandwidth rules to a running instance
- Overall smartNIC management involving Nova, Neutron, Cyborg and Placement
- <https://specs.openstack.org/openstack/nova-specs/specs/wallaby/index.html>

## Neutron Highlights

### ➔ Victoria highlights

- Distributed Virtual Routers (DVR) now support flat networks
- Floating IP supports port forwarding for the OVN backend
- Router availability zones are now available in OVN

### ➔ Wallaby highlights

- Implement Distributed DHCP for the openvswitch agent
- Enhance the floating IP port forwarding API to allow the use of port ranges
- <https://specs.openstack.org/openstack/neutron-specs/specs/wallaby/index.html>

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## TripleO Highlights

- ➔ A project to install, upgrade and operate OpenStack clouds
- ➔ [Distributed Compute Node \(DCN\)](#) configuration for edge use cases
  - Deploying additional compute nodes in separate stacks
  - Routed spine and leaf networking setup for distributed deployment
- ➔ Supported failure modes
  - Loss of control plane connectivity
  - Loss of an edge site
- ➔ [Distributed Multibackend Storage](#)
  - Distributed image management and persistent storage
  - Available in OpenStack Ussuri and newer



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# Ironic Highlights

- ➔ Bare Metal as a Service project
- ➔ Victoria highlights
  - Initial support for [DHCP-less deployment](#)
  - Support for using [Ironic as a standalone service](#)
- ➔ Wallaby highlights
  - Add support to out-of-band (OOB) Redfish standards-based RAID configuration capability
  - Default to GPT when using a partition image to deploy a physical machine
  - <https://specs.openstack.org/openstack/ironic-specs/priorities/wallaby-priorities.html>
- ➔ Bare metal program/SIG
  - <https://etherpad.openstack.org/p/bare-metal-sig>

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## Cyborg Highlights

- ➔ Framework to manage and utilize hardware accelerator resources
- ➔ Victoria highlights
  - Role Based Access Control (RBAC) enhancements - part of the community-wide goals
  - New accelerator drivers: Inspur FPGA, Intel QAT
  - Users can program FPGAs through the [Program Service API](#) with pre-uploaded bitstream
- ➔ Wallaby highlights
  - Support for vGPU management by adding NVIDIA GPU driver
  - Accelerator drivers: Inspur NVMe SSD, Intel x710
  - <https://specs.openstack.org/openstack/cyborg-specs/>

# Overview of Information Sources

## ➔ StoryBoard

- Open source task tracking tool
- Some OpenStack projects switched over already
- <https://storyboard.openstack.org>
- eg: Ironic project - [https://storyboard.openstack.org/#!/project\\_group/75](https://storyboard.openstack.org/#!/project_group/75)

## ➔ Project specs folder

- [https://specs.openstack.org/openstack/<project\\_name>-specs/](https://specs.openstack.org/openstack/<project_name>-specs/)
- eg: <https://specs.openstack.org/openstack/ironic-specs/>

## ➔ Launchpad

- Many projects track blueprints and bugs in this tool
- [https://launchpad.net/<project\\_name>](https://launchpad.net/<project_name>)
- eg: <https://launchpad.net/nova>

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## Overview of Information Sources

### ➔ Open reviews

- Using Gerrit for patch (code, test cases, documentation) reviews
- <https://review.opendev.org/>
- You can filter for repositories to see open reviews
- eg: Ironic main repo - <https://review.opendev.org/#/q/project:openstack/ironic>

### ➔ Source code

- Available on Gitea
- <https://opendev.org>
- eg: Ironic related repositories - <https://opendev.org/explore/repos?q=ironic&tab=&sort=recentupdate>

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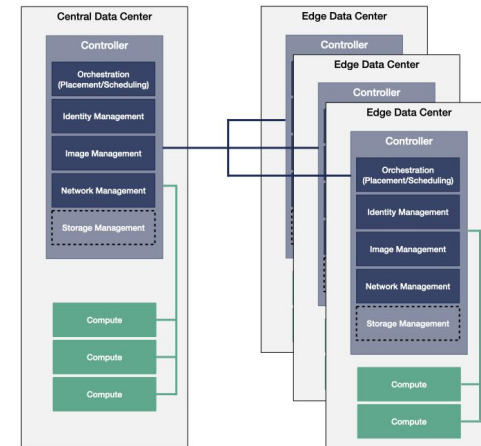
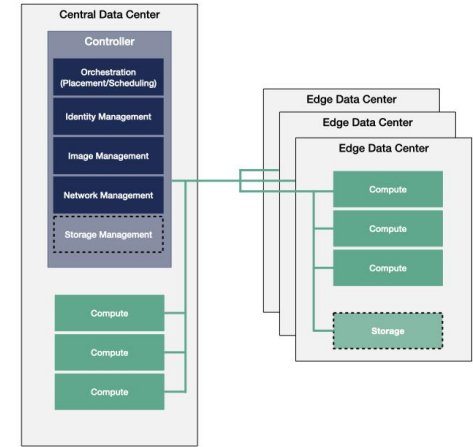
# **OpenInfra Edge Computing Group**

# OpenInfra Edge Computing Group

- A top level working group supported by the Open Infrastructure Foundation
- Focusing mainly on the IaaS layer
- Collecting use cases and requirements in the edge computing area
- Working on reference models and architectures
  - Building blocks from the wide open source ecosystem
- Not limited to any technology or industry segment
- Testing the reference architectures to identify gaps and areas to improve
- Group resources: [https://wiki.openstack.org/wiki/Edge\\_Computing\\_Group](https://wiki.openstack.org/wiki/Edge_Computing_Group)
- White papers
  - [https://www.openstack.org/edge-computing/cloud-edge-computing-beyond-the-data-center?lang=en\\_US](https://www.openstack.org/edge-computing/cloud-edge-computing-beyond-the-data-center?lang=en_US)
  - <https://www.openstack.org/edge-computing/edge-computing-next-steps-in-architecture-design-and-testing>

# Edge Architectures

- There is **no one-size-fits-all solution**
  - Various workloads have very different requirements
    - New industry segments with dependency on IT
  - Infrastructures are organically growing
  - Focus is on the connection
- Current solutions need to **evolve**
  - Centralized Control Plane
  - Distributed Control Plane
- Do you have one that doesn't fit any of the above?
  - **Share** it with us!
- [https://wiki.openstack.org/wiki/Edge\\_Computing\\_Group#Minimal\\_Reference\\_Architectures](https://wiki.openstack.org/wiki/Edge_Computing_Group#Minimal_Reference_Architectures)

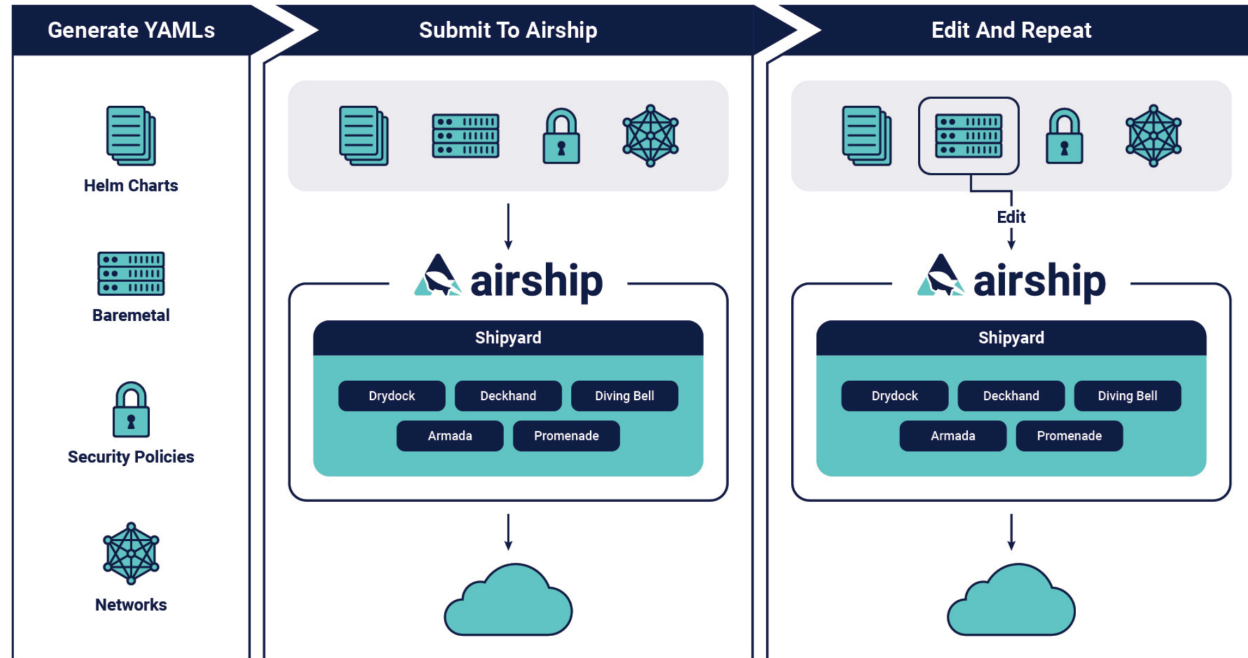




**Airship**

# Overview

- Deployment and lifecycle management tool
- Collection of loosely coupled but interoperable open source tools
- Using containers to deliver infrastructure software



# Airship 2

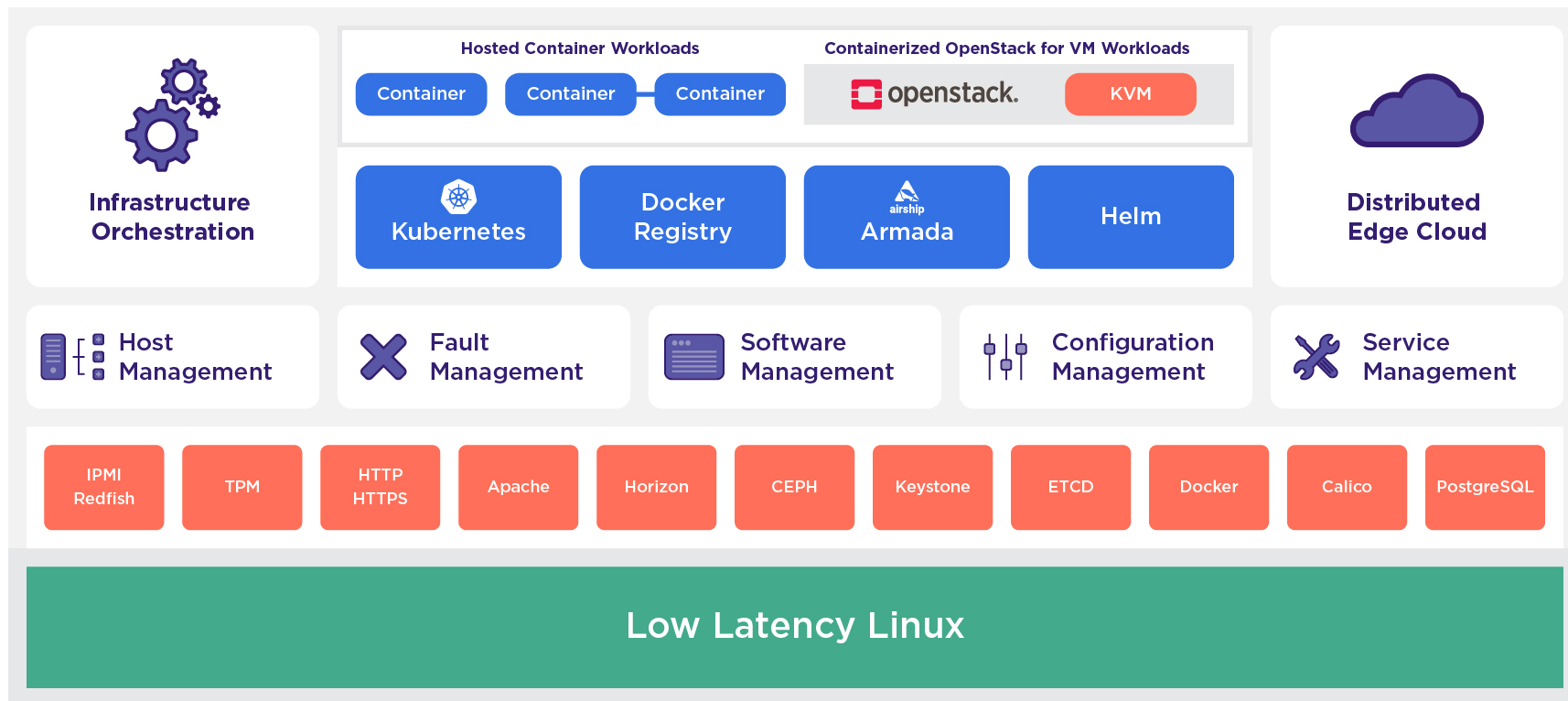
- Currently at Beta, release is planned for Q2 2021
- Certified Kubernetes Distribution (v1.18)
- Rearchitecting
  - Utilize more projects from the CNCF ecosystem
    - Drydock → Kubernetes Cluster API (CAPI)
    - Armada → Flux Helm Operator
    - and more
  - Smaller YAML footprint
- Improved upgrade process
- Public cloud support: OpenStack, Azure, AWS and GCP

**StarlingX**

# StarlingX Overview

- Top-level Open Infrastructure Foundation project
- Software stack providing high performance, low latency, and high availability for Edge Cloud applications
- Latest release is StarlingX 4.0 (released in August, 2020)
- Frequent releases
  - <https://opendev.org/starlingx>
  - <http://mirror.starlingx.cengn.ca/mirror/starlingx/release/>
- Growing community
  - Inviting users, operators and developers to try out the software and participate in the community

# Distributed Edge Cloud Native Platform



# StarlingX 4.0

- Released in August, 2020
- Certified Kubernetes Distribution (v1.18)
- Support for [Kata Containers](#)
  - One of the supported container runtimes
  - Support for Time Sensitive Networking (TSN) with Kata
    - Provides support for determinism in delivering time-sensitive traffic
- Support for Redfish Virtual Media Controller
- Certification Manager
  - Automated certification issuance
  - Monitoring of certification expiration dates
- More information in the [release notes](#) and [project documentation](#)

# StarlingX 5.0

- Release planned for May, 2021
- Adding support for [‘edgeworker’ nodes](#)
  - Targeting industrial use cases
  - Lightweight approach with deploying only a few agents on the nodes
- [Vault integration](#) for secret management
- [SNMPv3 support](#) for the Fault Management service
- Improvements to certification management
- Support for FPGA image update orchestration



# Events

# Join the Communities for the Next PTG

## Project Teams Gathering

April 19-23, 2021

*Register now*

<https://www.openstack.org/ptg/>



**Questions?**

**[openinfra.dev](https://openinfra.dev)**