Elevate Your Infrastructure

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Airship Confirmation Review

OSF Board of Directors

October 22, 2019

Matt McEuen, Airship Working Committee
Alex Hughes, Airship Technical Committee
Kaspars Skels, Airship Working Committee
Jay Ahn, Airship Operator & Developer Community

Strategic Focus

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1
2016
OpenStack-Helm
Initiated
2017
Airship initiated
2
3
2018
Added as an OSF
Pilot Project in Vancouver
4
2019
Airship 1.0 Released
in Denver
5
1H 2020
Airship 2.0
Planned for Release
6
2H 2020
Airship Productization
Planned

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Mission Statement

Openly **collaborate** across a diverse, global **community** to provide and integrate a collection of loosely coupled but **interoperable, open source** tools that declaratively **automates cloud lifecycle management**.

Airship is

… an open source community. Everyone is welcome to join and encouraged to contribute in variety of ways – use cases, code, test cases, documentation, reviews, … or simply ideas.

… a project guided by the OpenStack Foundation principles since its formation, even before acceptance as an OSF project

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Airship

- Supports the OSF's strategic focus area related to datacenter cloud & container infrastructure
- Deploys OSF projects and is used by other OSF projects
- Manages the full lifecycle of data center infrastructure
- Allows operators to manage their infrastructure deployments and lifecycle through declarative YAML documents

Governance

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Developer Roles

Contributor

- Has had changes merged within the last 12 months
- Eligible to vote in the election of Technical Committee
- Able to propose changes and give +1/-1 reviews on changes from other contributors

Core Reviewer

- Nominated and approved by the established Core, following established OpenStack processes
- Can be Cores of multiple Airship components
- Able to merge changes and give +2/-2 reviews on changes from other contributors

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Technical Committee

- Responsible for the road map, vision and use cases for Airship
- Ensures Airship projects are adhering to the projects core principles, promote standardization, define and organizes the Airship versioning and release process
- 5 Members elected by Contributors
- Elections take place once per year.
- Anyone who has demonstrated commitment to the Airship project in the last 12 months is eligible to run
- No term limits for TC seats
- No more than 2 of the 5 seats can be filled by any one organization

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Working Committee

- The WC committee cares for day to day functioning of Airship community
- WC intends to:
  - Help influence the project strategy
  - Help arbitrate when there is a disagreement between Core Reviewers within a single project or between Airship projects
  - Perform marketing and communications
  - Help provide product management as well as ecosystem support
- 5 Members elected by Core Reviewers
- Elections take place once per year
- Any Contributor is eligible to run
- No term limits for WC seats
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Current Committee Members

Technical Committee

- James Gu, *independent
- Alexander Hughes, Accenture
- Jan-Erik Mångs, Ericsson
- Alexey Odinokov, Mirantis
- Ryan van Wyk, AT&T

Working Committee

- Nishant Kumar, Ericsson
- Matt McEuen, AT&T
- Kaspars Skels, Ericsson
- Drew Walters, AT&T
- Stas Egorov, Mirantis

Technical Best Practices

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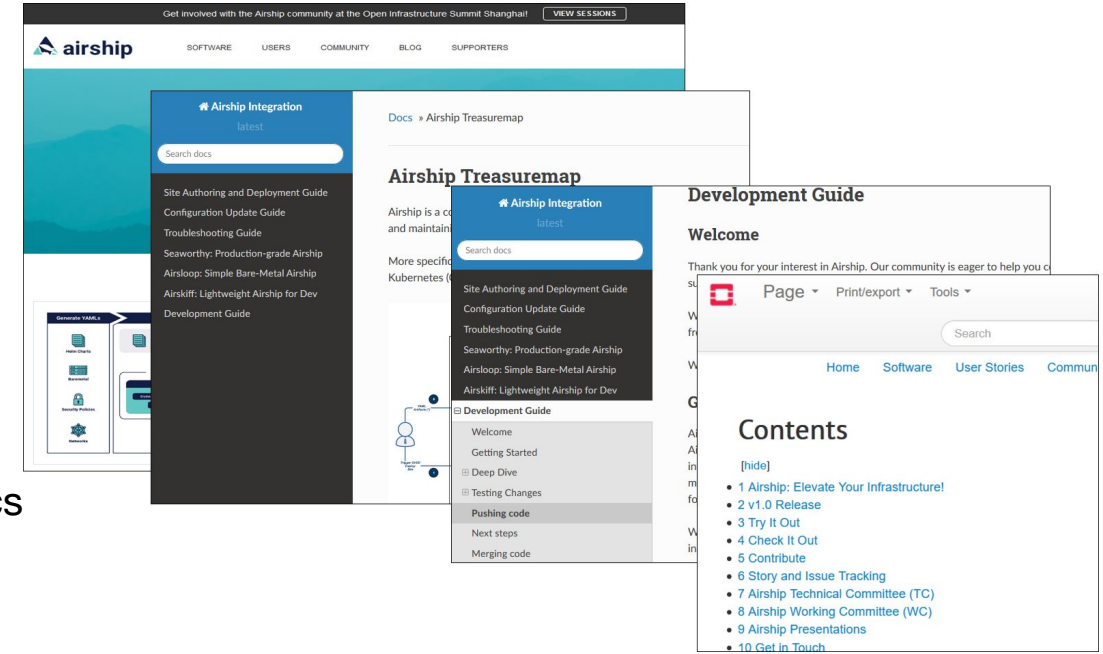
Technical Best Practices: Documentation

Documentation includes:

- Overview, Architecture, Getting Started
- Site Authoring and Deployment Guides
- Contributor / Review Guide
- Component and Integration Testing Docs
- Dev and Ops-focused Guides
- More on the way…



Documentation is accessible via https://www.airshipit.org/

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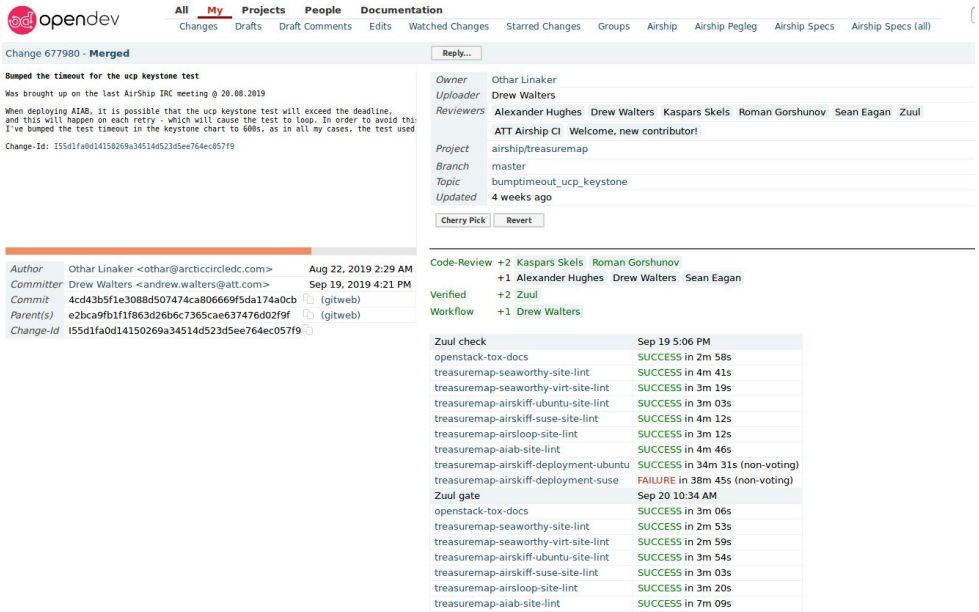
Technical Best Practices: Code Review

Code Review Follows Established OSF Community Norms

- Core Reviewer teams per Airship project, nominated/ratified by those core teams
- Two +2s, WF +1, and Zuul gating required for merge
- +1s from non-cores (and cores) strongly encouraged
- Documentation and CICD are reviewed as code



Review metrics available at: https://www.stackalytics.com/?project_type=all&module=airship-group&metric=marks

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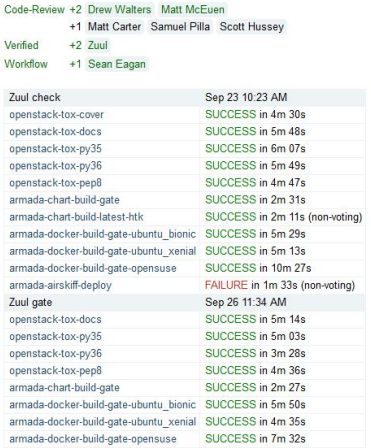
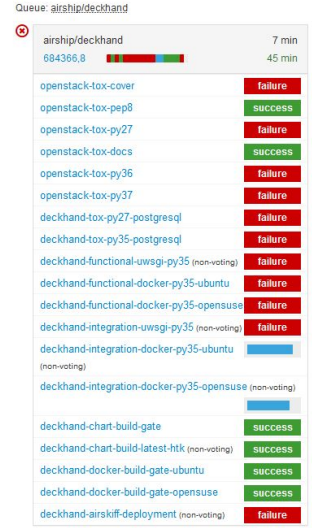
Technical Best Practices: Testing & CICD

Airship has multi-faceted testing:

- Linting and unit testing, via Zuul
- Lightweight integration testing per change, via Zuul
- Voting and non-voting checks
- VM-based 3rd-party integration run per Treasuremap change
- Nightly 3rd-party bare metal deployment testing
- Developer documentation for local testing





Open Collaboration

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Open Collaboration

Airship community believes in and follows “The Four Opens” governing principles:

- Open Source
- Open Design
- Open Development
- Open Community

☐ Adheres to the OpenStack Foundation Community Code of Conduct

☐ Airship code is distributed under the Apache 2 license

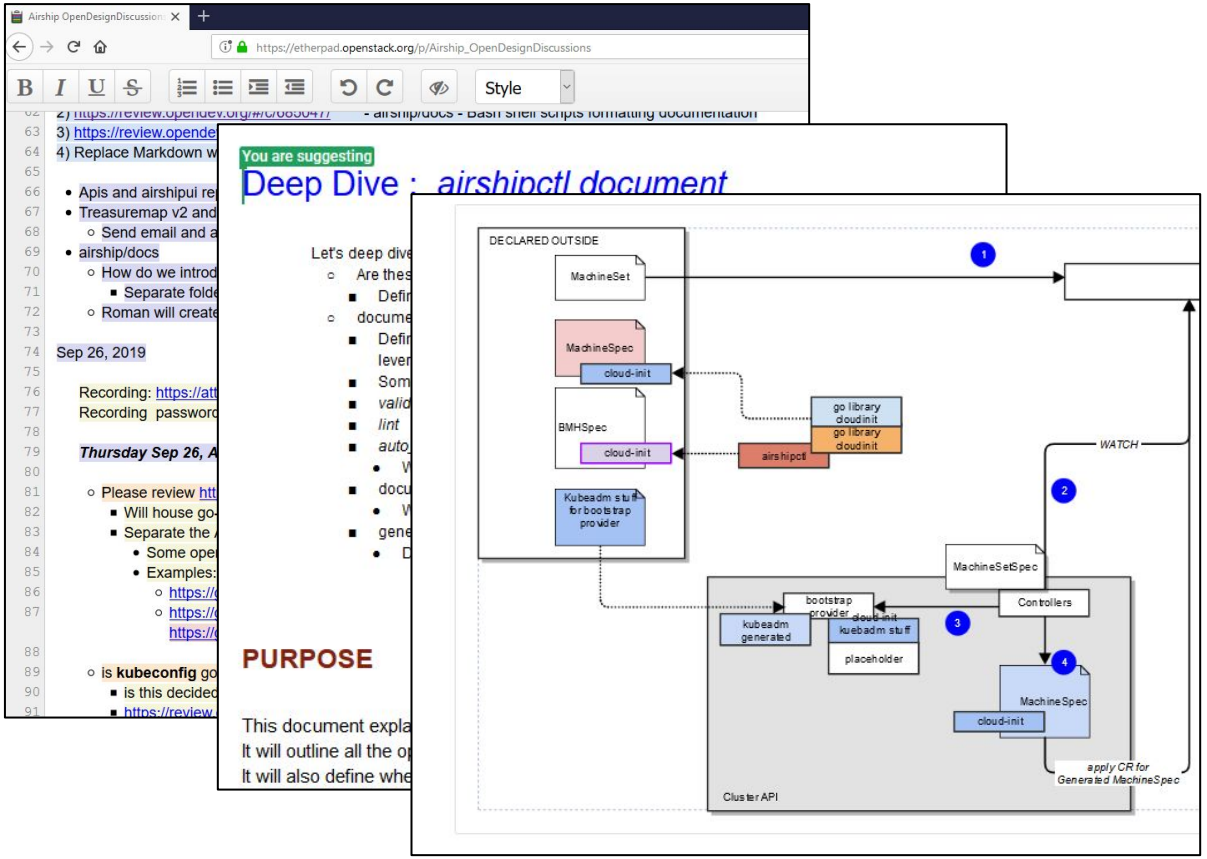
☐ Meetings and discussions are held in public open forums

  - One open dev IRC meeting, one JIRA meeting, two open design meetings, and three open SIG meetings every week.

Open Design

Airship follows an inclusive design process

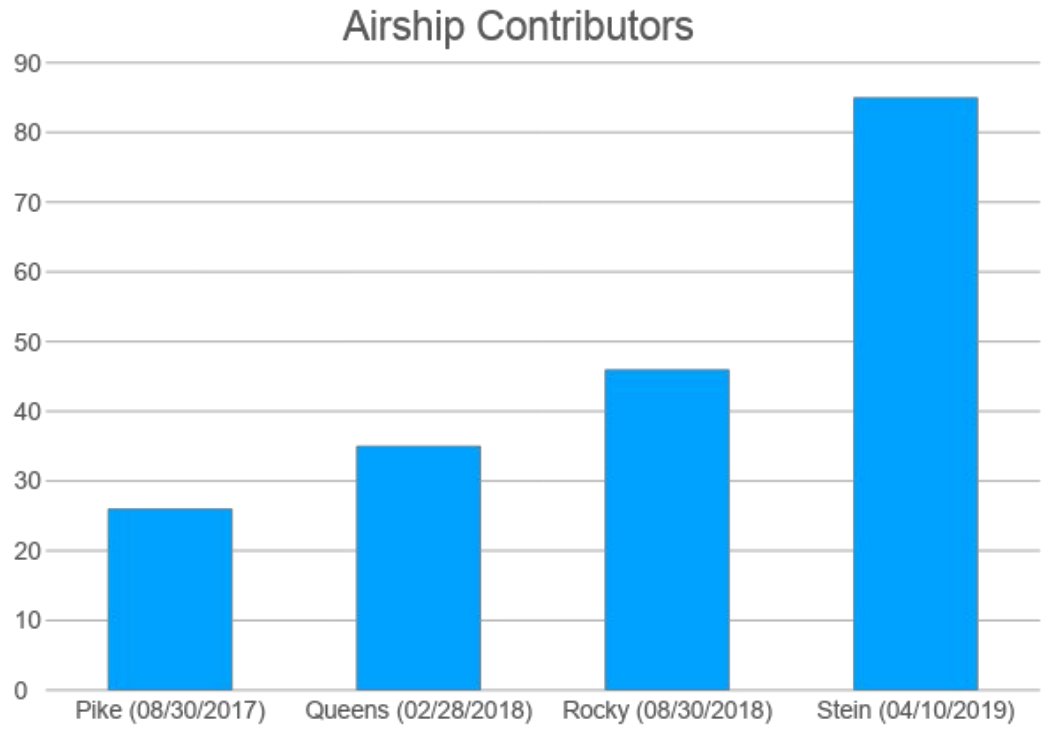
- Open agenda etherpads
- Open design documents
- Opt-in SIG design sessions
- Weekly scope grooming
- All meetings recorded



Expanding Contributor Base and Growth of Community

All Time Metrics

- 3,862 commits in 25 repos
- 174 authors representing 20+ companies



Contribution Metrics Available at https://www.stackalytics.com/?project_type=openstack-others&module=airship-group&metric=commits

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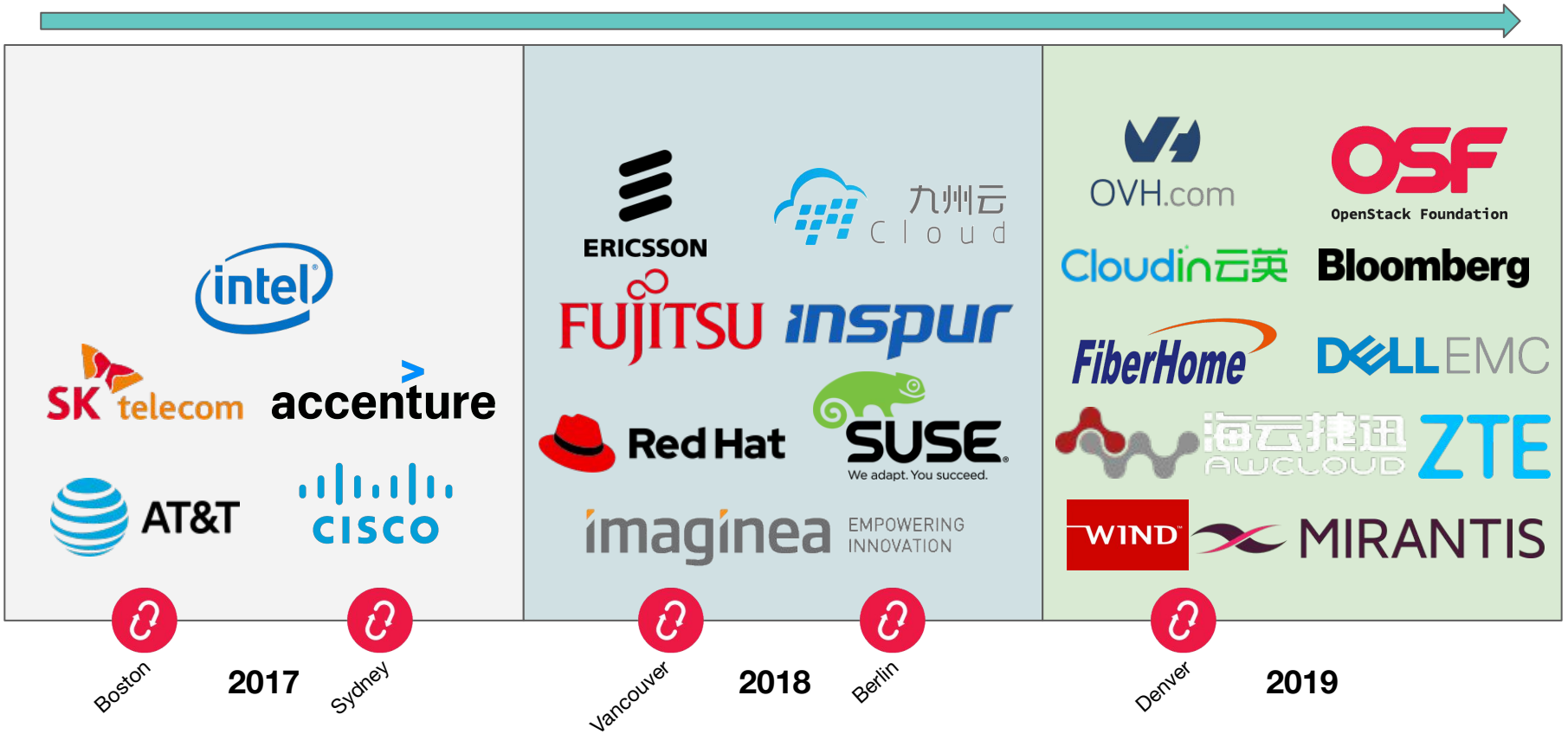
Airship Contributor Growth (cumulative)



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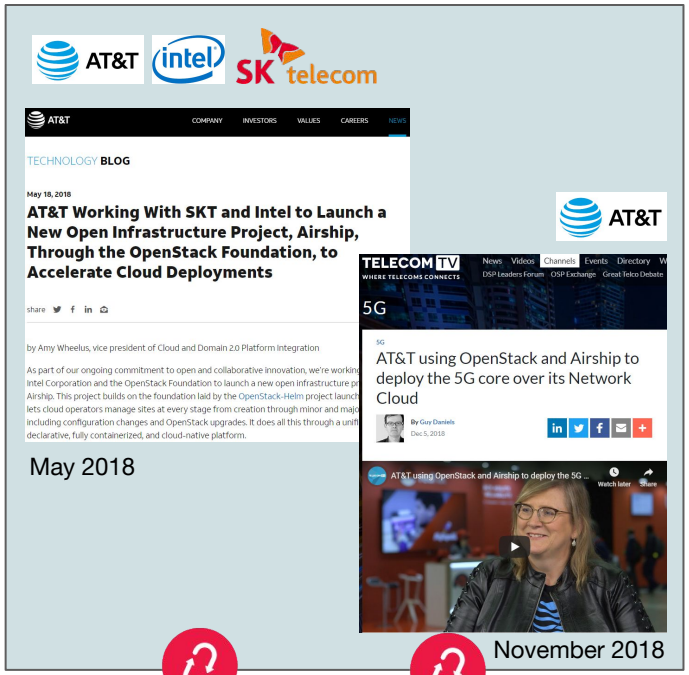
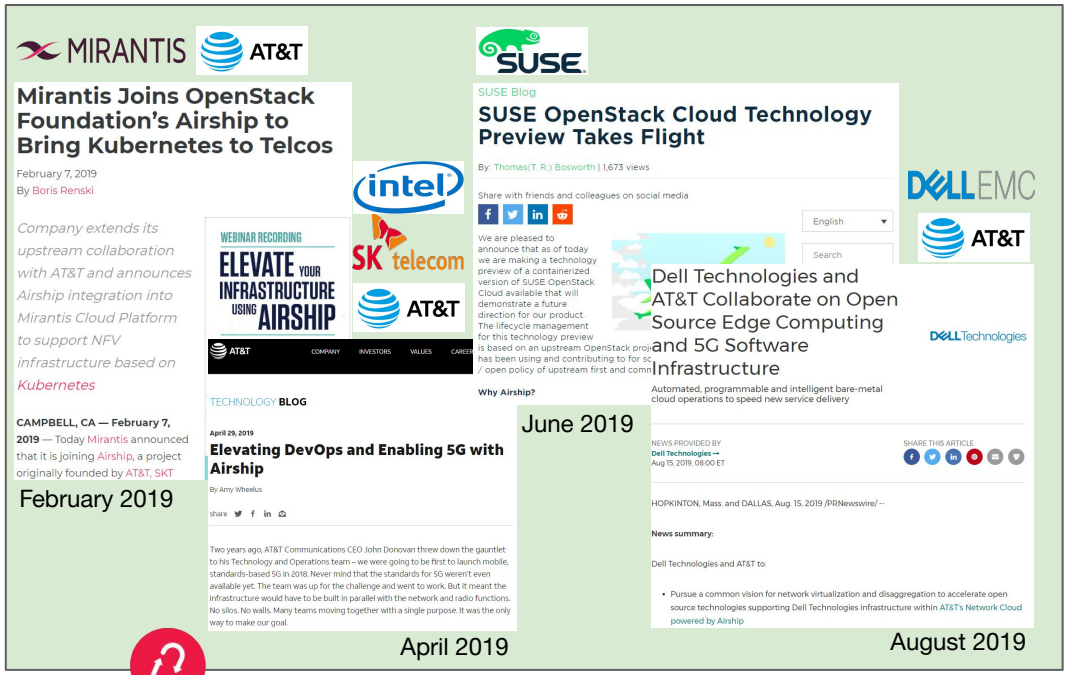
Airship Contributor & User Announcements





Vancouver

2018

Berlin

Denver

2019

Active Engagement

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Community Participation

- OpenStack Summits: Vancouver 2018, Berlin 2018, Denver 2019, Shanghai 2019
- PTG: Ireland 2017, Denver 2018, Denver 2019 and Shanghai 2019
- OpenStack and Open Infrastructure Days & Meetup events:
  - June 28-29 2018: OpenInfra Days, Seoul, South Korea
  - June 11-12, 2019: OpenInfra Days, Krakow City, Poland
  - June 21-23, 2019: IISc Global Conference, Palo Alto, CA
  - July 18-19, 2019: OpenInfra Days, Seoul, South Korea
- KubeCon San Diego: November 2019

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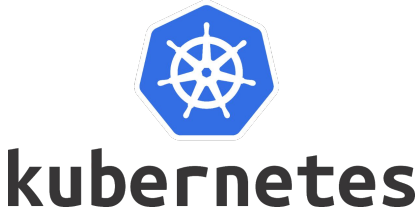
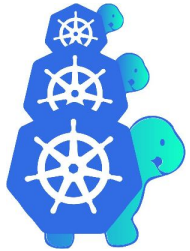
Collaborations and Integrations





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Airship Early Adoption

Airship Contributors

"More than 20 Network Cloud regions deployed and managed by Airship to date, and 5G Core deployments inflight."

"Airship has been an important part of SK Telecom's cloud native infrastructure development. SK Telecom is integrating Airship not only with telco network, but also with innovative services like AI, Media, and Mobile Edge Computing systems."

"Aside from contributing to Airship upstream and collaborating with AT&T on key roadmap features, Mirantis is integrating much of the code into Mirantis Cloud Platform (MCP), Mirantis's core product that empowers telcos and enterprises to efficiently run Kubernetes on-premises."

"Ericsson is positive of an alignment between Airship and CNCF. We are increasing our upstream investments to the related opensource projects, and will work closely with AT&T and the Airship and CNCF communities to align and evolve capabilities in both communities."

"StarlingX uses Airship Armada for orchestrating the deployment of multiple Helm charts."

"Airship is core to realizing high-availability cloud services optimized for edge computing systems and applications."

Future Plans

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Future Plans

November 2019

- Bootstrap First Host
- Ephemeral Cluster
- Target Cluster
- Baremetal Provisioning
- Kubernetes Provisioning

February 2020

- Workflows for Software LCM
- MVPs for Most other Features
- Demonstrate at least one alternative to Baremetal

May 2020

- Full Feature Set

Community Channels

Mailing Lists: lists.airshipit.org

Freenode IRC: #airshipit

Website: www.airshipit.org

OpenDev: https://opendev.org/airship

YouTube: https://www.youtube.com/user/OpenStackFoundation/

AT&T and Mirantis Airship Webinar: Elevate Your Infrastructure Using Airship

Q&A

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Technical Overview

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Technical Overview

MOTIVATIONS FOR AIRSHIP:

The Airship Community wants to accelerate the growth of SDN as a whole, and we believe the Open Infrastructure needs to be simpler, faster and cheaper to do so.

Cloud Operators experience challenges in creating, updating, and managing the entire lifecycle of their own private cloud infrastructure, such as:

1) Lengthy and complicated processes;
2) The need for custom development to enable an ecosystem of various open source and proprietary software integrated into one cloud platform;
3) Demands for resources with a wide array of deep skillsets;
4) Difficulties keeping up with the cadence of new open source releases due to the slow process of deployment and upgrades; and
5) Challenges of scalability and security.

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Technical Overview

AIRSHIP AS AN ANSWER:

When AT&T, SKT and Intel set out to apply the learnings from years of building and managing Open Infrastructure at scale, we set clear goals to solve these very challenges:

1) Open Source Orchestration with Batteries Included
2) Simplified Singular Deployment Method
3) Predictable Fast and Seamless Deployments and Upgrades of the End-to-End Platform
4) Resiliency and Enterprise-Grade Security Built In From the Ground Up
5) Not Be Opinionated on the Use Case (wide adoption)

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Technical Overview

Airship 1.0 Core Principles

Focus

The focus is a declarative platform to introduce OpenStack on Kubernetes (OOK), and the lifecycle mgmt. of the resulting cloud, with the scale, speed, resiliency, flexibility & operational predictability demanded of network clouds.

Key Tenets

DECLARATIVE

Sites are declared using YAML, including both hard assets & soft assets. You manage the document and Airship implements it.

CONTAINER BASED

Containers are the unit of software delivery for Airship. This allows progress from dev, to testing, and production with confidence.

ONE WORKFLOW

One workflow that handles both initial deployments and future site updates with virtually no difference in interacting with the two

ARCHITECTURALLY FLEXIBLE

Airship to manages our entire cloud platform, not just OpenStack including small and large environments

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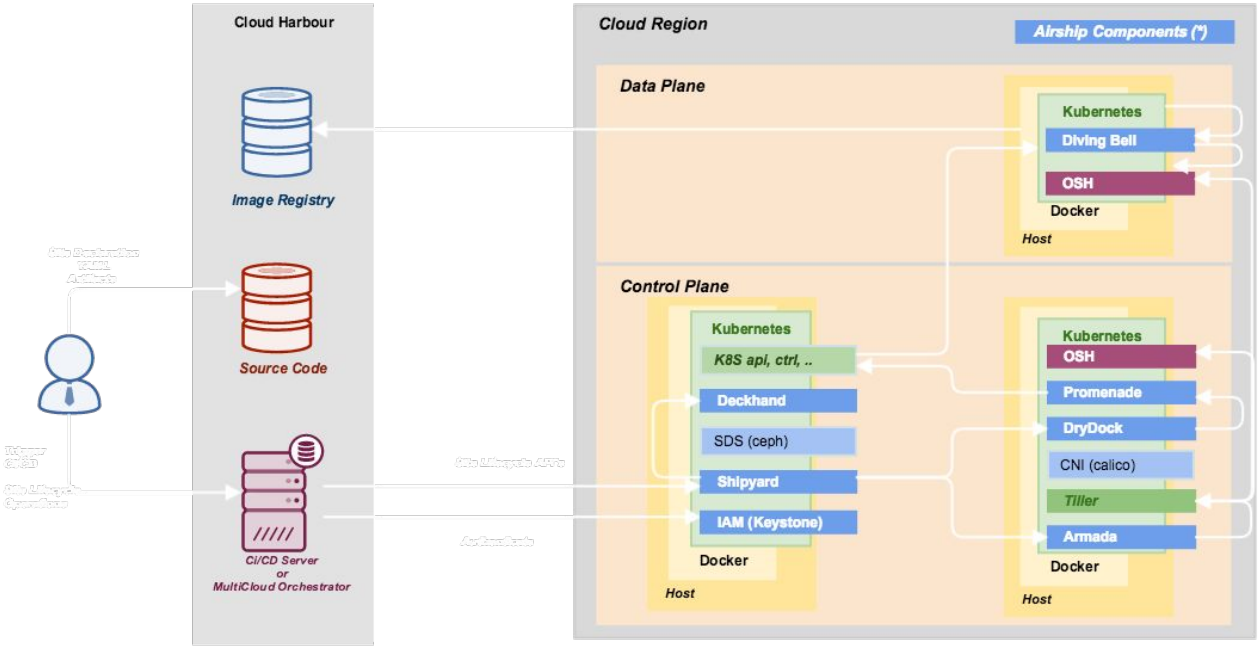
Technical Overview

Airship 1.0 Architecture



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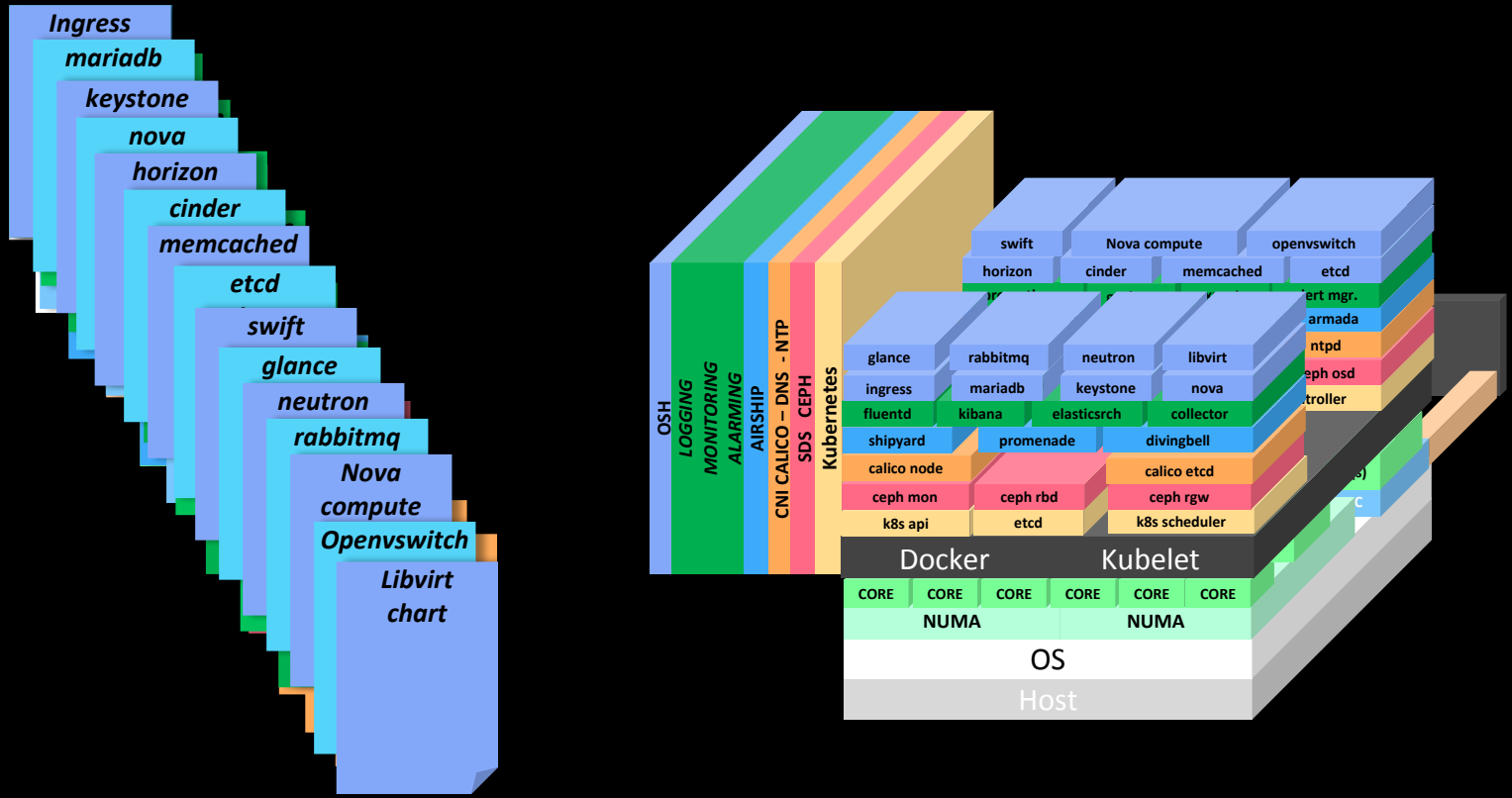
Technical Overview

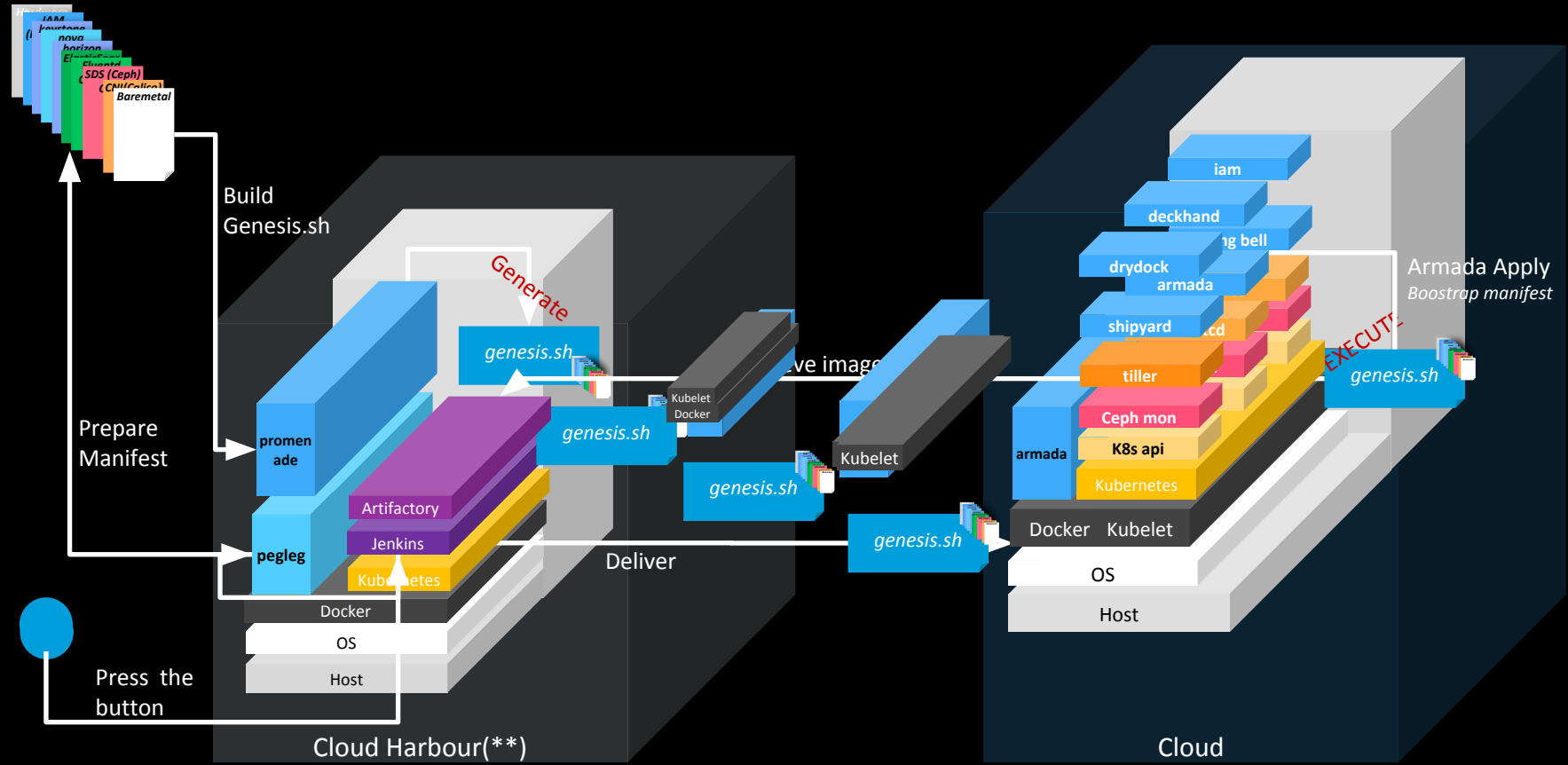
Airship 1.0 Core Components

Component	Purpuse
Drydock	Declarative Baremetal Provisioning
Deckhand	Customization of YAML (Layering, Substitution, …)
Promenade	Declarative Kubernetes + etcd HA Cluster Bootstrapping and LCM
Armada	Declarative Helm Chart Orchestration
Shipyard	Orchestration Engine for Airship Workflows
Pegleg	Configuration Organization Tool
DivingBell	Declarative Host OS Management and LCM

How do we use Airship| What do we mean by declarative



How do we use Airship| How do we bootstrap the cloud?



How do we use Airship| How do we deploy a cloud?