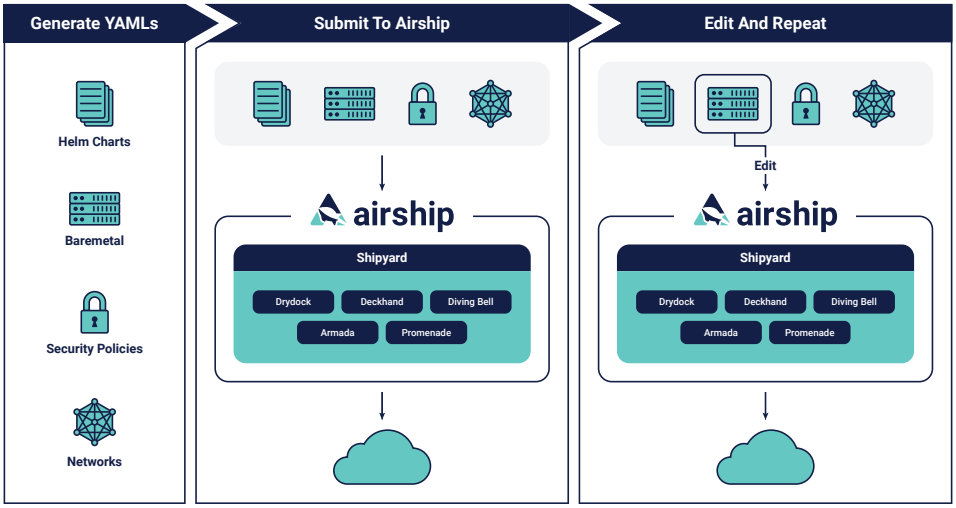
Elevate your infrastructure

Airship is a collection of loosely coupled but interoperable open source tools that declaratively automate cloud provisioning. Airship is a robust delivery mechanism for organizations who want to embrace containers as the new unit of infrastructure delivery at scale. Starting from raw bare metal infrastructure, Airship manages the full lifecycle of data center infrastructure to deliver a production-grade Kubernetes cluster with Helm deployed artifacts, including OpenStack-Helm. Airship allows operators to manage their infrastructure deployments and lifecycle through the declarative YAML documents that describe an Airship environment. The introduction of containers has led to a revolution in how applications are deployed and maintained through the use of powerful container orchestration platforms like Kubernetes. Airship applies these principles of application management to datacenter operations. Airship allows operators to declare their entire infrastructure up front. Hard assets, such as bare metal servers and network settings, are managed alongside soft assets, such as the Helm charts and application containers. This declarative approach allows Airship to provide a repeatable, and predictable mechanism for maintaining service-critical infrastructure and the software running there.

Airship has a single workflow for managing both initial installations and updates. An operator only needs to make a change to an Airship YAML configuration, and the Airship platform does the rest of the work. When managing complex IaaS projects such as OpenStack, anything from minor service configuration updates to major upgrades are all handled in the same way: by simply modifying the YAML configuration and submitting it to the Airship runtime.

Ready to explore Airship?
Try it at airshipit.org.

SIMPLIFIED ARCHITECTURE



JOIN THE COMMUNITY

Airship is an independent open source community collaboratively developing code under the Apache 2 license. Anyone is welcome to join and contribute code, documentation, and use cases. The project is supported by the OpenStack Foundation.

GET INVOLVED

Website: airshipit.org

Git: git.airshipit.org

Docs: docs.airshipit.org

Freenode IRC: #airshipit

Mailing Lists: lists.airshipit.org

E-mail: info@airshipit.org

USER-DRIVEN PROJECT

"Airship is the foundation of AT&T's Network Cloud, which is powering our 5G core platform supporting a 5G launch in 12 Cities this year. We collaborated to create the Airship project to evolve how we deliver our cloud platform at AT&T, as well as manage the lifecycle of the resulting cloud. Airship enables us to deploy and operate OpenStack clouds with the scale, speed, resiliency, flexibility and operational predictability demanded of our Network Cloud platform."

RYAN VAN WYK, *AVP Network Cloud Engineering*

AIRSHIP ENABLES

Platform Integration: Airship combines the most popular virtualization platform, OpenStack, with the most popular container platform, Kubernetes. Airship delivers a resilient Kubernetes and Helm infrastructure as the foundation in order to deploy and manage Airship components as well as several OpenStack services that integrate with Airship directly. Airship then uses this same Kubernetes infrastructure to deliver any number of user-facing Helm applications, including a fully featured high-availability OpenStack cloud using OpenStack-Helm. Airship is a flexible application deployment and life cycle engine that functions with any Helm chart based application allows the system to easily deploy and manage entirely new applications with only minor declarative YAML changes.

Security at Scale: The fully integrated toolchain automatically applies industry best-practices for securing data centers. TLS-enabled service endpoints and encrypted storage of secrets make for a secure platform across your entire data center. The production-grade Kubernetes cluster that Airship provides aims to provide best practice and resilient configurations out of the box.

Scalable Operations: By leveraging Kubernetes and Helm, critical services can automatically scale under load and can robustly survive hardware failure. The platform also bundles many infrastructure needs that are required whether leveraging OpenStack-Helm or other software sets--things such as log collection, search capabilities, monitoring, alerting, graphing, as well as network security policies.

Reliable Upgrades: Critical services can be upgraded with confidence, with gradual roll-outs (including the ability to roll-back), and guaranteed data and virtual machine integrity across container application upgrades. There's no need to shut down any services or live-migrate any virtual machines through the upgrade process.

AIRSHIP USE CASES

USE	BENEFITS
Traditional Cloud Workloads	Leverage Airship to deploy both OpenStack-Helm and OpenStack-Helm Logging Monitoring and Alerting to create and manage a full production grade OpenStack environment.
CI/CD Environment	Airship can provide a Kubernetes based containerized CI/CD environment (e.g. gerrit, jenkins, zuul) along with OpenStack VMs for test flexibility.
Region Controller	Airship combined with containerized CI/CD and Artifactory deployments can support centralized management of a fleet of independent Airship installations.
Containerized Network Functions	Provide a Kubernetes environment allowing tenants to create Containerized Network Functions directly on bare metal Kubernetes.
Generic Helm Workloads	Deploy and manage the life cycle of a bare metal Kubernetes Cluster as well as any set of Helm-based software on top, e.g. TensorFlow, Hadoop, ElasticSearch, Kafka.

AIRSHIP FEATURES

SIMPLE

Infrastructure is managed through declarative YAML files and there is one workflow for both deployments and updates. Airship does not require operators to develop their own set of complex orchestration tooling to automate Airship.

FLEXIBLE

Containers and Helm charts are the basic unit of deployment for all software including Airship itself, pushing software orchestration logic to the edge. Expanding the software stack is as simple as adding new charts to Airship declarations.

REPEATABLE

Platform state including all versions are specified declaratively, and Airship, Helm, and Kubernetes align containers, dependencies, and configuration in the same way every time.

RESILIENT

All jobs and services are running as containers, provide health status, and are healed by Kubernetes supervision by taking full advantage of native Kubernetes resiliency.

SELF-HOSTED

The Airship components themselves are deployed as Helm charts and run as services within Kubernetes. This allows them to be upgraded like any other software component in the system.