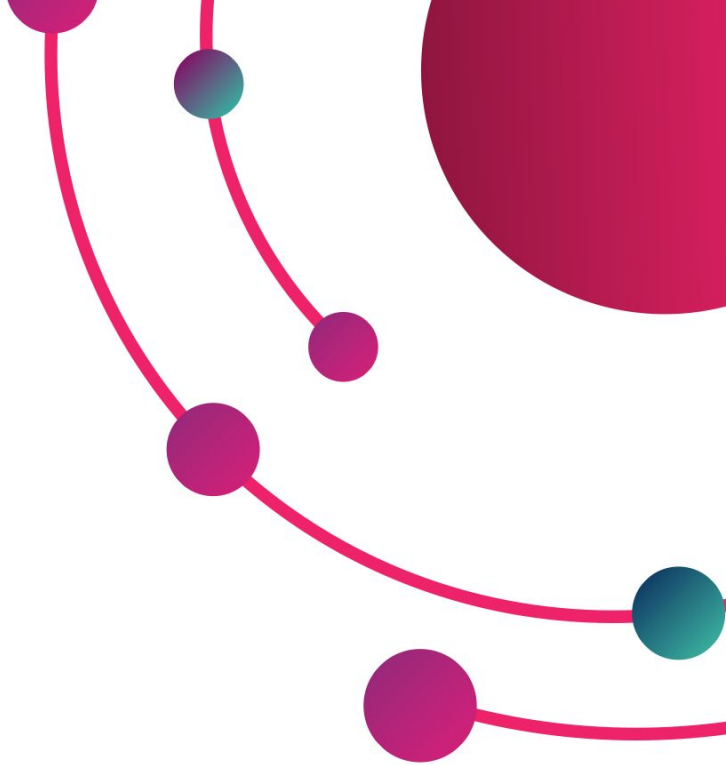


MIRANTIS

Introduction to MCP

training.mirantis.com

Objectives

- Introduction
- Understanding the Mirantis Story
- Define high level architecture and terminologies
- Understanding Mirantis Cloud Platform Operations
- Understanding MCP Versioning & Packaging
- Overview of MCP Support Levels

Introduction

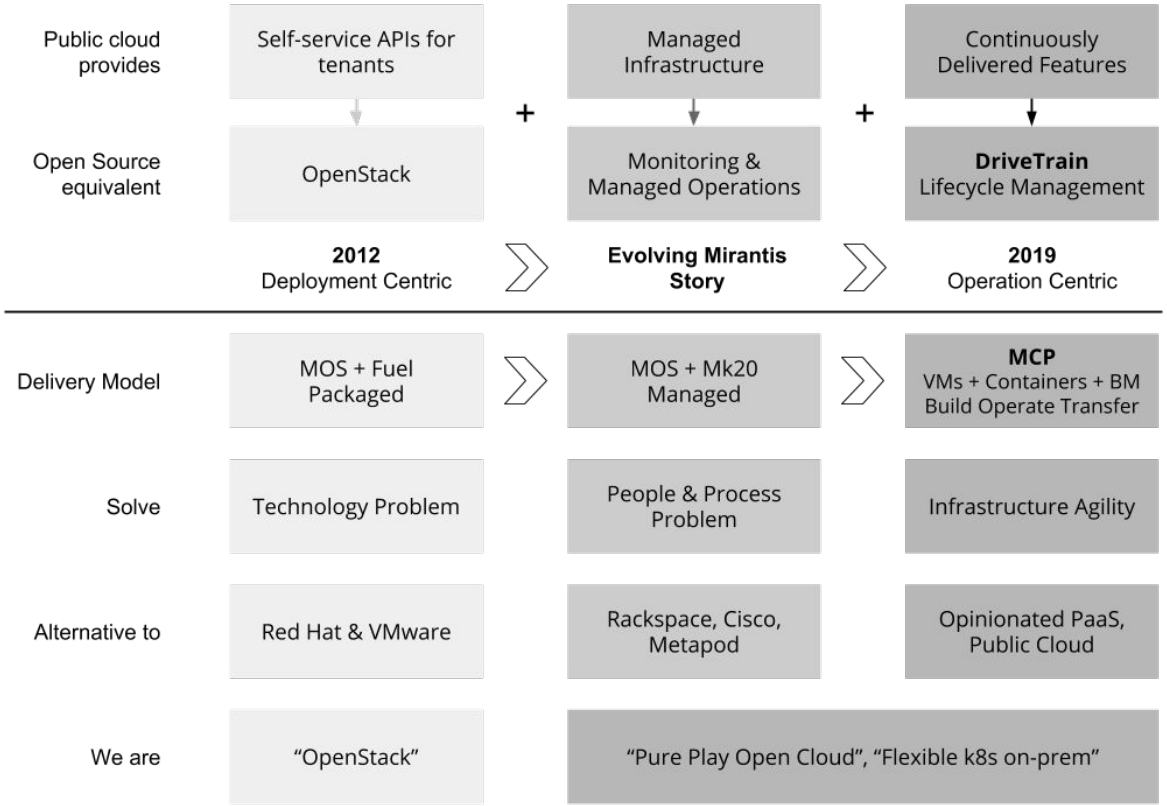
What is Mirantis Cloud Platform MCP (High Level)?

- Tools (open source) for Day 1 & Day 2 (deployment & ops) for
  - Life Cycle management LCM - deployment, updates/upgrades, configuration management, expansions etc.
  - Logging Monitoring Alerting LMA - observability
- Software - continuously delivered
  - e.g. OpenStack and its backends
- Set of best practices/architectures to deploy and operate delivered software (with tools) provided as
  - Documentation
  - Configuration models
- Enterprise/operator grade support

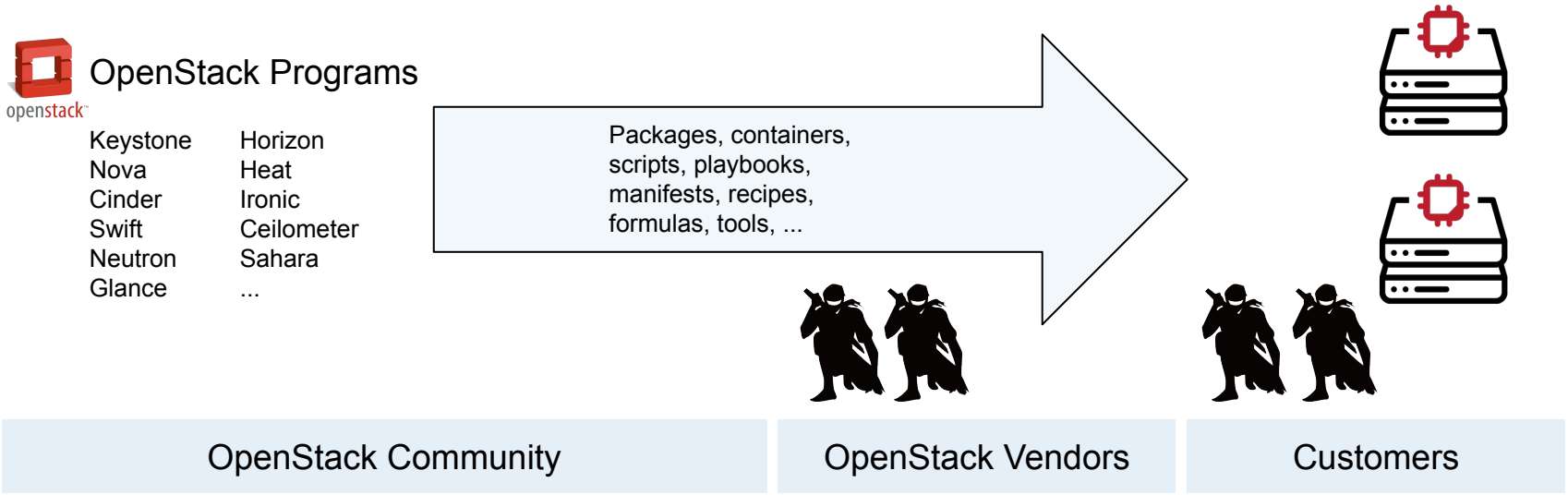
The Mirantis Story

MCP history/background

Evolving Mirantis Story



Challenge: OpenStack Delivery



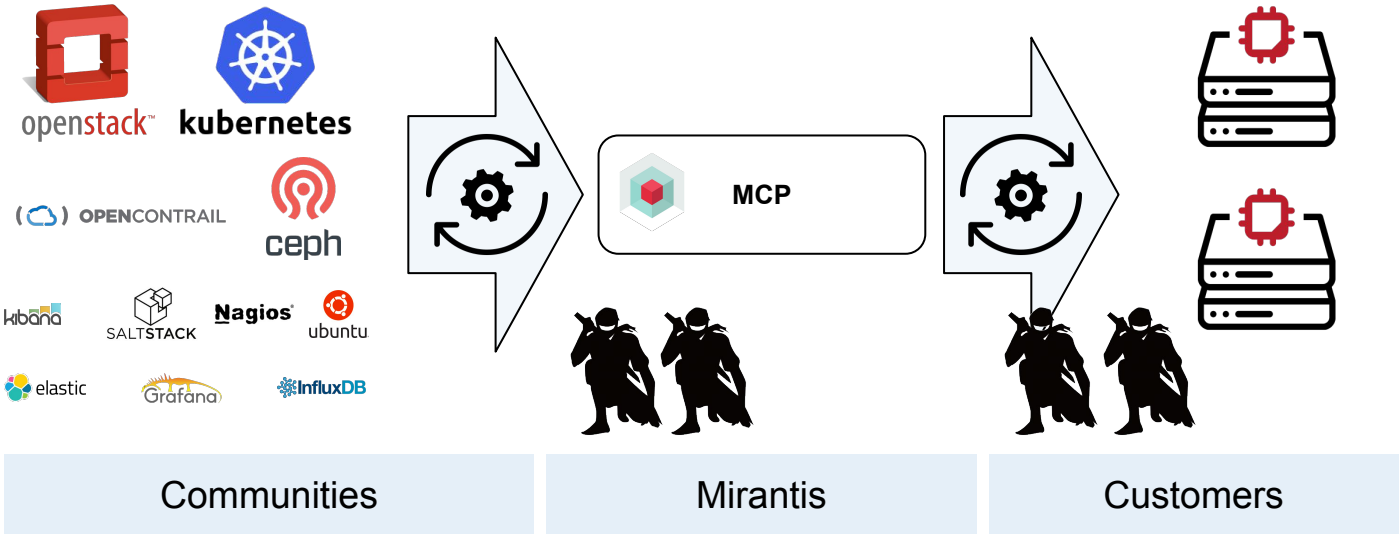
Challenge: OpenStack Deployment Architecture

- OpenStack has many moving parts
- OpenStack deployment architecture is required to define the following aspects of the cloud:
  - Software components and their versions
  - Scalability, availability, manageability
  - Networking, integration, security
- OpenStack deployment architecture should be
  - Based on best practices
  - Verified

Challenge: OpenStack "Day 2" Operations

- Adding new nodes to the cluster
- Decommissioning nodes
- Introducing changes
- Updating/upgrading the cluster
- Integration with workloads from other platforms

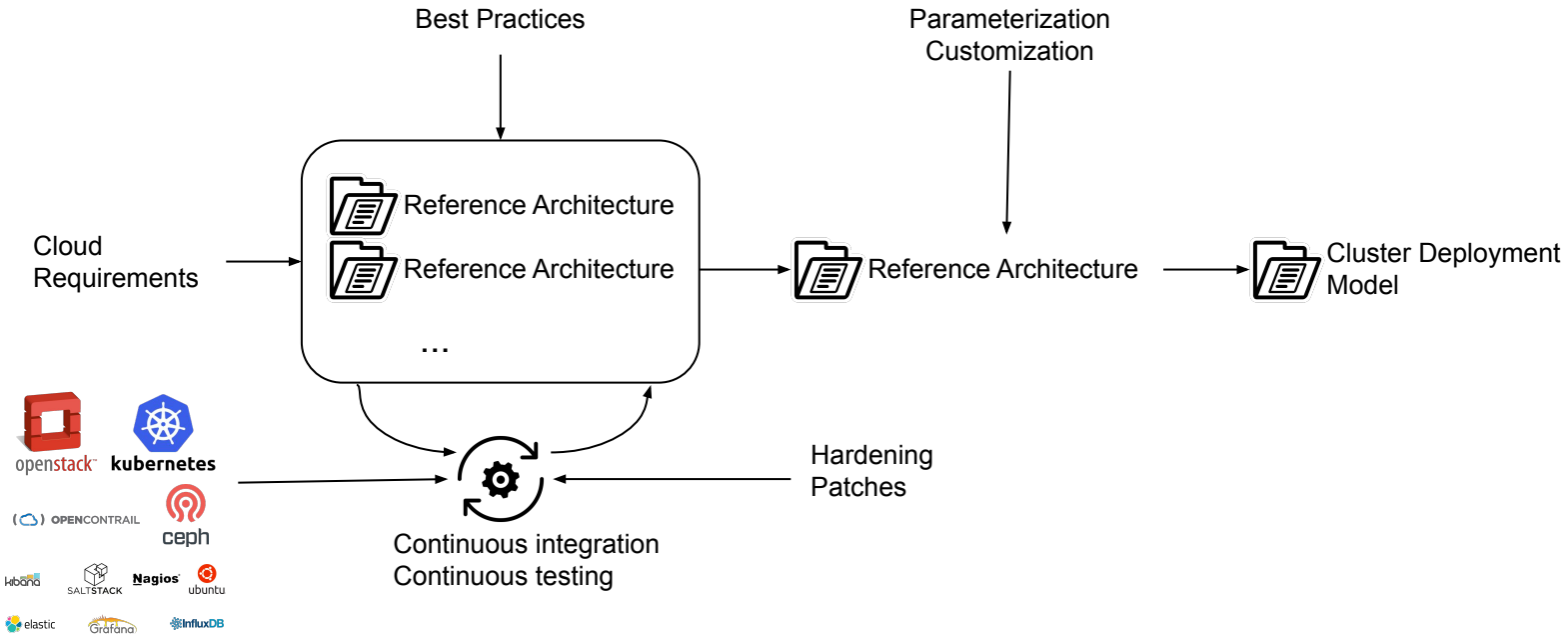
Solution: Continuous Delivery through MCP



Solution: MCP is Operations Centric

- Unified tooling for initial deployment and ongoing management
- Drive and audit changes through version control and code review
- Update and upgrade capabilities are built into the platform
- "Dry run" mode

Solution: MCP Open Platforms & Infrastructure-as-Code



Deployment Centric vs Operations Centric

Deployment Centric

Pros

- Easy to use installer
- Repeatable process

Cons

- Upgrades are disruptive and infrequent
- Difficult to audit changes
- Monolithic architecture makes customizations difficult

Operations Centric

Pros

- Unified tooling for deployment and management across all platforms
- Audit changes via code review
- Component based architecture enables incremental upgrades and updates

Cons

- Initial complexity in deployment

Mirantis Belief

We believe in Infrastructure-as-Code delivered by Open platforms

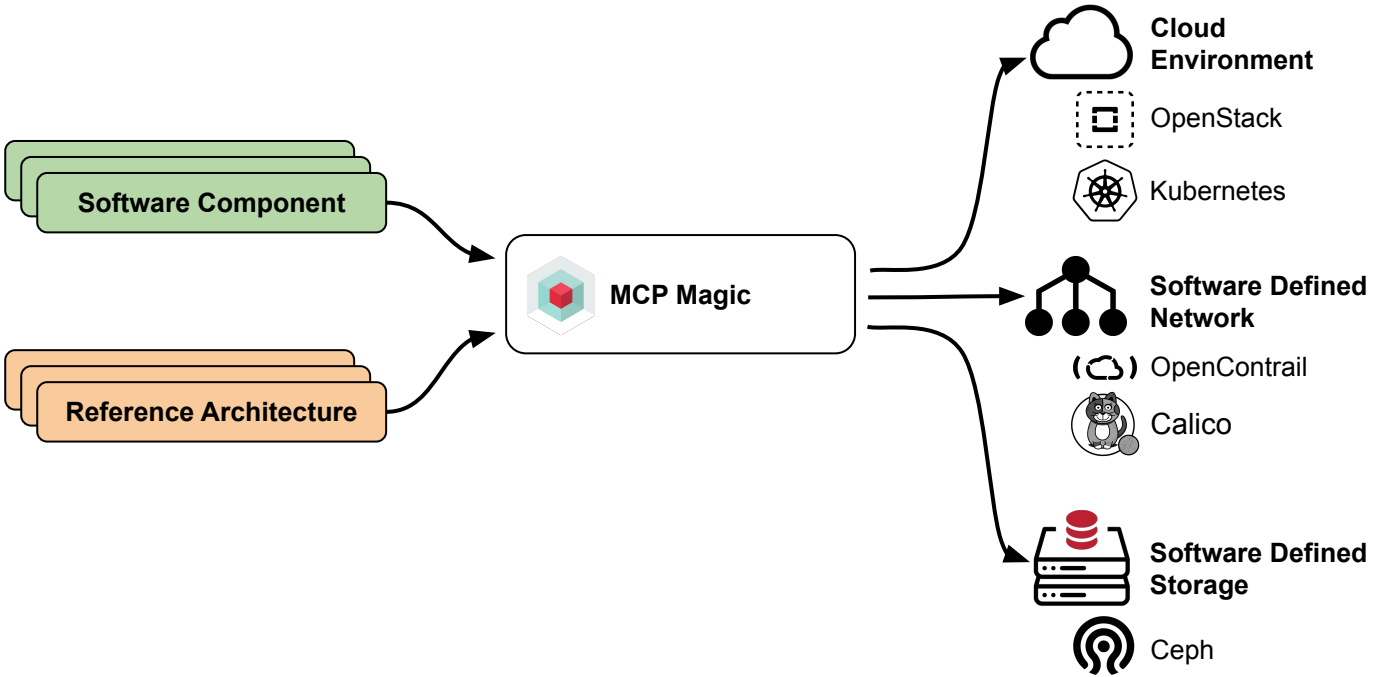
What is Mirantis Cloud Platform

Mirantis Cloud Platform definition and features

What is Mirantis Cloud Platform?

Mirantis Cloud Platform (MCP) combines *software components* and *reference architectures* that enable software developers and devops engineers to *deploy, configure, manage Cloud environments, Software Defined Networks, and Software Defined Storage* solutions.

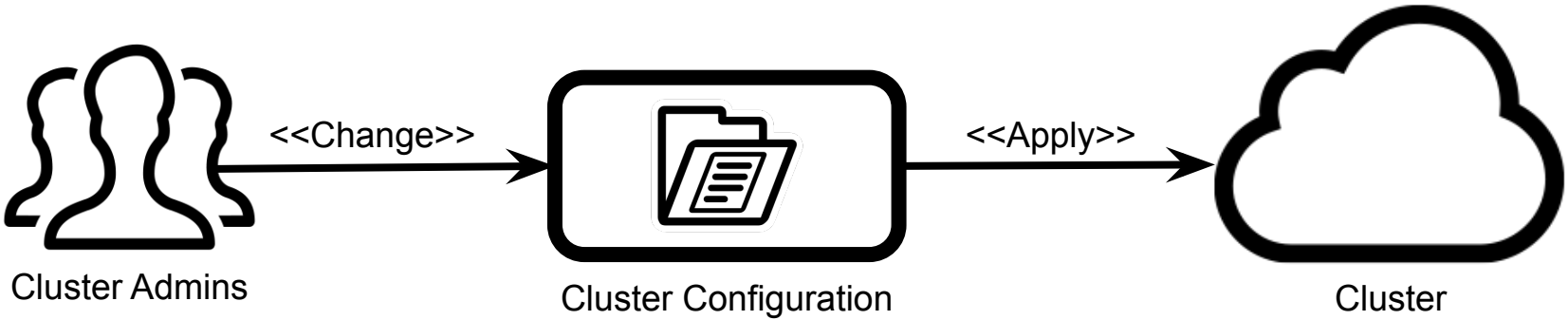
Mirantis Cloud Platform



MCP Features

- Open-source components to leverage the collective innovation from hundreds of contributors
- Unified tooling for initial deployment and ongoing management of the clouds
- Model-driven deployment architecture, "infrastructure as code" approach
- Multi-Cluster/multi-site management capabilities
- Update and upgrade capabilities are built into the platform

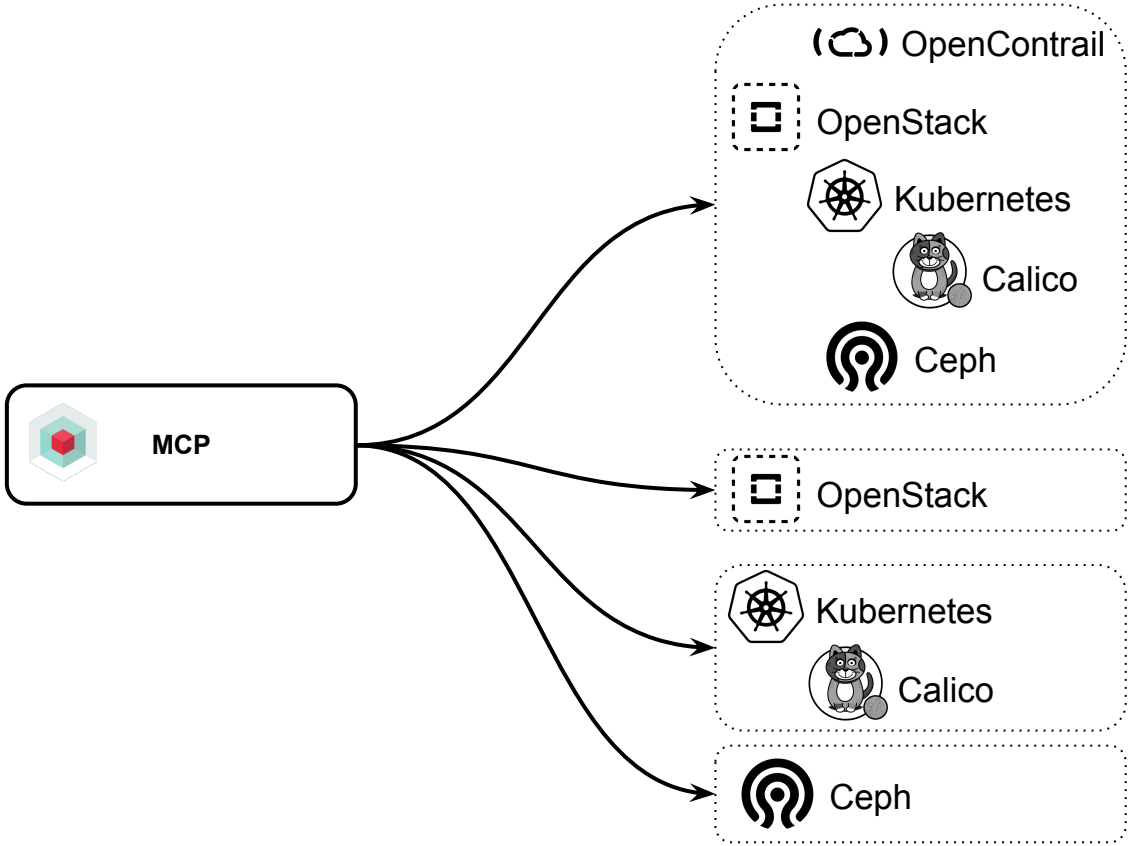
MCP: Infrastructure as Code (IaC)



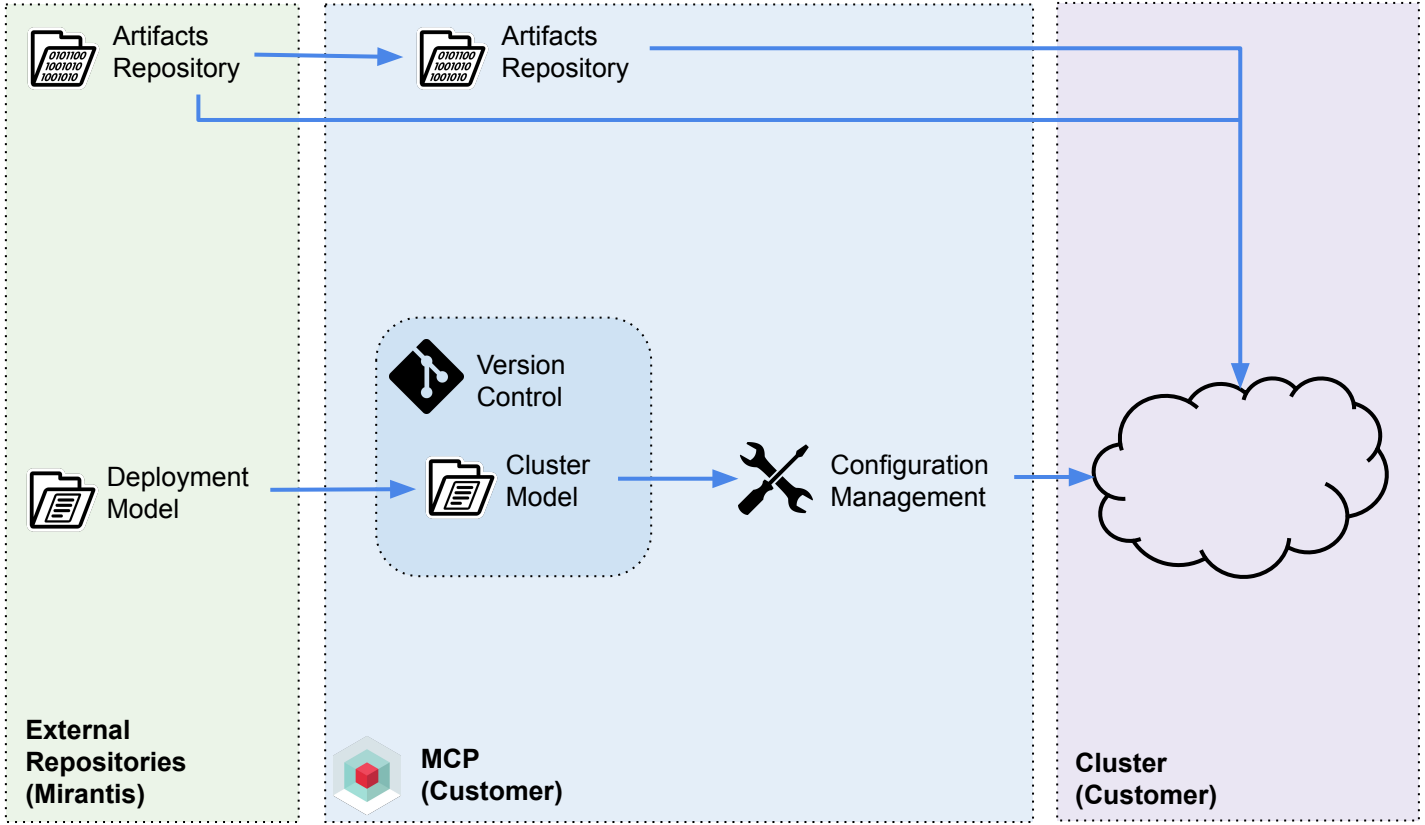
IaC Approaches

- Imperative approach
  - Do the right steps in the right order
  - Manual documentation, (semi-)automation (scripts)
  - The right steps, scripts and documentation can be out of sync
- Declarative approach
  - Model defines the target state
  - Idempotency, Predictability, Traceability
  - Model is human and machine readable

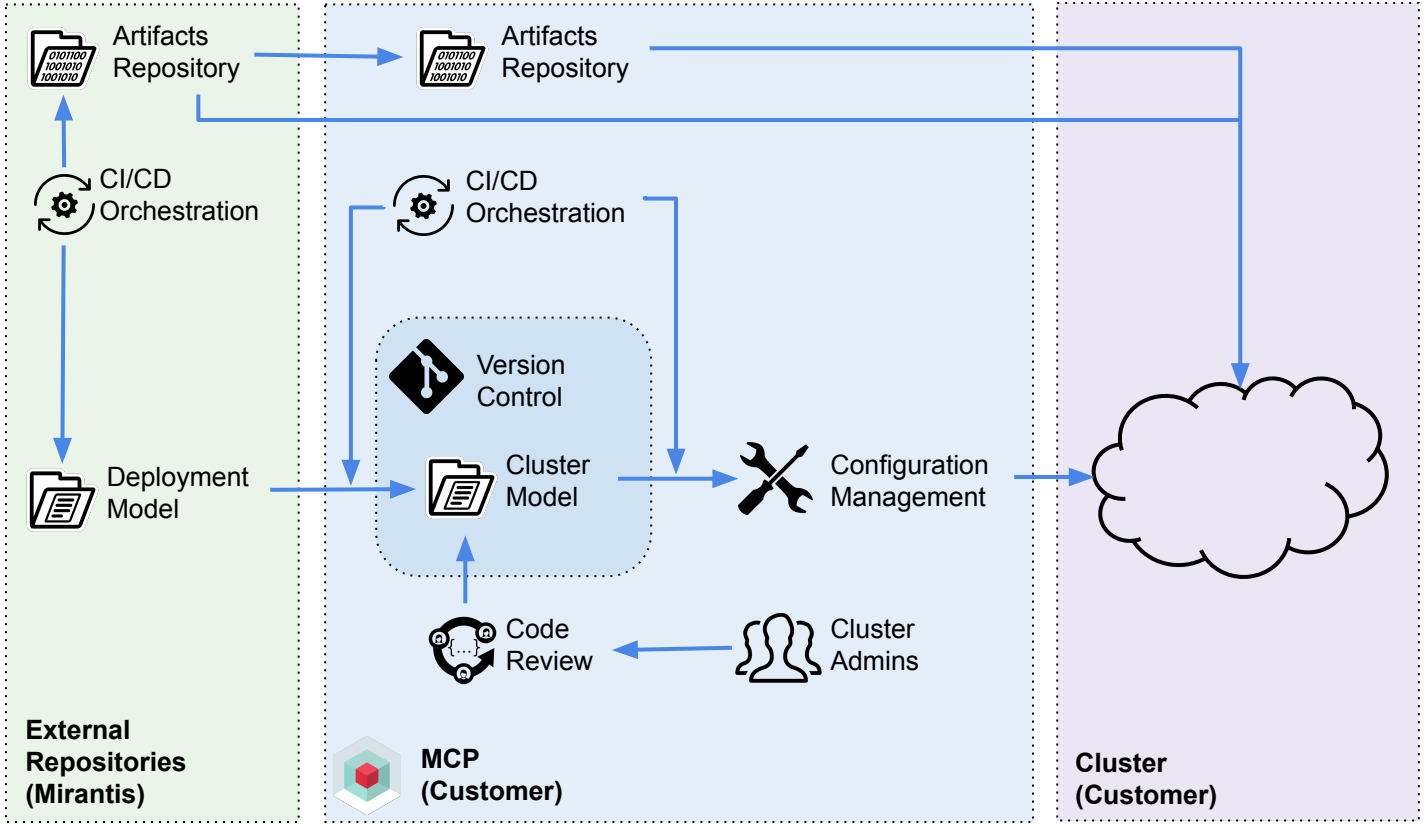
MCP: Multi-Cluster/Multi-Site Management



MCP: Updating through CI/CD



MCP: Updating through CI/CD



MCP [2019.2] OpenStack Cluster

- Pike / Queens Release*
- OpenStack deployment architectures
  - Virtualized Control Plane (VCP)
  - Containerized Control Plane (CCP)**
- OpenStack network implementations
  - OpenStack networking with Open vSwitch
  - OpenStack networking with OpenContrail
- Support for Linux huge pages, NUMA and CPU pinning
- Support for NFV
- StackLight
  - OpenStack logging, monitoring, alerting (LMA)
- Ceph

MCP [2019.2] Ceph Cluster

- Luminous Release (12.2.x)
- Standalone Ceph cluster, or
- Ceph cluster integrated with OpenStack
  - Storage backend for OpenStack Block Storage (Cinder)
  - Storage backend for OpenStack Image service (Glance)
  - Ephemeral backend for OpenStack Compute (Nova)
  - Drop-in replacement for OpenStack Object Storage (Swift)
  - One Ceph cluster can be used for many OpenStack clusters

MCP [2019.2] Kubernetes Cluster

- Version 1.13.6
- **SUPPORT TERMINATION**
- Calico or Flannel as a network provider
- Ceph as persistent storage provider*
- Virtlet support
- Supported clusters
  - Standalone Kubernetes cluster
  - Orchestrator for OpenStack Containerized Control Plane (CCP)

kubernetes

MCP Architecture and Ecosystem

High Level Overview

MCP DriveTrain

- CI/CD components
  - Git / Gerrit
  - Jenkins
  - MCP Registry
  - SaltStack
- HA enabling components
  - Docker Swarm
  - Keepalived
  - Nginx
  - GlusterFS

MCP OpenCloud Software

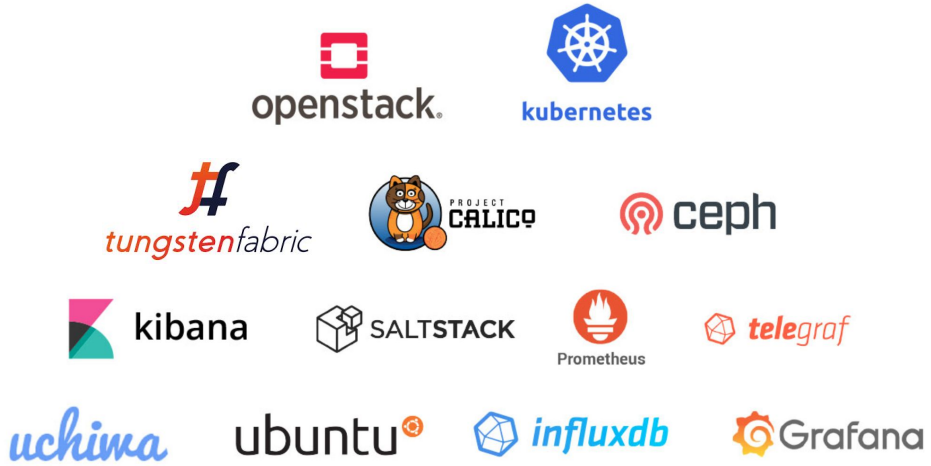
- Kubernetes
- OpenStack
- Ceph SDS
- TungstenFabric SDN
- Calico SDN

MCP Stacklight OSS

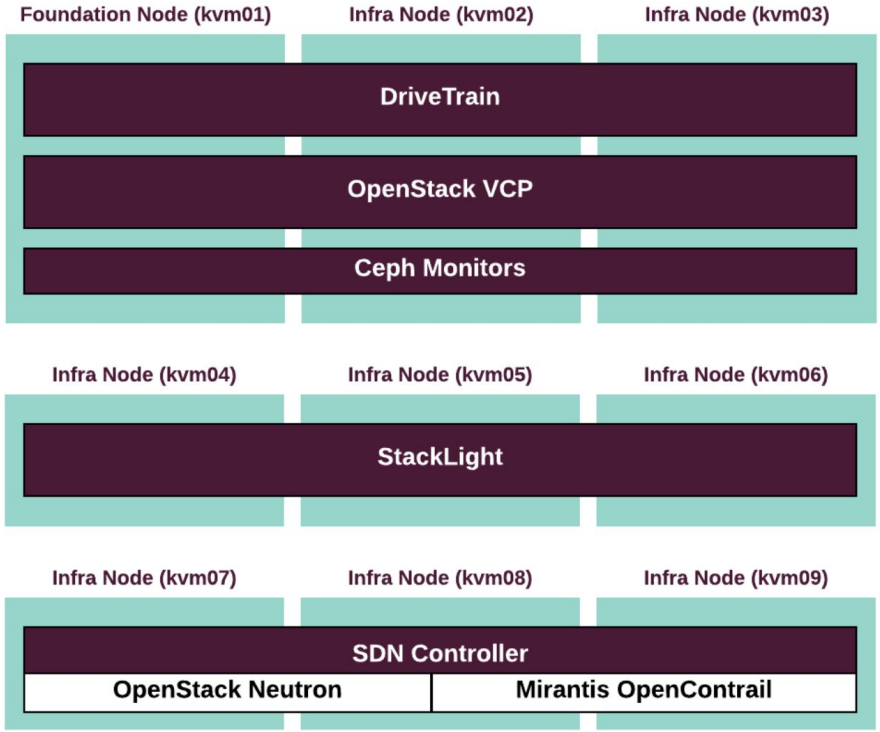
- Prometheus
- Alerta
- InfluxDB
- Kibana
- Grafana
- Telegraf
- Elasticsearch

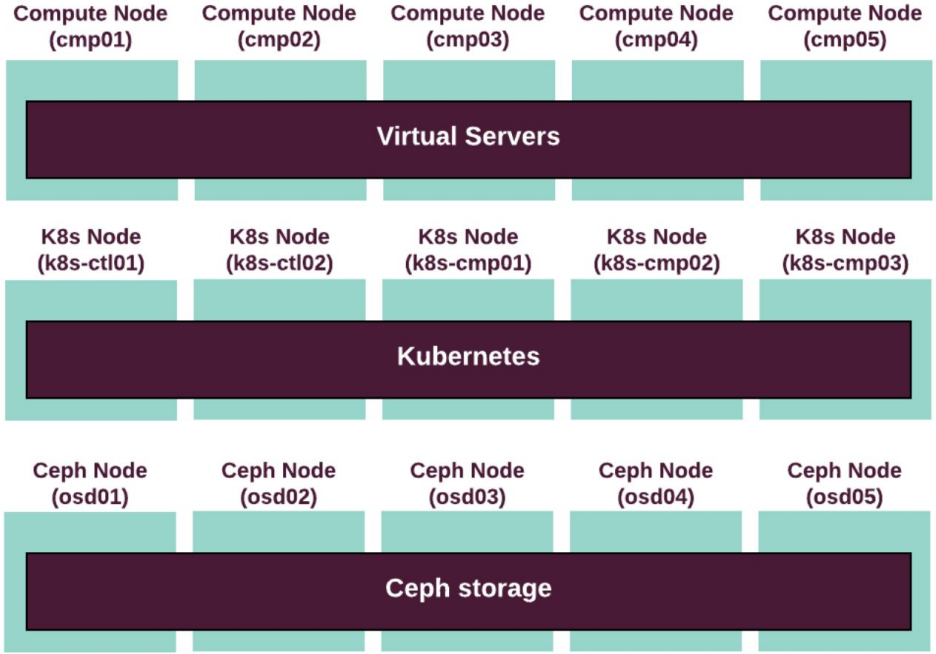
MCP Ecosystem

- 100% Open Source
- Continuous delivery of software updates
- Automated upgrades



Defining the Stack





MCP Packages & Versioning

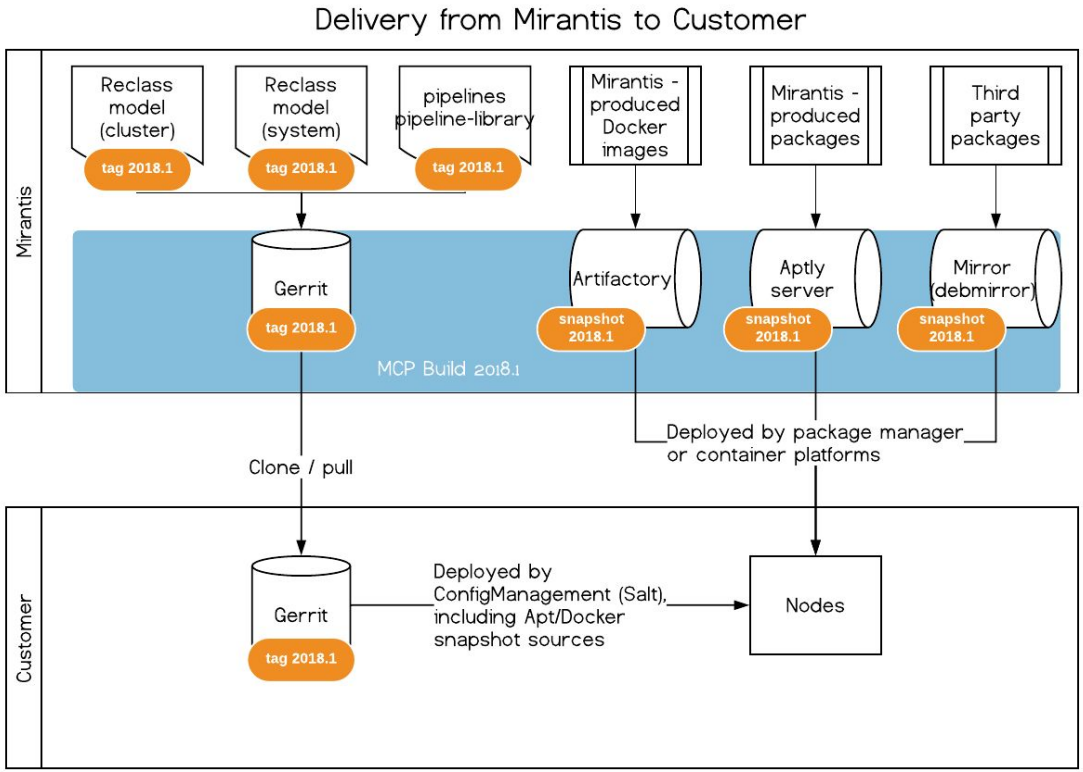
Many Components, Many Versions

- What are the versions of all components I deployed?
- If I upgrade what versions will I end up with?
- I want to add more nodes to my cluster and ensure the services on my new nodes have the same version as the existing nodes

MCP Release Version

- MCP build which passed integration testing and considered stable with documented known issues
- MCP Release Version example: **2019.2.0**
  - yyyy.mm.vv
  - Product release date & version number
  - Specify in reclass model “mcp_version” parameter
- Tied to combination of all artifacts specific to the release
  - Artifacts are immutable after release

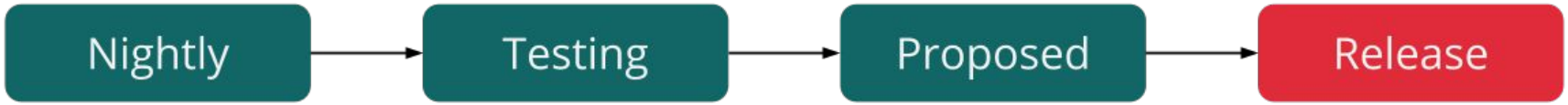
MCP Release Delivery to Customer



MCP Packages

- Mirantis APT/DEB packages
  - Packages produced by Mirantis installed by APT tagging/versioning
- Upstream Mirrors
  - Ex) SaltStack, Ubuntu
- Plaintext
  - Ex) Reclass system-models, Jenkins Pipeline Groovy, automation scripts
- Docker Images
  - Binaries run as containers

MCP Building Artifacts & Promotion



- Nighty -> Testing
  - Component team performs functional testing
- Testing -> Proposed
  - Component team performs full integration test suite
- Proposed -> Release
  - Integration team performs acceptance testing which may include security audit, performance testing, scale testing, etc
  - Build ID tag is created “yyyy.mm.vv” when successful

MCP Releases and Component Compatibility Matrix

https://docs.mirantis.com/mcp/q4-18/mcp-compatibility-matrix/compatibility-matrix.html

MCP Support Information

Support Options

- Business Critical
  - OpsCare
  - ProdCare
- Non Critical
  - LabCare

Business Critical

- OpsCare
  - 99.99% SLA
  - Remote management by Mirantis
- ProdCare
  - Managed by your IT Ops team
  - Backed by 24x7 Mirantis support

Non Critical

- LabCare
  - Managed by your IT Ops team
  - Backed by 8x5 Mirantis support

Support Contract Overview

Subscription Support	OpsCare	ProdCare	LabCare
Remote Incident Resolution	•	•	•
Product & Security Bulletins	•	•	•
Knowledge Base	•	•	•
Designated Customer Contacts	Unlimited	10	3
Enhanced SLA	•	•	
3rd Party Cooperation	•	•	
Monitoring & Proactive Incident Management	•		
Remote Operations & Lifecycle Management	•		
Customer Success Manager (CSM)	•		
Proactive Cloud Maintenance & Capacity Planning	•		
Monthly Reporting & Quarterly Business Reviews	•		
Customer Advocacy & Roadmap Planning	•		

Support Contract Overview

Support Access

Subscription Support	OpsCare	ProdCare	LabCare
Minimum Term	1 year	1 year	1 year
Hours of Direct Support	24x7	24x7	9am-5pm
Access	Phone, web, email		

Incident Response Times

Priority	OpsCare		ProdCare		LabCare	
Severity Level	Initial Response	Updates	Initial Response	Updates	Initial Response	Updates
Severity 1 (Critical Impact)	15 minutes (must be reported by phone)	1 hour	1 hour	1 hour	4 hours	1 hour
Severity 2 (High Impact)	1 hour	4 hours	2 hours	4 hours	8 hours	Daily
Severity 3 (Medium Impact)	4 hours	2 business days	4 hours	Weekly	24 hours	Every 2 weeks
Severity 4 (Low Impact)	8 hours	Weekly	8 hours	Monthly	48 hours	Quarterly