

# Curve clusters for Cloud Native



# Curve intro

- Curve is an distributed storage system
  - High performance
  - Easier operation
  - Cloud native
- Curve is composed of two parts
  - Curve Block Storage (CurveBS)
    - CurveBS: a high performance cloud native distributed block storage
  - Curve File System (CurveFS)
    - CurveFS: a high performance cloud native file system (Based on CurveBS / S3 compatible Storage)



# Cloud native is the KeyPoint

CLOUD NATIVE LEVEL	CURVE	CEPH + ROOK	COMMENT
BASIC INSTALL	Y (by Helm)	Y	automated application provisioning and configuration management
SEAMLESS UPGRADES	Y (by Helm)	Y	patch and minor version upgrades supported
FULL LIFECYCLE	Plan to Support (ROOK Frame)	Y	app lifecycle, storage lifecycle(backup, failure, recovery)
DEEP INSIGHTS	Plan to Support (ROOK Frame)		metrics, alerts, log processing and workload analysis
AUTO PILOT	Plan to Support (ROOK Frame)		horizontal/vertical scaling, auto config tuning, abnormal detection, schedule tuning



# Cloud native Features

- Features for Cluster / Clusters
- Features for CurveBS
- Features for CurveFS
- Features for monitor
- Features for network



# Features for cluster

- Install / uninstall/ upgrade and configure CurveBS/CurveFS through helm chart
  - upgrade automation
- Supporting Curve Cluster provisioning in helm chart
- metadata backup and recovery
- MDS / ChunkServer should respect failure domains of Kubernetes
- Support for public cloud environments
- Dashboard-driven configuration after minimal Curve install



# Features for clusters

- CurveBS mirroring configured with CRDs
- Different Curve clusters may share MDS and ETCD server
- Replication between CurveFS configured with CRDs



# Features for CurveBS

- CSI plugin for CurveBS
- CurveBS (Cluster and Pool CRDs)
- chunk server pods can run on arbitrary PVs(local storage) as an alternative to host path
- Support automatically detect new nodes, adding / removing nodes and disk drives
- Support dynamic volume resizing
- chunkserver on PVC support for different data and metadata(HDD, SSD, pmem)
- Allow chunkserver on PVCs to automatically grow when the cluster is nearly full



# Features for CurveFS

- CSI plugin for CurveFS
- CurveFS (cluster and storage pools) CRDs
- Dynamic Volume Provisioning for CurveFS
- Dynamic volume resizing
- Support automatically detect new nodes, adding / removing nodes
- Allow CurveBS and S3 automatically grow underneath CurveFS when the cluster is nearly full



# Features for monitor

- Intergrate Prometheus monitoring (add support for Prometheus)
- Support detailed dashboard with Prometheus metrics
- Curve cluster status/errors to be viewed in the dashboard
- Gather Curve failure reports(disk / pods / mds/ chunkserver) to be viewed in dashboard
- Gather Curve performance /delay reports to be viewed in dashboard