Curve integrate to Cloud Native

Curve intro

* Curve is an distributed storage system

  * High performance

  * Easiser 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)

Operator capability Level

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

Cloud native Feature list

- Features for Cluster

- Features for CurveBS

- Features for CurveFS

- Features for monitor

Feature list 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

Feature list for cluster

- CurveBS mirroring configured with CRDs

- Different Curve clusters may share MDS and ETCD server

- Replication between CurveFS configured with CRDs

Feature list 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

Feature list for CurveFS

- CSI plugin for CurveFS

- CurveFS (cluster and storage pools) CRDs

- Dynamic Volume Provisioning for CurveFS

- Dynamice volume resizing

- Support automatically detect new nodes, adding / removing nodes

- Allow CurveBS and S3 automatically grow underneath CurveFS when the cluster is nearly full

Feature list 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