KUBE DB

**INTRODUCTION :**

Kube DB , simplifies Provision, Upgrade, Scaling, Volume Expansion, Monitor, Backup, Restore for various Databases in Kubernetes on any Public & Private Cloud.

Similar to TiDB, the database includes microservices that are concerned with query processing and data storage, as well as services for identity and access control, data repair and backup/restore.

**PROJECT SUMMARY**

|  |  |
| --- | --- |
| website | https://kubedb.com/ |
| Organization/foundation name | Kube DB |
| license | [AppsCode License Server](https://license-issuer.appscode.com/?p=kubedb-enterprise&_gl=1*trkr5b*_ga*MTc3MzE2NzU4LjE2ODEwNDA3OTY.*_ga_R5J3WVDEFB*MTY4MTA0NDc2OS4yLjEuMTY4MTA0NTMwMC42MC4wLjA.) |
| Open proprietary | open-source |
| Source path | open |
| Brief description | KubeDB uses Persistent Volume Claims (PVC) to dynamically provision disks for database instances. Using appropriately defined StorageClasses, KubeDB provisioned database instances are designed to scale from small development workloads up to performance-intensive workloads on private and public cloud environments.p |

**PROJECT DETAILS**

**KEY FEATURES :**

1. **Lower administrative burden** – KubeDB simplifies many of the difficult or tedious management tasks of running a production grade databases on private and public clouds. Maintain one stack for all your stateless and

stateful applications and simplify the operational complexity.

1. **Native Kubernetes Support -**Standard Kubernetes is all you need. If you can run Kubernetes, you can provision and manage databases using KubeDB. Use standard Kubernetes CLI and API to provision and manage databases.

### Performance - KubeDB uses Persistent Volume Claims (PVC) to dynamically provision disks for database instances. Using appropriately defined StorageClasses, KubeDB provisioned database instances are designed to scale from small development workloads up to performance-intensive workloads on private and public cloud environments.

### Availability and durability -KubeDB will backup your database and transaction logs at a user defined frequency and store both for a user-specified retention period in a cloud object store (S3, GCS, etc.) or local filesystem (like NFS, etc.). You can also initiate one-off backups. KubeDB uses Stash by AppsCode to take deduplicated and encrypted backups so that you only incur the cost of incremental storage use. You can create a new instance from a database snapshots whenever you desire.

### Manageability - KubeDB comes with native support for monitoring via Prometheus. You can use builtin Prometheus scrapper or CoreOS Prometheus Operator to monitor KubeDB supported databases as well as KubeDB operator itself. You can use the Grafana to view key operational metrics, including compute/memory/storage capacity utilization, I/O activity, and instance connections. You can also use any metrics solutions like Datadog with KubeDB.

### Cost-effectiveness - KubeDB is free to use on any supported Kubernetes engines. There is no up-front investment required, and you pay only for the resources you use to your infrastructure provider. And, when you’re finished with a database instance, you can easily delete it.

### Security - You can secure your Databases with TLS using KubeDB. Also, KubeDB allows you to use encrypted storage for your databases using keys you manage through your cloud provider’s key management service.

### ARCHITECTURE

### Kubernetes Architecture and Components :

Kubernetes has a decentralized architecture that does not handle tasks sequentially. It functions based on a declarative model and implements the concept of a ‘desired state.’ These steps illustrate the basic Kubernetes process:

1. An administrator creates and places the desired state of an application into a manifest file.
2. The file is provided to the Kubernetes API Server using a CLI or UI. Kubernetes’ default command-line tool is called **kubectl**. In case you need a comprehensive list of kubectl commands, check out our [Kubectl Cheat Sheet](https://phoenixnap.com/kb/kubectl-commands-cheat-sheet" \t "_blank).
3. Kubernetes stores the file (an application’s desired state) in a database called the **Key-Value Store (etcd)**.
4. Kubernetes then implements the desired state on all the relevant applications within the cluster.
5. [Kubernetes continuously monitors the elements of the cluster](https://phoenixnap.com/kb/prometheus-kubernetes-monitoring) to make sure the current state of the application does not vary from the desired state.

### 

### 

### CURRENT USAGE

### PRODUCTS:

### STASH -

A complete Kubernetes native disaster recovery solution for backup and restore your volumes and databases in Kubernetes on any public and private clouds.

* task\_altDeclarative API
* task\_altBackup Kubernetes Volumes
* task\_altBackup Database
* task\_altMultiple Storage Support
* task\_altDeduplication ETC.

1. **KUBEVAULT -**

KubeVault is a Git-Ops ready, production-grade solution for deploying and configuring Hashicorp's Vault on Kubernetes.

* task\_altVault Kubernetes Deployment
* task\_altAuto Initialization & Unsealing
* task\_altVault Backup & Restore
* task\_altConsume KubeVault Secrets with CSI
* task\_altManage DB Users Privileges
* task\_altStorage Backend ,ETC.

1. **VOYAGER -**

Secure HAProxy Ingress Controller for Kubernetes

* task\_altHTTP & TCP
* task\_altSSL
* task\_altPlatform support
* task\_altHAProxy
* task\_altPrometheus
* task\_altLet's Encrypt

1. **KUBEFORM -**

Provision cloud resources  
using **Kubernetes** CRDs  
& **Terraform**

* task\_altNative Kubernetes Support
* task\_altBuilt on Terrafrom
* task\_altInfrastructure as Code
* task\_altSupports Multiple Cloud Platform
* task\_altUnleash Developer Velocity

**TECHNICAL DETAILS**

Kubernetes has emerged as the de-facto way to deploy modern containerized apps on cloud or on-premises. “Despite all that growth on the application layer, the data layer hasn’t gotten as much traction with containerization” - [Google](https://cloud.google.com/blog/products/databases/to-run-or-not-to-run-a-database-on-kubernetes-what-to-consider). That’s not surprising, since handling things like state (the database), availability to other layers of the application, and redundancy for a database makes it challenging to run a database in a distributed environment like Kubernetes.

However, many developers want to treat data infrastructure the same as application stacks. Operators want to use the same tools for databases and applications and get the same benefits as the application layer in the data layer: rapid spin-up and repeatability across environments. This is where KubeDB by AppsCode comes as a solution.

KubeDB by AppsCode is a production-grade cloud-native database management solution for Kubernetes. KubeDB simplifies and automates routine database tasks such as provisioning, patching, backup, recovery, failure detection, and repair for various popular databases on private and public clouds. It frees you to focus on your applications so you can give them the fast performance, high availability, security and compatibility they need.

KubeDB provides you with many familiar database engines to choose from, including **PostgreSQL**, **MySQL**, **MongoDB**, **Elasticsearch**, **Redis**, **Memcached**, and **Percona XtraDB**. KubeDB’s native integration with Kubernetes makes a unique solution compared to competitive solutions from cloud providers and database vendors.

### Performance : KubeDB uses Persistent Volume Claims (PVC) to dynamically provision disks for database instances. Using appropriately defined StorageClasses, KubeDB provisioned database instances are designed to scale from small development workloads up to performance-intensive workloads on private and public cloud environments.

### OTHER INFORMATION

### Project comparison: The best alternatives to Kube DB are [Control](https://www.producthunt.com/products/control), [Periscope Data](https://www.producthunt.com/products/periscope-data), and [LastBackend.](https://www.producthunt.com/products/lastbackend" \t "_blank)If these 3 options don't work for you, we've listed a few more alternatives below.

### Views by airplane.

### Lastbackend.

### pipelineDB.

### Vistools.

**Reference :**

1. KubeDB Operator
2. KubeDB Webhook Server
3. KubeDB CLI

## We Have Happy Customers Around the World



