



# K8ssandra + VMware Tanzu

Enterprises wanting to run data workloads on Kubernetes are faced with significant barriers today. K8ssandra is a cloud-native distribution of Apache Cassandra® equipped with related open-source packages specifically designed to address these barriers. K8ssandra provides everything you need to automate the deployment and operations of Cassandra on Kubernetes and expose your database as industry-standard APIs. K8ssandra is certified to run on VMware Tanzu Kubernetes Grid, a leading Kubernetes distribution from VMware. Together they provide friction-free deployment of Cassandra universally across public, private, or hybrid clouds. K8ssandra and Tanzu work hand in hand to support NoSQL workloads like key-value, tabular, or document at planetary scale, with always-on availability.

## **Advantages of running K8ssandra on VMware Tanzu**

### *Bring data to the edge*

Together, K8ssandra and VMware Tanzu improve latency for your end users by bringing data closer to your applications in remote regions and availability zones.

### *High availability and linear scalability on any cloud*

K8ssandra running on VMware Tanzu provides inherent high availability in your cluster and data centers in your own private cloud, in public clouds, or in hybrid environments. Only K8ssandra can deliver a 99.999% uptime SLA on Kubernetes, on the most stable database on the planet.

### *Single control plane for running K8s pods and data clusters*

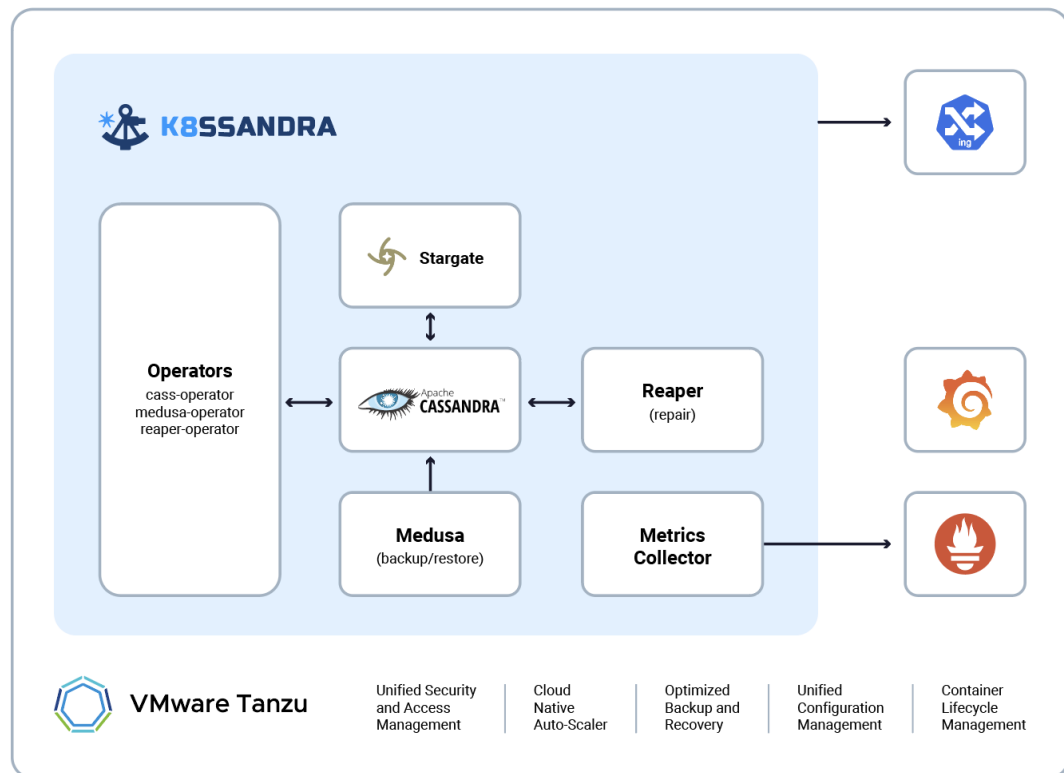
VMware Tanzu Mission Control provides operators with a universal control plane for full operational lifecycle management and observability in a single platform, in addition to K8ssandra's management tools.

### Secure software supply chain

VMware Harbor Registry extends the open source Docker distribution by adding enterprise grade functionality such as security and identity management. As an enterprise private registry, Harbor offers enhanced performance and security, making it easy for you to manage your K8ssandra images.

### Increased Productivity, with Peace of Mind

K8ssandra on VMware Tanzu provides better isolation and multi-tenancy. Running on Tanzu offers a more secure boundary compared to running containers on open source Kubernetes. This enables the option to create multiple kubernetes clusters without dedicating hardware to each team/cluster. This will reduce operational burden and unleash developer productivity to amplify the benefits of Cassandra on top of Kubernetes.



*"Kubernetes and VMware Tanzu represent an ideal way to modernize and operate applications and data workloads. DataStax, K8ssandra, and the Apache Cassandra project enable developers and enterprises to seamlessly and efficiently run their Cassandra workloads on VMware Tanzu at enterprise scale alongside the entire suite of VMware Tanzu Data services."*

**Jacque Istok**, VP Data, VMware Tanzu

"Apache Cassandra is a highly scalable, fast, and reliable database, and running it on Kubernetes removes many of the operation hurdles around installation, customization, and maintenance. Cloudleaf, Inc., a leader in next-generation digital supply chain solutions, has been running Cassandra at scale on Kubernetes as a stateful set for several years now as part of its digital visibility platform. With the huge adoption for Cassandra users on Kubernetes, projects like K8ssandra will be a huge boost for the Cassandra community, giving it a complete ecosystem of capabilities such as automated repairs, backups, and monitoring. We are excited about K8ssandra."

**Ravi Madireddy**, Lead Software Engineer, Cloudleaf

"New Relic is highly supportive of standardizing community-supported tools for operating and managing Cassandra clusters. We are excited about the K8ssandra launch and look forward to actively contributing and collaborating with the broader open source community. This is a great starting point for new and existing users to run Cassandra in Kubernetes and benefit from direct access to the best available Cassandra expertise and practices."

**Tom Offermann**, Lead Software Engineer, New Relic



## Tools and Benefits

TOOLS	BENEFITS
Apache Cassandra®	Apache Cassandra® is an open source NoSQL distributed database trusted by thousands of companies for scalability and high availability without compromising performance. Linear scalability and proven fault-tolerance on commodity hardware or cloud infrastructure make it the perfect platform for mission-critical data. Users also gain the flexibility to develop using all styles of NoSQL data models including key-value, tabular, and schemaless documents.
Cass Operator	Kubernetes Operator for Apache Cassandra®, also known as Cass Operator or cass-operator, is the most critical element bridging Kubernetes and Cassandra. The community has been focusing much of its attention on operators over the past two years, as the appropriate starting place. If there is magic happening, it's all in the operator. The cass-operator serves as the translation layer between the control plane of Kubernetes and actual operation done by the Cassandra cluster.
Stargate	Stargate is an open source data API gateway that separates compute from storage in Apache Cassandra® nodes. It also automatically provides access to the database through industry standard APIs. API access removes barriers of entry for developers new to Apache Cassandra by providing REST, GraphQL, and schemaless JSON document based APIs in addition to traditional CQL access.
Reaper	Reaper for Apache Cassandra® is a tool that helps manage the critical maintenance task of anti-entropy repairs in a Cassandra cluster. In K8ssandra, Reaper runs for you automatically! And because this is built for SREs, you can expect a good set of pre-built metrics to verify everything is working great.
Medusa	Medusa for Apache Cassandra® provides backup/restore functionality for Cassandra data. K8ssandra offers this backup and restore feature to help you recover Cassandra data when inevitable real-world issues occur.
Metrics Collector	When running applications in Kubernetes, observability is key. K8ssandra includes Prometheus and Grafana for storage and visualization of metrics associated with the Cassandra cluster.
Ingress	External connectivity can be tricky with Kubernetes. Ingress exposes HTTP and HTTPS routes from outside the cluster to services within the cluster. Traffic routing is controlled by rules defined on the Ingress resource.

## More Info

- Learn more about **K8ssandra** to try on your own data center or cloud
- Learn more about **Data on Kubernetes**
- A Cloud Native **Maturity Model** for Databases
- Why a Cloud Native Database **must run on Kubernetes**
- The most stable database on the planet: **Apache Cassandra 4.0**
- Check out the vibrant **K8ssandra Community** and **DataStax for Developers**.
- **Contact** DataStax for support

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