Application-aware data management built for Kubernetes

Astra offers stateful Kubernetes workloads a rich set of storage and application-aware data management services powered by NetApp's trusted data protection technology.

■ NetApp

The need to manage persistent storage

Your organization, company, or division has embarked on an app modernization and digital transformation journey, resulting in wide adoption of containers and Kubernetes. You are either lifting and shifting your existing applications to containers, refactoring them as microservices, or developing and running your new cloud-native application on Kubernetes. You are responsible for delivering the same data protection levels, business continuity guarantees (RPO and RTO), disaster readiness, audit, and retention requirements for modern apps that you provide for your traditional applications running on VMs or bare metal. What if you had a simple, fully managed, easy-to-use application and data-management platform that you could use to address your data protection, DR, audit, data retention, and migration use cases for your modern apps?

Introducing NetApp Astra

Now there is a cloud-based, fully managed application and data management platform that gives you tools to automatically provision persistent storage and take application-aware backups for data protection and disaster recovery. The tools also include active cloning for application migration and portability across public clouds and on premises for your modern apps on Kubernetes. Because Astra is hosted in the cloud, it's easy to be up and running fast with no software to install and manage. And you don't need expert-level Kubernetes knowledge for real-time data visualization of the protection levels of your application.

Once you register a Kubernetes cluster with Astra, it automatically provisions persistent storage for the cluster, discovers existing and new applications, and provides a rich catalog of application-aware data-management functionality. With just a few clicks, you can match your data protection and business continuity goals.

Key benefits

- Manage, protect, and migrate your Kubernetes applications easily and quickly within and across multi hybrid clouds.

- Address data protection, disaster recovery (DR), audit, and migration requirements for your business-critical modern apps.

- Visualize the real-time protection status of your applications.

- Use a consistent set of well-defined APIs to implement your backup, DR, and migration workflows no matter where your Kubernetes clusters are hosted.

- Deploy a simple and easy-to-use Kubernetes application and data-management platform for multi hybrid clouds.

Whether you're moving applications to or across clouds, or taking them back into your own data centers, Astra offers a consistent end-user experience via a UI and a rich, well-documented API that doesn't change no matter which cloud or Kubernetes distribution you're using.

Astra use cases

- **Data protection with snapshots**
  With Astra you can take snapshots for local data protection. If your data is accidentally deleted or corrupted, you can revert your applications and associated data to a previously recorded snapshot in the same Kubernetes cluster.

- **Disaster recovery with remote backup**
  With Astra you can take a full application-aware backup of your application and state. The backup can be used to restore your application with its data to a different Kubernetes cluster in the same or a different region to address your DR use cases.

- **Application portability for cloud bursting and migration**
  With Astra you can move an entire application, along with its data, from one Kubernetes cluster to another, no matter where the clusters are located.
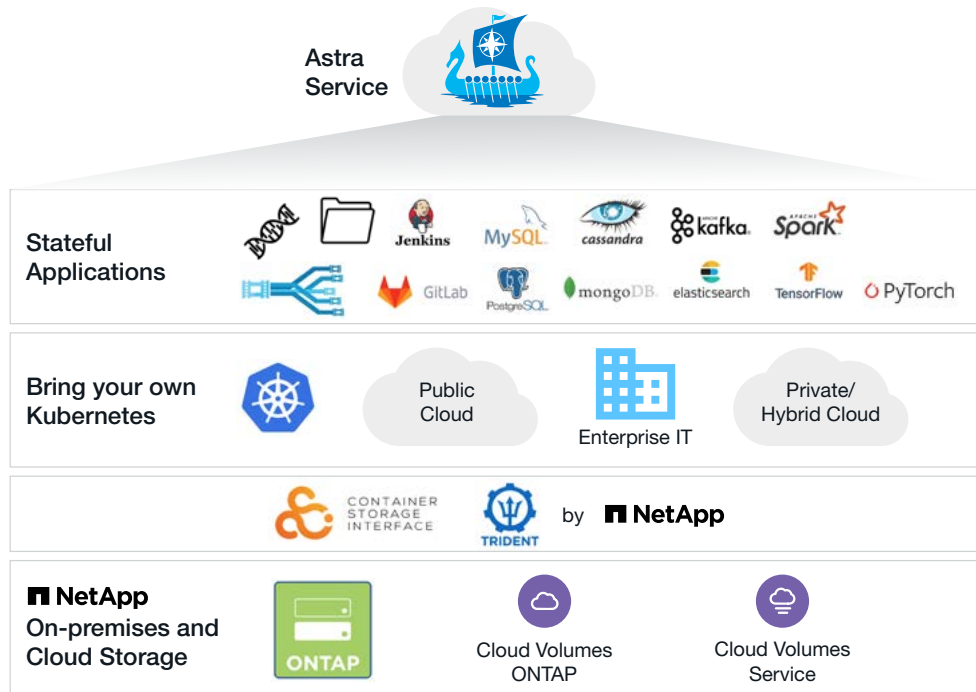
Figure 1: NetApp Astra SaaS for end-to-end application data lifecycle management.

"Having managed data rich stateful applications on Kubernetes and knowing the complexity involved, we're thrilled to have NetApp's Astra service to simplify operations for small and large deployments alike."

- Skottie Miller, Technology Fellow and VP of Platform & Services Architecture, DreamWorks Animation

Key features

- **Application focus**

  From the outset, Astra has focused on the application as the provider of data services and management. This focus is because well-architected Kubernetes applications implement loosely coupled microservices that are deployed in containers. These applications often use multiple backing datastores so that developers have the freedom to choose the datastore best suited for the microservice instead of using a large single datastore for the entire application. As a result, providing wholistic data management needs to account for all state, data,

and configuration backing the microservices that implement the application instead of individual pods and containers.

Astra application awareness for a range of popular applications (PGSQL, MySQL, Jenkins, etc.) intelligently identifies application boundaries and discovers them. Snapshot applications (including all of their Kubernetes resources and data volumes) provide local data protection. Backup and restore of full applications across and within clouds enables business continuity after a disaster. And migrating and moving applications uses active cloning to re-instantiate applications across clusters and clouds with their state and data intact.

- **Consistent experience no matter where Kubernetes is running**

  Astra is designed to provide a consistent set of user interfaces (APIs and UIs) that abstract the diversity and complexity of adapting to the rapidly evolving multi hybrid cloud world where our customers increasingly find themselves. A broad set of similar but ultimately different toolsets, APIs, and UIs causes friction and inability to deliver much-needed data management functionality in a cloud-native world across all environments in which our customers run Kubernetes. We designed Astra so

that our customers don't have to learn and relearn how to manage Kubernetes in their environment or to develop a patchwork of scripts and admin tools to accomplish these tasks, which don't scale as they scale their Kubernetes deployments.

- **Simple and fully managed**
Our customers who have a cloud-first strategy also drove us to build Astra as a fully managed service operated by NetApp that does not require an expert-level Kubernetes skillset to use. There is no need to set up and provision servers and VMs for running Astra, and no software to download, install, manage, patch, upgrade, and license. Once customers register their Kubernetes clusters, Astra automatically discovers all applications running in the clusters, provisions storage and storage classes using NetApp® Trident, and displays a rich catalog of data-management functionality that can be used with just a few clicks.

About NetApp

In a world full of generalists, NetApp is a specialist. We're focused on one thing, helping your business get the most out of your data. NetApp brings the enterprise-grade data services you rely on into the cloud, and the simple flexibility of cloud into the data center. Our industry-leading solutions work across diverse customer environments and the world's biggest public clouds.

As a cloud-led, data-centric software company, only NetApp can help build your unique data fabric, simplify and connect your cloud, and securely deliver the right data, services and applications to the right people—anytime, anywhere. www.netapp.com

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