NetApp Storage Integrations Overview

NetApp Solutions

NetApp
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NetApp Storage Integration Overview

Anthos Ready storage partner program.

Google Cloud periodically requests updated validation of partner storage integrations with new releases of Anthos through their Anthos Ready storage partner program. A list of currently validated storage solutions, CSI drivers, available features, and the versions of Anthos supported can be found here.

NetApp has maintained regular compliance on a quarterly basis with requests to validate our Astra Trident CSI-compliant storage orchestrator and our ONTAP storage system with versions of Anthos.

The following table contains the Anthos versions tested by NetApp and NetApp partner engineers for validation of NetApp Astra Trident CSI drivers and feature sets as a part of the Anthos Ready storage partner program:

Deployment Type	Version	Storage System	Astra Trident Version	Protocol	Features
VMware	1.15	ONTAP 9.12.1	23.04	NAS	Multiwriter, Volume Expansion, SnapShots, PVCDataSource
VMware	1.15	ONTAP 9.12.1	23.04	SAN	Raw Block, Volume Expansion, SnapShots, PVCDataSource
VMware	1.14	ONTAP 9.12.1	23.01	NAS	Multiwriter, Volume Expansion, SnapShots, PVCDataSource
VMware	1.14	ONTAP 9.12.1	23.01	SAN	Raw Block, Volume Expansion, SnapShots, PVCDataSource
VMware	1.13	ONTAP 9.12.1	22.10	NAS	Multiwriter, Volume Expansion, SnapShots, PVCDataSource
VMware	1.13	ONTAP 9.12.1	22.10	SAN	Raw Block, Volume Expansion, SnapShots, PVCDataSource

VMware	1.11	ONTAP 9.9.1	22.04	NAS	Multiwriter, Volume Expansion, SnapShots
VMware	1.11	ONTAP 9.9.1	22.04	SAN	Raw Block, Volume Expansion, SnapShots
VMware	1.11	Element 12.3	22.04	SAN	Raw Block, Volume Expansion, SnapShots
bare metal	1.10	ONTAP 9.8	22.01	NAS	Multiwriter, Volume Expansion, SnapShots
bare metal	1.10	ONTAP 9.8	22.01	SAN	Raw Block, Volume Expansion, SnapShots

NetApp storage integrations

NetApp provides a number of products to help you with orchestrating and managing persistent data in container-based environments such as Anthos.

NetApp Astra Trident is an open-source, fully-supported storage orchestrator for containers and Kubernetes distributions, including Anthos. For more information, visit the Astra Trident website here.

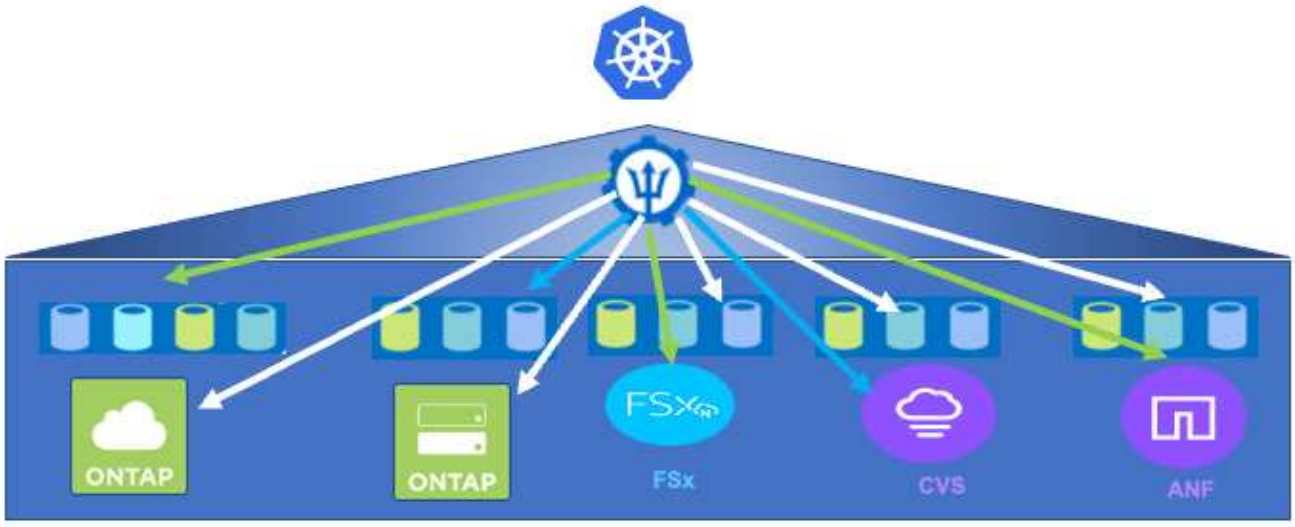
The following pages have additional information about the NetApp products that have been validated for application and persistent-storage management in the Anthos with NetApp solution.

Next: NetApp Astra Trident Overview.

Astra Trident Overview

Astra Trident is a fully supported, open-source storage orchestrator for containers and Kubernetes distributions, including Anthos. Trident works with the entire NetApp storage portfolio, including NetApp ONTAP, and it also supports NFS and iSCSI connections. Trident accelerates the DevOps workflow by allowing end users to provision and manage storage from their NetApp storage systems without requiring intervention from a storage administrator.

An administrator can configure a number of storage backends based on project needs and storage system models that enable advanced storage features, including compression, specific disk types, and QoS levels that guarantee a certain level of performance. After they are defined, these backends can be used by developers in their projects to create persistent volume claims (PVCs) and to attach persistent storage to their containers on demand.



Astra Trident has a rapid development cycle and, like Kubernetes, is released four times a year.

The documentation for the latest version of Astra Trident can be found here. A support matrix for what version of Trident has been tested with which Kubernetes distribution can be found here.

Starting with the 20.04 release, Trident setup is performed by the Trident operator. The operator makes large scale deployments easier and provides additional support including self healing for pods that are deployed as a part of the Trident install.

With the 22.04 release, a Helm chart was made available to ease the installation of the Trident Operator.

For Astra Trident installation details, please see here.

Create a storage-system backend

After completing the Astra Trident Operator install, you must configure the backend for the specific NetApp storage platform you are using. Follow the link below in order to continue the setup and configuration of Astra Trident.
Create a backend.

Create a storage class

After creating the backend, you must create a storage class that Kubernetes users will specify when they want a volume. Kubernetes users provision volumes by using persistent volume claims (PVCs) that specify a storage class by name.
Follow the link below to create a storage class.
Create a storage class

Dynamically provision a volume

You must create a Kubernetes persistent volume claim (PVC) object using the storage class to dynamically provision a volume. Follow the link below to create a PVC object.
Create a PVC

Use the volume

The volume provisioned in the above step can be used by an application by mounting the volume in the pod.The link below shows an example.
Mount the volume in a pod

Next: Advanced Configuration Options for Anthos.

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