



Configure Red Hat OpenShift Container Workloads on AWS

NetApp Solutions

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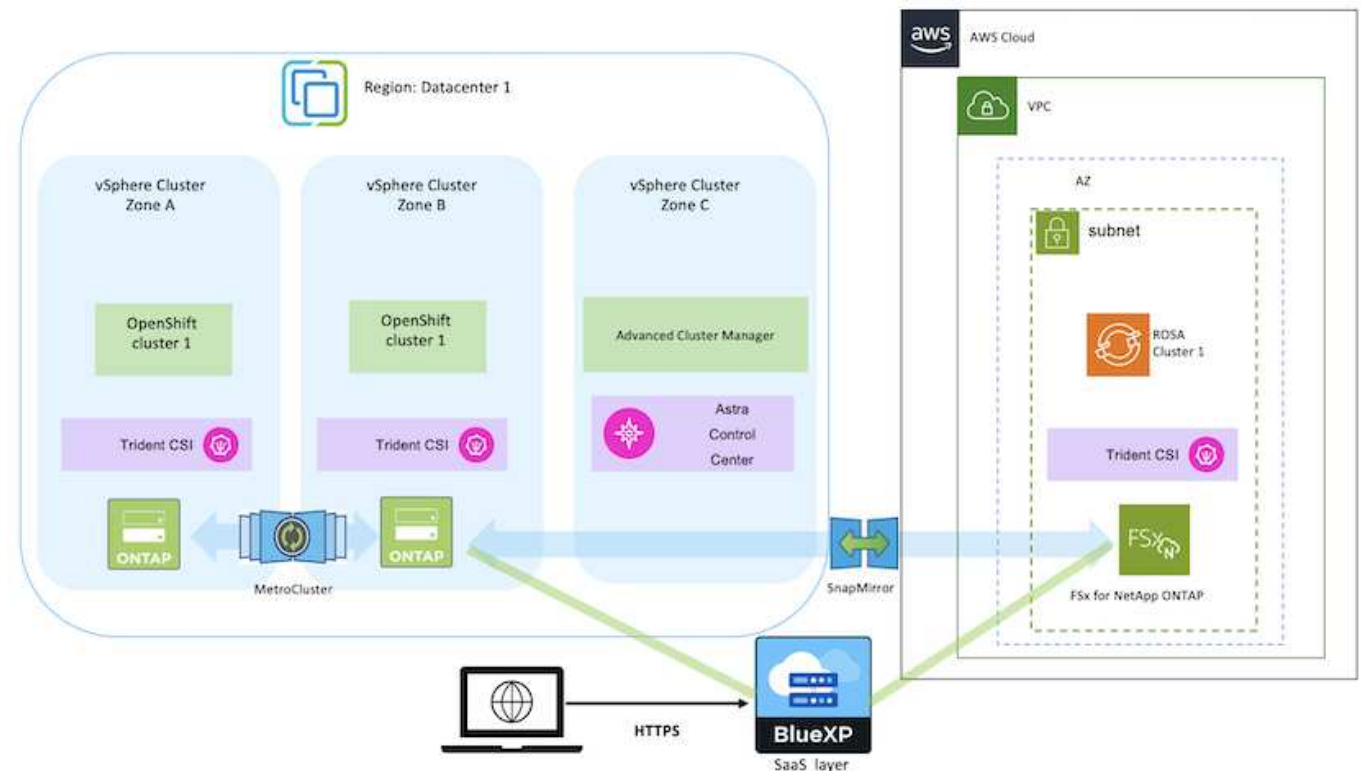
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Deploy and configure the Managed Red Hat OpenShift Container platform on AWS

This section describes a high-level workflow of setting up the Managed Red Hat OpenShift clusters on AWS (ROSA). It shows the use of Managed FSx for NetApp ONTAP (FSxN) as the storage backend by Astra Trident to provide persistent volumes. Details are provided about the deployment of FSxN on AWS using BlueXP. Also, details are provided about the use of BlueXP and OpenShift GitOps (Argo CD) to perform data protection and migration activities for the stateful applications on ROSA clusters.

Here is a diagram that depicts the ROSA clusters deployed on AWS and using FSxN as the backend storage.



This solution was verified by using two ROSA clusters in two VPCs in AWS. Each ROSA cluster was integrated with FSxN using Astra Trident. There are several ways of deploying ROSA clusters and FSxN in AWS. This high-level description of the setup provides documentation links for the specific method that was used. You can refer to the other methods in the relevant links provided in the [resources section](#).

The setup process can be broken down into the following steps:

Install ROSA clusters

- Create two VPCs and set up VPC peering connectivity between the VPCs.
- Refer [here](#) for instructions to install ROSA clusters.

Install FSxN

- Install FSxN on the VPCs from BlueXP.
Refer [here](#) for BlueXP account creation and to get started.
Refer [here](#) for installing FSxN.
Refer [here](#) for creating a connector in AWS to manage the FSxN.
- Deploy FSxN using AWS.
Refer [here](#) for deployment using AWS console.

Install Trident on ROSA clusters (using Helm chart)

- Use Helm chart to install Trident on ROSA clusters.
url for the Helm chart: <https://netapp.github.io/trident-helm-chart>

Integration of FSxN with Astra Trident for ROSA clusters



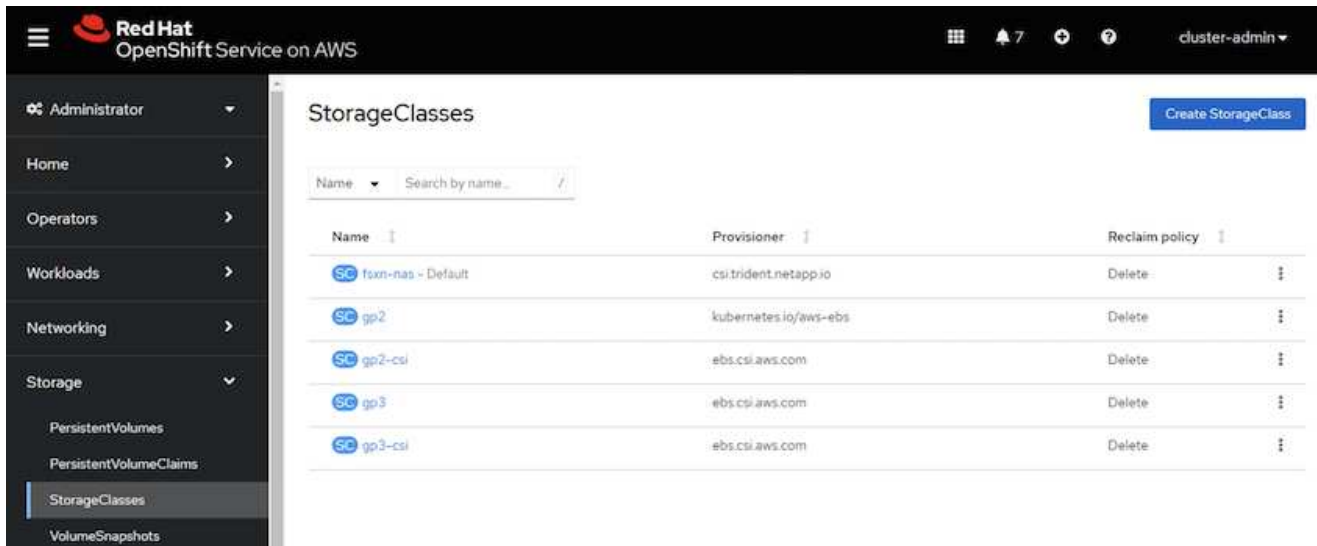
OpenShift GitOps can be utilized to deploy Astra Trident CSI to all managed clusters as they get registered to ArgoCD using ApplicationSet.

```
apiVersion: argoproj.io/v1alpha1
kind: ApplicationSet
metadata:
  name: trident-operator
spec:
  generators:
  - clusters: {}
    # selector:
    #   matchLabels:
    #     tridentversion: '23.04.0'
  template:
    metadata:
      name: '{{nameNormalized}}-trident'
    spec:
      destination:
        namespace: trident
        server: '{{server}}'
      source:
        repoURL: 'https://netapp.github.io/trident-helm-chart'
        targetRevision: 23.04.0
        chart: trident-operator
        project: default
        syncPolicy:
          syncOptions:
            - CreateNamespace=true
```



Create backend and storage classes using Trident (for FSxN)

- Refer [here](#) for details about creating backend and storage class.
- Make the storage class created for FsxN with Trident CSI as default from OpenShift Console. See screenshot below:



Deploy an application using OpenShift GitOps (Argo CD)

- Install OpenShift GitOps operator on the cluster. Refer to instructions [here](#).
- SetUp a new Argo CD instance for the cluster. Refer to instructions [here](#).

Open the console of Argo CD and deploy an app.

As an example, you can deploy a Jenkins App using Argo CD with a Helm Chart.

When creating the application, the following details were provided:

Project: default

cluster: <https://kubernetes.default.svc>

Namespace: Jenkins

The url for the Helm Chart: <https://charts.bitnami.com/bitnami>

Helm Parameters:

global.storageClass: fsxn-nas

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