VMware Cloud on AWS Integration with Amazon FSx for NetApp ONTAP

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Q. What is VMware Cloud™ on AWS integration with Amazon FSx for NetApp ONTAP?

A. VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP is a jointly engineered, AWS-managed external NFS datastore built on NetApp's ONTAP file system that can be attached to VMware vSphere® cluster. This solution provides customers with flexible, high-performance virtualized storage infrastructure that scales independently of compute resources.

Q. Why should I use VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP?

A. Migrating and running storage heavy workloads on the cloud is not easy today because attaching a storage option that scales independently of compute resources can be complex and expensive. By leveraging elastic network storage provisioned through Amazon FSx for NetApp ONTAP, you can incrementally add storage capacity to your VMware Cloud on AWS SDDC without the need for purchasing additional hosts. This solution lowers your total costs for running workloads on the cloud and reduces risks and complexity by using familiar VMware and NetApp ONTAP technology with minimal learning curve required.

Q. How does the integration between Amazon FSx for NetApp ONTAP and VMware Cloud on AWS work?

A. NFS Datastore management is integrated into the VMware Cloud Services Console™ (vmc.vmware.com) and API to simplify VMware Cloud on AWS Software-Defined-Datacenter (SDDC) administration. As a customer, you declaratively add a datastore to one or more vSphere clusters. The service supports up to four datastores per vSphere cluster, and any datastore can be attached to every cluster in the SDDC. Amazon Web Services (AWS) provides lifecycle management of the datastore (security updates, upgrades, and patches), VMware is responsible for the SDDC lifecycle management, and the customer is responsible for establishing network connectivity and attaching an external NFS datastore to the SDDC. Customer owns and manages the storage configuration.

Q. How can I get started with VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP?

A. Begin by creating a new Amazon FSx for ONTAP file system and corresponding volumes within the same region as your VMware Cloud on AWS SDDC. You will then log into the VMC Console to set up network connectivity for your SDDC. This can be achieved through Amazon VPC Peering or by utilizing the VMware Transit Connect (vTGW). After establishing network connectivity proceed to mount the NFS volume. This volume serves as a datastore within the VMC Console, thereby integrating the SDDC with Amazon FSx for NetApp ONTAP. For further information, please refer to the detailed guide here

Q Where can I find more technical information about the VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP?

A. You can visit https://vmc.techzone.vmware.com/fsx-ontap to access technical white papers, offline demo, deployment guide, and many more resources dedicated to VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP.

Q. Is there a step-by-step demo depicting the configuration process for VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP?

A. You can visit vmc.techzone.vmware.com/fsx-ontap-demo to access an offline demo of the VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP setup process.

Q. How can I size VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP?

A. You can use publicly available online resources provided by AWS and NetApp to perform sizing and TCO analysis.

Q. What are the minimum SDDC software requirements to begin using FSx for ONTAP on VMware Cloud on AWS?

A. Your SDDC must use **version 1.20 or above** to leverage the VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP. Existing SDDC must be upgraded to **version 1.20 or above** to enable VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP. If you need to use FSx for ONTAP before that, VMware recommends creating a new SDDC and migrating storage demanding VMs using a migration tool of your choice.

Q. What are the AZ placement requirements with VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP?

A. FSx for ONTAP only supports standard (non-stretched) VMware Cloud on AWS SDDC with the flexibility of single-AZ and multi-AZ Amazon FSx for NetApp ONTAP deployments. We recommend connecting FSx for ONTAP into the same AZ as your SDDC. VMware Cloud on AWS stretched cluster SDDC is **not supported** at this time.

Q. How many NFS datastores based on Amazon FSx for NetApp ONTAP can I attach to a single vSphere cluster in the SDDC?

A. VMware Cloud on AWS allows each cluster to have four NFS datastores, each from the same or a different file system.

Q. Can I add capacity to the Amazon FSx for NetApp ONTAP datastore after it has been created?

A. You can add more storage capacity after the datastore is mounted to the vSphere cluster through the AWS Console. Storage capacity can be added by percentage or absolute value. One file system can have up to 192 TB of storage.

Q. Can Amazon FSx for NetApp ONTAP datastore be shared between multiple SDDCs?

A. FSX for ONTAP supports sharing a single datastore between multiple SDDCs (for example, to host templates, ISO files, or VMware Horizon® App). We do not recommend sharing a datastore running virtual machines across multiple SDDCs. It can result in reservation conflicts and cause performance overhead.

Q. Can Amazon FSx for NetApp ONTAP datastore be shared between multiple vSphere clusters within an SDDC?

A. Yes, you can connect any datastore to as many vSphere clusters as you have within the same SDDC.

Q. Can I adjust the throughput capacity of the datastore after it has been created?

A. Yes, you can change the throughput capacity of your datastore through the AWS Console. Throughput capacity can be 512 MB/s, 1024 MB/s, 2048 MB/s, and 4096 MB/s. Changing the throughput capacity initiates a failover event with FSx for ONTAP. It might affect the connectivity to FSx for ONTAP datastore from the vSphere cluster.

Q. What storage connectivity protocols are supported for VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP?

A. VMware Cloud on AWS integration Amazon FSx for NetApp ONTAP is based on the NFS connectivity between the SDDC and FSx for ONTAP file service.

Q. What NFS version is supported with VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP?

A. When attaching the NFS datastore to VMware Cloud on AWS SDDC, NFS v3 protocol will be used. You can check the VMware documentation for more details on NFS v3 capabilities.

Q. Can I use other storage connectivity protocols (iSCSI, NFSv4.1, SMB) with VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP?

A. This capability is not supported at this point when attaching a datastore. You can leverage ingest connectivity to connect the FSx for ONTAP volume directly to the operating system of your VM using a storage protocol of your choice.

Q. Can I use the NetApp SnapMirror feature to replicate storage from on-premises to the Amazon FSx for NetApp ONTAP datastore on the VMware Cloud on AWS SDDC?

A. Yes, if you use NetApp ONTAP on-premises as shared storage for VMware vSphere, you can replicate the storage from on-premises to the FSx for ONTAP datastore on the VMware Cloud on AWS SDDC. Check NetApp documentation for more details on using NetApp SnapMirror with VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP.

Q. Can I clone an existing Amazon FSx for NetApp ONTAP datastore?

A. You can create a clone of an FSx for ONTAP datastore through the AWS Console. Once you have created the clone, you can mount the clone to another vSphere cluster in your SDDC.

Q. Can I only use the Amazon FSx for NetApp ONTAP datastore without leveraging the VMware vSAN™ workload datastore?

A. You can host all workload VMs on the FSx for ONTAP datastore. The SDDC management infrastructure cannot be moved onto the external storage and will continue to reside on the default vSAN datastore. You also cannot remove the vSAN datastore.

Q. Can I selectively place VMs on vSAN or Amazon FSx for NetApp ONTAP datastore in the same vSphere cluster?

A. Yes, you can distribute VMs between available datastores. You can create a new VM or move an existing VM using Storage vMotion to the FSx for ONTAP datastore from the vSAN workload datastore and vice versa.

Q. Can I distribute individual VMDKs of a single VM between FSx for ONTAP and vSAN based datastores in the same vSphere cluster?

A. Yes, you can define a datastore placement as granularly as a single VMDK. You can use Storage vMotion to move a VMDK between datastores or create a new VMDK on the FSx for ONTAP datastore.

Q. Will third party backups solutions that are currently supported on VMware Cloud on AWS be supported with VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP?

A. VADP is supported with VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP. All currently supported backup solutions will be able to leverage VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP.

Q. How do I monitor the performance and consumption of VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP?

A. You can use VMware vCenter Server monitoring tools. Alternatively, you can also use native AWS services to monitor FSx for ONTAP. For further clarity on this, please contact your AWS representative or visit aws.amazon.com/fsx/netapp-ontap/ for more information.

Q. What are the configuration maximums for Amazon FSx for NetApp ONTAP?

A. Please leverage the AWS and NetApp documentation to check for configuration maximums for FSx for ONTAP.

Q. What happens if there is an ESXi host failure in VMware Cloud on AWS SDDC using the VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP?

A. vSphere High Availability (HA) will restart any impacted VMs on the surviving hosts within the cluster. A single host failure has no impact on the VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP.

FSx for ONTAP datastore will continue to be accessible from the remaining ESXi hosts in the vSphere cluster.

Q. Elastic DRS in VMware Cloud on AWS SDDC can add a host based on storage threshold policies. Will EDRS initiate the add host action if the vSAN storage reaches the storage threshold and the SDDC uses the VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP?

A. Yes, Elastic DRS (EDRS) will initiate the add host action in this scenario. EDRS will continue to use only the vSAN datastore while evaluating storage consumption in your SDDC. You can prevent the add host event by manually migrating VMs to the FSx for ONTAP datastore.

Q. What happens if the entire capacity of the FSx for ONTAP datastore is consumed? Will Elastic DRS (EDRS) create a recommendation to add more capacity?

A. EDRS does not monitor the FSx for ONTAP datastore. Your VMs can potentially crash if the entire capacity of the FSx for ONTAP datastore is consumed. You will need to free capacity within FSx for ONTAP file system either by deleting workload or by adding capacity using the AWS console. Note that capacity may be trapped in ONTAP snapshots which may need to be deleted.

Q. What happens if the Amazon FSx for NetApp ONTAP datastore is accidentally deleted?

A. All vSphere clusters in your VMware Cloud on AWS SDDC will lose connection to this datastore. If the datastore had active virtual machines, all these VMs would be inaccessible. You will need to restore your FSx for ONTAP volume if a backup is available. If you are not able to restore the file system, all data, including all VMs, residing on the deleted volume will be lost.

Q. What happens if the Amazon FSx for NetApp ONTAP datastore is temporarily disconnected from the vSphere cluster?

A. All hosts in the affected vSphere cluster will lose connection to the datastore. All VMs residing on this datastore will be inaccessible. VMware will immediately send a notification upon detecting this condition and will attempt to repair the issue. If the problem does not reside in the SDDC, the datastore will remain offline until you restore access. After the connectivity to the datastore is restored, you are again notified, and may need to manually power ON impacted workload.

Q. What happens if I no longer need the FSx for ONTAP datastore? How can I remove the VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP from my SDDC?

A. You can dismount the FSx for ONTAP datastore using the VMware Cloud Services Console. You must ensure that you have no active VMs residing on the datastore. After you dis-mount the datastore, you can remove the FSx for ONTAP objects using the AWS Console.

Q. Is VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP included in VMware Cloud on AWS SLAs?

A. When deploying VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP, you are responsible for the following:

- Configuring and maintaining the storage target for use as a datastore.
- Configuring and maintaining network connectivity between the storage target and every ESXi host within the SDDC.
- Maintaining free capacity within the datastore.

In the event of an issue, VMware Support remains the first point of contact and will make its best effort to resolve the problem. Should support verify the problem is not anywhere in the VMware SDDC, VMware will guide the customer through pulling AWS support to troubleshoot FSx for ONTAP.

Q. How will I be billed for using VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP?

A. Amazon FSx for NetApp ONTAP file system is billed based on metering charges for storage capacity, provisioned IOPs and throughput. For more information, you can visit: https://fsxontap. calculator.aws. These fees will be charged to your AWS account and will appear independently from VMware Cloud on AWS expenses. Moreover, network charges may apply based on the type of storage network connectivity. VPC Peering avoids network charges for single-AZ deployments. Charges for the VMware Transit Connect, however, will be included under your VMware Cloud on AWS billing. For details on VMware

costs, please refer to the AWS Transit Gateway pricing.

Q. How can customers get support for an Amazon FSx for NetApp ONTAP datastore?

A. VMware remains your first line of support for all issues with VMware Cloud on AWS integration with Amazon FSx for NetApp ONTAP. VMware support will help engage AWS support if needed.

VMware Cloud™ on AWS

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Item No: VMC on AWS Amazon FSx for NetApp ONTAP FAQ 3/23