aws

Implementation Guide

Guidance for Migrating VMware Virtual Machines to Nutanix Cloud Clusters on AWS

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Table of Contents

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Overview

This implementation guide provides a step-by-step process for migrating VMware virtual machines to Nutanix Cloud Clusters (NC2) using the Nutanix Move tool. Additionally, it will outline relevant use cases and Nutanix product mappings to build a business case for the migration.

NC2 provides hybrid cloud simplicity by extending on-premises workloads to Amazon Web Services (AWS) without any refactoring or any code changes to your apps. The innovative Nutanix architecture gives the flexibility and freedom to move applications, workloads, and software licenses wherever they are required, either on premises or in AWS. NC2 on AWS is an extension of the Nutanix Cloud platform now running on Amazon Elastic Cloud Compute (Amazon EC2) bare-metal instances or Amazon EC2 dedicated hosts. With NC2, you can accelerate your workload migration to AWS and get your on-premises applications to the cloud faster. Additionally, you can also choose from pay-as-you-go (PAYG) or commitment-based subscription plans for flexible consumption.

Use Cases

The following are the benefits of having Nutanix Cloud Clusters on AWS:

- **Lift and shift:** Move applications to AWS or consolidate your data centers. No need to re-architect applications. Simply “lift and shift" them without any change, saving significant costs and time investments. NC2 enables the over-provisioning of physical to virtual cores, optimizing both costs and Microsoft licensing. This feature ensures that you can make the most of your physical resources, maximize density on each host, while adhering to licensing requirements.

- **On-demand elasticity**: Quickly scale capacity or expand to different geographical regions in minutes by using AWS infrastructure to support changing demands.

- **Business continuity**: Use the global infrastructure of AWS for high availability and disaster recovery without the complexity arising from managing a secondary data center or a stand-alone disaster recovery solution.

- **Cloud-native services**: Modernize on-premises applications with direct access to AWS services like artificial intelligence, machine learning, analytics, and more to advance your digital initiatives.

Products

Nutanix offers multiple integrated products to help customers move workloads into Nutanix Cloud Clusters (NC2) on AWS. Below is a mapping of notable VMware products along with Nutanix products that possess corresponding functionality:

VMWare	Corresponding Nutanix product
VMWare Cloud Foundation	Nutanix Cloud Platform™ (NCP)
vSphere/ESXi	Nutanix AHV
vSAN	Nutanix AOS Storage
VMware NSX	Flow Network Security and Flow Virtual Networking
VMware vCenter	Nutanix Prism Central
VMware Aria Suite	Nutanix Cloud Manager (NCM)
VMware Aria Operations	NCM Intelligent Operations
VMware Aria Automation	NCM Self-Service
VMware Aria Operations for Networks	Nutanix Security Central

Nutanix Sizer and deployment planning

It's important to right-size the environment when migrating to NC2 on AWS. Nutanix Collector provides a simple method to quickly capture production workload utilization metrics, which are then imported into the Nutanix Sizer, which enables the most accurate planning recommendations. The Nutanix Sizer product also supports RVTools extracts, which can be used as input for making accurate decisions around planning, deploying, and managing complex workloads.

Migration to NC2 on AWS

Nutanix Move is a tool used to automate the migration of on-premises virtual machines to the Nutanix AHV virtualization platform. The tool handles the installation of VirtIO drivers and preserves the IP addresses and MAC addresses of the migrated virtual machines on the AHV platform. Additionally, Nutanix Move can streamline the process of migrating virtual disk files by automating the copying of individual virtual disks and loading them onto the Nutanix AHV platform using the image configuration functionality. Nutanix has designed the Nutanix Move tool to be intuitive, simple, and fast in its operation, while simultaneously reducing the risk and cost associated with virtual machine migrations.

Nutanix Move architecture overview

Nutanix Move is delivered as a virtual machine (VM) appliance, which is typically hosted on the target Nutanix AHV cluster running on AWS. The Nutanix Move tool is composed of several software services that can be categorized into the following major software components:

1. The management server
2. Virtual move appliances for both the source and target environments
3. Disk readers and writers

The architecture of Nutanix Move for VMware ESXi environments utilizes the vCenter platform for inventory collection, and uses the vSphere Storage APIs for Data Protection (VADP), the Virtual Disk Development Kit (VDDK), and Changed Block Tracking (CBT) functionality to facilitate the data migration process.

An architecture diagram for the Nutanix Move solution is provided:

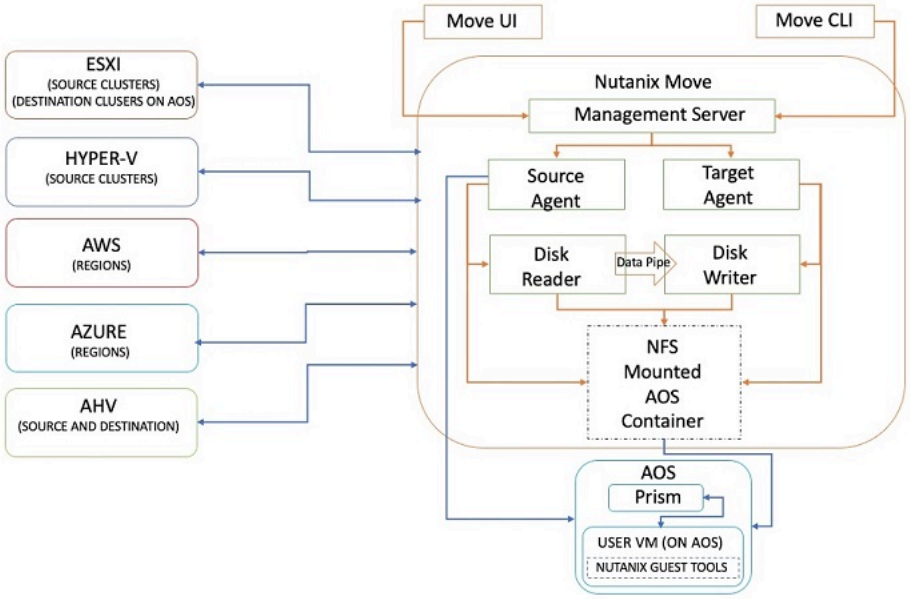

Figure 1: Architecture diagram – Nutanix Move.

Implementation resources

Step 1 – Prerequisites

1. Obtain on-premises connectivity using VPN or direct connectivity with AWS.
2. VMware ESXi hosts should be reachable from Nutanix Move on ports TCP 443 and TCP 902.
3. VMware vCenter should be reachable from Nutanix Move Appliance on ports TCP 443.
4. Allow ports (TCP and UDP) 2049 and 111 between the Nutanix Move network and the AHV CVM network.

Step 2 - Setup Nutanix Cloud Clusters

1. Use the Nutanix Cloud Clusters on AWS Deployment and User Guide to setup NC2 on AWS.

Step 3 - Deploy Nutanix Move Tool

1. Refer to the Deploying Move on AHV (CLI) to setup the appliance.
2. Become familiar with the Nutanix Move migration considerations.

Step 4 - Setup Move for Source and Target Environment

Within the Nutanix Move tool, add the source environment (existing ESXi environment) and the target environment (AOS on AHV).

Step 5 - Move a Microsoft Windows virtual server from an ESXi environment to AHV on Nutanix.

1. Create a new Migration Plan
2. Select **VMware Vcenter** as the source environment
3. Select the target Nutanix Cluster and the Windows virtual machine to be migrated
4. Select the target network where the destination virtual machine network interfaces will connect

Prepare the guest operating system for the migration:

1. Provide the administrative credentials for the source Windows virtual machine
2. Review the migration plan summary as shown below in Figure 3

3. Select **Save** and **Start** to initiate the migration process.

Step 6 - Cutover to complete the migration

Monitor the progress of the data being copied. Select **Cutover** to complete the migration.

Nutanix Move will power off the source virtual machine and perform a final data synchronization to copy any changed data.

Step 7 - Verify the cutover

Verify the successful completion of the cutover by logging into the Windows server and monitoring it on the Nutanix cluster console.

Conclusion

This implementation guide provided a mapping of various VMware products to their Nutanix equivalents, the use of the Nutanix Sizer to conduct assessments, and the process of migrating virtual machines from VMware to Nutanix Cloud Clusters (NC2) on AWS. For further information and next steps, Nutanix provides the following additional resources:

- Nutanix's test drive program guides IT teams step-by-step through a migration with Nutanix Move.
- Nutanix's disaster recovery product helps you to meet recovery SLA, reducing cost by as much as 70%. Nutanix offers a 30 day free trial of NC2.
- Nutanix also has training partners and Technical Certifications which are designed to recognize the skills and knowledge required to successfully deploy, manage, optimize, and scale you environment.

Contributors

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