Hystax Acura Migration from VMware

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CHAPTER 1

Hystax Acura Overview

Hystax is a cloud migration and Disaster Recovery company focusing on consistent replication of IT workloads and providing real-time migration and Best-In-Class Disaster Recovery.

This guide aims to explain how to migrate modern workloads from VMware to Virtuozzo Hybrid Infrastructure using Hystax Acura migration solution.

To deploy the Hystax Acura solution, refer to the Integration Guide for Hystax Acura.
CHAPTER 2

Migration Steps

The migration process will be divided into four sections:

1. Ensure the Virtuozzo Hybrid Infrastructure Platform is ready. Refer to the Integration Guide for Hystax Acura guide and check the following sections:
   • Virtuozzo Hybrid Infrastructure Platform resources planning and configuration.
   • Deploying the Hystax Acura migration solution on the Virtuozzo Hybrid Infrastructure.

2. VMware resources planning and configuration.

3. Deploying the HVRAgent on the VMware ESXi Hypervisor.

4. Simple Test Migration.

2.1 Resource Planning and Configuration for VMware

In this guide we will be performing a migration from VMware to the Virtuozzo Hybrid Infrastructure Platform; Before we can start with the migration, we need to ensure certain resources are available on the VMware Platform, such as a user with some specific permissions and the HVRAgent (Hystax Replication Agent for VMware) deployed on each of the ESXi Hypervisors. Replication agents are used to replicate the workloads between VMware ESXi Hypervisors (Source Platform) and the Virtuozzo Hybrid Infrastructure Platform (Target Platform/Target Project). From now on we will be referring to the VMware Platform as the Source Platform, and the Target Project or Platform when referring to the Virtuozzo Hybrid Infrastructure Platform.

Hystax Acura Migration Solution Architectural Overview
Ports needed for correct agent work:

- vSphere host - tcp/443
- ESXi host(s) - tcp/udp/902
- Send logs to the Acura cluster - udp/12201

Hystax VMware Replication Agent requires the following user permissions in vSphere (the "VMware Consolidated Backup user" role in vCenter):

- Virtual machine - Configuration - Disc Lease
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- Virtual machine - Provisioning - Allow read-only disk access
- Virtual machine - Provisioning - Allow virtual machine files upload
- Virtual machine - Snapshot management - Create snapshot
- Virtual machine - Snapshot management - Remove Snapshot

Permission to access CBT is necessary for the correct performance of the application. To enable CBT:

- Virtual machine - Configuration - Disc change tracking

Additionally, it is recommended to include the following global permissions:

- Global - Disable methods
- Global - Enable methods
- Global - Licenses

**Note:** In case of using vCloud, vCenter user requires one extra permission to operate: Profile-driven storage > Profile-driven storage view.

Hystax VMware Replication Agent uses VMware snapshots and VMware CBT API in order to create consistent replicas of machines' data.

This implies the following considerations regarding VMware storage:

- VMware snapshots consume storage to retain copy-on-write buffer, so it is recommended to have at least 10% free space available on VMware storage.
- VMware puts additional load on storage while creating snapshots or running machines with existing snapshots.

Please consider that storage performance warning thresholds need to be adjusted in order to meet this increased load during replication.

**Important:** The source machine must have VMware Tools installed manually prior to any replication procedures for it to display its network information in the target VMware ESXi correctly.

1. Login to your vCenter.
2. Create a user, in this example we will create a user named **hystax-user**. On your VMware vCenter client go to **Administration > Single Sign On > Users and Groups**, select your domain in the **Domain** drop-down menu and click **ADD**.

3. Create a role, we will clone the role **VMware Consolidated Backup user** and name it **Hystax-HVRAgent**. On **Administration** tab, go to **Access Control > Roles**, select **VMware Consolidated Backup user**, and click **CLONE**. Give it a meaningful name and ensure it has the following permissions selected:

   - Virtual machine - Configuration - Disc Lease
• Virtual machine - Provisioning - Allow read-only disk access
• Virtual machine - Provisioning - Allow virtual machine files upload
• Virtual machine - Snapshot management - Create snapshot
• Virtual machine - Snapshot management - Remove Snapshot
• Virtual machine - Configuration - Disc change tracking

4. Assign the role to the user. Go to Inventory > Permissions, select the previously created user, and click Edit. Search for the newly created role and add the role to the user.
At this point, the **hystax-acura** user has the necessary permissions to perform the migrations.

### 2.2 Deploying HVRAgent on VMware ESXi Hypervisor

There are three types of replication agents:

- **VMware agent** - an external agent to replicate VMware virtual machines without installing any software directly on VMs. Please refer that the agent requires access to VMware CBT API and network access to vCenter or ESXi host is mandatory. *Note that the agent from the same ova template must be deployed to all ESXi hosts where machines need to be protected.*

- **Windows agent** - an internal agent which can be deployed to any number of customer Windows virtual or physical machines.

- **Linux agent** - an internal agent which can be deployed to any number of customer Linux virtual or physical machines.

As we are performing a migration from VMware as the Source Cloud Platform, we will be using the VMware Agent. When any of the agents are deployed, the machine with it (or all machines on the same ESXi host...
where the agent is located) will appear in Hystax Acura Control Panel under customer dashboard in the **Discovered** state.

1. Login to the Hystax Acura portal by going to https://floating-ip-acura-instance.

![Login Screen](image)

2. Click on the customer you wish to perform the migration for, in our example we will be performing a migration from VMware as Source Cloud to Virtuozzo Hybrid Infrastructure platform. Any time you wish to go back to the main menu click on the Hystax logo on the top left.

![Customer Dashboard](image)

3. Click **Install agents**.

![Install Agent Screen](image)
4. Select the VMware agent and click **Next**.

5. You will be asked to provide credentials for the vSphere environment. Provide the credentials created previously.

6. Now download the OVA file and deploy it on each ESXi host in your VMware cluster that you want to migrate workloads from.

7. Deploy the agent:

   7.1. Use the **Deploy OVF Template** wizard to deploy the HRVAgent. Right click on the ESXi server you would like to deploy the agent. You’ll need to repeat this procedure for each ESXi server available that you wish to migrate workloads from.
7.2. Select **Local file**, click **Upload files**, and choose the OVA file.

7.3. Follow the deployment wizard and provide the necessary information (compute resource, storage, networks) HVRAgent. The HVRAgent should be able to access the vCenter internal IP.
8. Once the HVRAgent VM is up, check the console and verify all is correct.

9. Click on the Hystax logo on the top left and on the customer, you’d like to manage. You will see the machines running on your ESXI server have been discovered.
10. Click on **Start Replication**. If everything is correctly configured, replication of the remote instance will start on your target cloud. Replication will take some time, depending on how much data will be replicated and the connection between your source and target cloud.

11. Wait until the instance is synced.
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12. While the image is being synced, let's create a target network (the network that will be used by our instance on the replicated target cloud). Go to your VHI self-service portal on “vhi-admin-panel-fqdn:8800” and login to the target project.

13. Once you've logged in, check the Virtual machines tab and you will see that the Acura cloud agent has been deployed automatically.

14. Go to Networks, click Create virtual network, and follow the steps. I will create the network using exactly the same CIDR (172.31.32.0/20) as the instance being replicated. You could use any other network CIDR, this is just to show an example of a migration with exactly the same IP address source and remote.
15. Add a migration plan. Start by adding a machine. Click on the ellipsis icon “…”, then click Add machine > Default, and select discovered machine.

16. Next, configure the subnets for your new instance. Expand the view for your instance. You will see information regarding Machine ID, Flavor (important to check the flavor you choose have enough resources for your instance), and Port (network). Also, on the left you'll see information regarding the network to be used.

We will replace the Flavor name with one that is available on our cloud. You can check available flavors by going to Virtual machines and Flavors. Also, we will find the subnet ID.
for our newly created network and paste it there.

17. Source the information regarding the subnet ID.

17.1. Login to your Virtuozzo Hybrid Infrastructure Admin panel via SSH.

17.2. Source the admin-openrc.sh file.

```
# source /etc/kolla/admin-openrc.sh
```

17.3. Run the command `openstack network list --insecure` and identify the subnet ID.

18. Add the subnet ID.

19. Add a secondary Port. Add a subnet by clicking the “+” button on the Subnets section, we will be adding a floating IP.
20. Click on the **Subnet ID** drop down menu for your new subnet and select the Public IP you wish to use. By leaving the **Port IP** field blank you are specifying DHCP. Provide a name for the plan and click **Save**.
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21. Click on **Run test migration** and select the migration plan.

22. Create a cloud site by giving a name, a cloud site is a way to logically group a migration plan with a
snapshot to be used for the migration. Give the Cloud Site a name, select a snapshot and click on Run migration.

If all went well you will see your replicated instance available on your target cloud. When you are done reviewing the migration test you can delete the resources, by deleting the cloud site, then you can redo the migration, or you could detach.
For the final cutover, just detach Hystax Acura from the migration and Hystax Acura will stop tracking any resources belonging to this migration.
Now you can manage your resources from VHI as you would normally do.
Providing Access to Hystax Acura Portal

In order to allow users to manage their migration workloads, we can create a user with project scope from the Hystax Acura web interface.

1. Login to the Hystax Acura Solution web interface and click on the **Settings** tab on the left-hand side. Then click on **Roles** and click **Add**.
2. Assign the necessary permissions to the role. We will provide full access to the **TriangleCakes** target cloud.

3. Now we will add a new user. Click **Users** and then click **Add**. Fill in all the information and select the **Customer:Customer** name as **Organization**.

4. Click on the newly create user in order to assign a role to the user.
5. Click **Add** in the **Role** section and add the role.

The user, at this point, will be able to login to the Hystax Acura web interface and perform and the Migration as a Service (self-service migration).
Chapter 3. Providing Access to Hystax Acura Portal
Hystax Acura automatically checks cloud access and the necessary permissions for assuring successful operation. It provides detailed error messages that describe their potential causes.

In case of an error, please check the correctness of the data entered and availability of the necessary permissions.
Limitations

The Hystax Acura limitations are listed in the official documentation.