



Turbonomic 8.0.3 Release Notes

November 23, 2020

This document describes issues that are addressed in Turbonomic 8.0.3 – Release Date: November 23, 2020. Please see the Turbonomic 8 documentation for earlier versions of the Release Notes:

<https://docs.turbonomic.com/>

NOTE:

These release notes are for update to Turbonomic 8.0.3, from versions 7.22.0 or later. For updates from the 7.21.x family or earlier, please contact your Technical Support representative.

For any questions, please contact Turbonomic Technical Support at support@turbonomic.com, or open a ticket at:

<https://greencircle.vmturbo.com/support>

What's New for Version 8.0.3

Version 8.0.3

- **Support for Oracle Database Servers**

Turbonomic now supports Oracle database servers as targets, and can recommend resizing their connection and transaction log capacity. It can also recommend resizing DBMem while taking cache hit rate into account.

- **Container Management**

The following key features are now available to help you manage your container infrastructure more efficiently.

NOTE:

Deploy the latest Kubeturbo image to take advantage of these features. For information about Kubeturbo releases, go to:

<https://github.com/turbonomic/kubeturbo/wiki/Server-Versions-and-Kubeturbo-Tag-Mappings>

- **New Container Entity Type**

This release introduces the **Container Cluster** entity type to represent Kubernetes clusters in the supply chain. This allows Turbonomic to fully link your container infrastructure with the underlying nodes, and then present all actions on containers and nodes in a single view. This gives you full visibility into the actions that impact the health of your container environment.

For details, see "Supply Chain - Container Cluster" in the *User Guide*.

- **New Container Dashboard**

This release includes a new predefined **Container Platform Dashboard**. Use the charts in the dashboard to assess the health of your Container Clusters, Namespaces, and Services.

- **Container Resizing Improvements**

- Resize actions no longer display when you scope to Containers, given their ephemeral nature. Set the scope to Container Specs to view the actions. You can execute actions via Workload Controllers as usual.

To automate actions, set the action mode for Resize actions as follows:

- Container Spec policies: Manual (default)
- Workload Controller policies: Automatic

For details about automating resize actions, see "Container Actions" in the *User Guide*.

- Resize constraints previously set in Container policies are now set in Container Spec policies. Constraints include increment constants and rate of resize.

NOTE:

Turbonomic does not migrate these constraints. Record them before updating to this version, and then add them to your Container Spec policies after updating.

- You can now create Container Spec policies to enable tuned scaling for vCPU/vMem limits and requests. With tuned scaling, Turbonomic automates resizes if the resize values fall within a normal range, and posts more conservative actions when resize values fall outside the range.

For details, see "Tuned Scaling for Container Specs" in the *User Guide*.

- In policies and actions, resize values for vCPU limits and requests are now expressed in millicores.

Configuration Requirements

For this release of Turbonomic, you should satisfy the following configuration requirements.

SQL Modes for External Databases

If you deploy Turbonomic to work with an external database instead of the included historical database, then you must specify the correct SQL modes for the database. Configure the database to support:

```
{ {STRICT_TRANS_TABLES,NO_ENGINE_SUBSTITUTION} }
```

In particular, the SQL modes should *not* include ONLY_FULL_GROUP_BY, NO_ZERO_IN_DATE, or NO_ZERO_DATE.

Multi-tenant External DBs and Updates to 8.0.1 or Later

NOTE:

Azure database services are multi-tenant. If you deployed an external database on Azure, this configuration requirement applies to you.

If you are updating from Turbonomic 8.0.0 or earlier to version 8.0.1 or later, *and* you have deployed an external MariaDB or MySQL database service that is multi-tenant, then you must update the database service before you update your Turbonomic instance. This modification includes:

- Manually creating a database for the `repository` component

This includes creating the database in your DB instance, creating a user to access the database, and granting access to the user.
- Manually adding the repository database to your `cr.yaml` file

For deployments that manually add the component databases (a requirement for multi-tenant DBs), the `cr.yaml` file declares entries for each component databases. Each entry names the component, and gives the user and password that the component can use to access that database. You must add a new entry for the `repository` component.

NOTE:

If you have already updated to the latest version of Turbonomic, and you did not perform the steps to update your multi-tenant DB service, please contact your support representative.

To create the new database:

1. Connect to your multi-tenant DB using a global account.

The account must have privileges to create databases and users. If you have specified `dbRootUsername` in the `cr.yaml` file, you can use that account.
2. Create the database that the `repository` pod requires:

```
create database repository;
```

3. Create the account the pod will use to access the database:

```
create user 'repository'@'%' identified by 'vmturbo';
```

NOTE:

The value `vmturbo` is the default password that uses for all component database accounts. If you have manually created accounts with different credentials, you can do so for this database as well.

4. Set the user account privileges for the `repository` pod's account:

```
GRANT SELECT, INSERT, UPDATE, DELETE, CREATE, DROP, REFERENCES, INDEX, ALTER, CREAT
E TEMPORARY TABLES, LOCK TABLES, EXECUTE, CREATE VIEW, SHOW VIEW, CREATE ROUTINE, A
LTER ROUTINE, EVENT, TRIGGER ON repository.* TO 'repository'@'%';
```

5. Flush privileges to make the privileges take effect:

```
flush privileges;
```

Now that the repository database is created in your multi-tenant DB service, you must declare the access in the Turbonomic `cr.yaml` resource.

1. Open the `.cr` file for editing. The location of the file depends on the type of Turbonomic installation you are configuring.

OVA installation of Turbonomic:	Turbonomic on a Kubernetes node or node cluster:
<p>Open a SSH terminal session on your Turbonomic instance</p> <p>Log in with the System Administrator that you set up when you installed Turbonomic:</p> <ul style="list-style-type: none"> • Username: <code>turbo</code> • Password: <code>[your_private_password]</code> <p>Then edit the file:</p> <pre>/opt/turbonomic/kubernetes/operator/d eploy/crds/charts_v1alpha1_xl_cr.yaml</pre>	<p>Open the following file for editing:</p> <pre>deploy/crds/charts_v1alpha1_xl_cr.yaml</pre>

2. Add the credentials for the repository component database.

Add the entry to the `properties:` section of the `cr.yaml` file, where `vmturbo` is the password that you assigned to that user account, and `yourDB` is the qualified name of your multi-tenant DB partition::

```
repository:
  repositoryDbUsername: repository@yourDB
  repositoryDbPassword: vmturbo
```

The resulting `cr.yaml` file should be similar to:

```
properties:
  global:
    enableSecureDBConnection: true
    sqlDialect: MYSQL
    dbRootPassword: yourPassword
    dbRootUsername: xladmin@yourDB
    #dbUserPassword:
    #dbUsername:
  action-orchestrator:
    actionDbUsername: action@yourDB
    actionDbPassword: vmturbo
  auth:
    authDbUsername: auth@yourDB
    authDbPassword: vmturbo
  clustermgr:
    clustermgrDbUsername: clustermgr@yourDB
    clustermgrDbPassword: vmturbo
  cost:
    costDbUsername: cost@yourDB
    costDbPassword: vmturbo
  group:
    groupComponentDbUsername: group_component@yourDB
    groupComponentDbPassword: vmturbo
  history:
```

```

    historyDbUsername: history@yourDB
    historyDbPassword: vmturbo
  plan-orchestrator:
    planDbUsername: plan@yourDB
    planDbPassword: vmturbo
  topology-processor:
    topologyProcessorDbUsername: topology_processor@yourDB
    topologyProcessorDbPassword: vmturbo
  repository:
    repositoryDbUsername: repository@yourDB
    repositoryDbPassword: vmturbo

```

After you have done this, you can update to the latest version of Turbonomic and then apply the `cr.yaml` file.

Transport Layer Security Requirements

By default Turbonomic requires Transport Layer Security (TLS) version 1.2 to establish secure communications with targets. Most targets should have TLSv1.2 enabled. However, some targets might not have TLS enabled, or they might have enabled an earlier version. In that case, you will see handshake errors when Turbonomic tries to connect with the target service. When you go to the Target Configuration view, you will see a Validation Failed status for such targets.

In particular, we have found that NetApp filers often have TLS disabled by default, and that the latest version they support is TLSv1. If your NetApp target fails to validate, this is could be the cause.

If target validation fails because of TLS support, you might see validation errors with the following strings:

- No appropriate protocol

To correct this error, ensure that you have enabled the latest version of TLS that your target technology supports. If this does not resolve the issue, please contact Technical Support.
- Certificates does not conform to algorithm constraints

To correct this error, refer to the documentation for your target technology (for example, refer to NetApp documentation) for instructions to generate a certification key with a length of 1024 or greater on your target server. If this does not resolve the issue, please contact Turbonomic Technical Support.

Improvements

- **Improvement:**

To simplify management of Operator during Turbonomic updates, a number of properties have been removed from Operator and are now specified in component configuration files.
- **Improvement:**

For Container entities, Turbonomic now represents CPU resources in units of `milicore`, rather than megahertz.
- **Improvement:**

With this release, when you configure a Migrate to Cloud plan, you can now specify which RIs the plan can use, from among the RIs that are available in the plan's scope.
- **Improvement:**

For Kubernetes environments, when you set the scope to a Namespace entity, the charts now show the capacity and utilization of resources. This includes:

- Virtual CPU
- Virtual Memory
- Virtual CPU Request
- Virtual Memory Request

Fixed Issues

- **Fixed Issue:**

Customer Issue 113388

For OpenShift environments that use DeploymentConfig to run applications, when Turbonomic executes Merged Actions (compound actions), the actions can fail.

- **Fixed Issue:**

When you run a Migrate to Cloud plan with more than 500 entities to migrate, the results can incorrectly show unplaced VMs.

This can occur because the user interface requests results data for 500 entities. In a large plan, the excess entities can appear as unplaced. When you export the Cloud Cost Comparison data to CSV, that data includes the complete set of entities, showing their placement correctly.

- **Fixed Issue:**

Customer Issue

If you assign a schedule to one of the default Automation Policies, Turbonomic will respect that schedule and limit action execution accordingly. However, if you restart your Turbonomic instance, then it removes all the schedules from the default policies.

For example, assume you scheduled automation for certain VM actions in the default policy. After you restart the instance, those actions will still be automated, but they will not have a schedule. The result is that the actions are automated at all times.

After a restart, review your default policies and reapply schedules to any policies that need them.

- **Fixed Issue:**

Customer Issue 113196

When you configure an AppDynamic target, the user interface does not validate the fields. As a result, if you make invalid settings the target can fail to validate. For example, the target configuration should not accept an empty **Port** field.

- **Fixed Issue:**

Customer Issue 113236

For AppDynamics environments, if you use special characters in your password the target can fail to validate.

- **Fixed Issue:**

For Hyper-V and vCenter Server environments, under rare circumstances Turbonomic can experience a java deadlock.

- **Fixed Issue:**
Customer Issue 113176
 For HPE OneView environments, discovery can fail with `AUTHN_SESSION_CLIENT_LIMIT_CROSSED` errors.
- **Fixed Issue:**
Customer Issue 113233
 For AWS environments, under rare circumstances discovery can fail and the user interface does not display any topology.
 This can happen if discovery parses incorrect IDs for master and member accounts in a billing family. Discovery must query AWS for more reliable sources of this data.
- **Fixed Issue:**
Customer Issue 113205,113521
 Migrate to Cloud plans have a limit to the number of VMs they can migrate. A plan to migrate thousands of VMs can fail with a `StatusRuntimeException` error.
- **Fixed Issue:**
 When you run an Optimize Cloud Plan, under some circumstances the results in the `OPTIMIZED` column of the Cloud Cost Comparison chart can show zero entities for different counts of workloads. If this happens, try navigating away from the plan results, and back again.
- **Fixed Issue:**
 When you create a reservation (to place workloads), you can define Don't Place policies for the affected scope. However, the reservation calculation ignores the Don't Place constraints.
- **Fixed Issue:**
 If you have changed settings in the `/etc/my.cnf.d/server.cnf` file for your Turbonomic installation, when you perform an offline update the update process reverts your changes back to the defaults.
- **Fixed Issue:**
Customer Issue 112561
 For AppDynamics environments, the user interface can become unresponsive.
 The probe that discvers AppDynamics environments must improve its use of memory resources.
- **Fixed Issue:**
Customer Issue 111995
 When the Density chart is scoped to a cluster and the `Show Density` checkbox is selected, the displayed graph intermittently shows 0 VMs per host.
- **Fixed Issue:**
 For public cloud environments that include AWS and Azure, when you run the Optimize Cloud plan with a scope that includes All Providers, the RI Coverage and RI Utilization charts do not display data for AWS. To view AWS data, scope the plan to only AWS providers.

Known Issues

- **Known Issue:**

When you set the scope of the Turbonomic view to a group, you can then view the automation policies that impact the given group. If you edit a policy for that group (in Settings: Policies), and then scope the view to that group again, the policy changes do not appear in the display for that group. The display should update within ten minutes, after the next round of incremental discovery. If the condition persists, log out of your session and log in again to update the display.

- **Known Issue:**

Customer Issue 113323,113332,113493,113560

After updating Turbonomic, the process to change the platform's IP address does not change all references to the new address.

The Installation Guide includes instructions to change the IP address of your Turbonomic installation. However, after updating to version 8.0.2 or 8.0.3, this process does not change all references to the new address. After running the script, the storage services can still show that they use the old IP address.

- **Known Issue:**

For a given schedule, when you click to see the list of policies that the schedule is used in, the user interface does not display any data.

- **Known Issue:**

When you scope the Workload Cost Breakdown chart to multiple types of workloads, the chart does not show reliable data. For example, this can happen if the chart is scoped to VMs and Databases. The faulty data display does not affect Turbonomic analysis.

- **Known Issue:**

For Migrate to Cloud plans, if you plan a migration to an Azure environment, under some circumstances the plan results can fail to show RI costs.

- **Known Issue:**

Under rare circumstances the downloads from DockerHub can fail. This occurs when the limit on image downloads has been exceeded. As a result, one or more pods can show `ImagePullBackOff` as the pod STATUS.

If you encounter this STATUS, you can wait until the limitation period expires. At that time, the download of pods will continue, and the platform should start up normally.

As an alternative, you can register your own DockerHub account in the CR file, and apply those changes:

- Edit the registry in the `cr.yaml` file:

```
registry: index.docker.io
  imageUsername: Your_Username
  imagePassword: Your_User_Password
```

- Execute the `kubectl apply` command:

```
kubectl apply -f

/opt/turbonomic/kubernetes/operator/deploy/crds/charts_v1alpha1_xl_cr.yaml
```

- Verify that the application installed correctly:

```
kubectl get pods -n turbonomic
```

- **Known Issue:**

For vSAN environments, when running plans that add or replace hosts to the environment, under some circumstances the plan can show the incorrect count for hosts, and the plan can fail.

This can happen for plans that meet the following conditions:

- The plan type is Hardware Refresh, Add Workload, or Custom
- The plan scope is set to a datacenter, and it includes vSAN hosts
- The plan uses an HCI template to replace the hosts

After running, the plan shows the full count of hosts in the vSAN environment, instead of the count of hosts in the plan scope. To avoid this situation, do not scope the plan to the datacenter.

- **Known Issue:**

Customer Issue 113231

For Microsoft Azure environments that use Availability Sets (AS), under some circumstances resize actions can fail to execute.

According to Microsoft, if the new instance type for a resize action is not supported in the current cluster, then all the VMs in the AS must be deallocated before executing the resize. This is necessary so that Azure can identify a different compute cluster supports the instance type. If any VMs in the AS are still running, then the resize action fails.

- **Known Issue:**

For the *Private Preview* Partial RI feature, in Azure environments there can be delays in updates to billing information that Azure makes available to Turbonomic. In that case, there can be times when analysis uses partial billing data in its calculations. When showing utilization of RIs that are discovered outside of the targeted Azure subscriptions, this can result in changing costs for those RIs.

- **Known Issue:**

For Nutanix environments, the Target Guide states that Turbonomic supports automation for VM Move actions. However, it does not state that you can automate VMotion to hosts, but for storage moves on Nutanix Turbonomic only supports the Recommend action mode.

- **Known Issue:**

Customer Issue 112821,112849,112880,113288

For vCenter Server environments, if you turn on **Enable Guest Metrics** for your target configuration, the metrics that vCenter returns to Turbonomic can be inaccurate, depending on the version of vCenter Server and VMware Tools that you have running on your VMs.

For accurate metrics use vCenter Server 6.5U3 or higher with VMware Tools version 10.3.2 or higher on guest VMs. If you run vCenter Server version 7.0 or greater, then it can automatically update your VMware Tools through the user interface. For other versions of vCenter Server, you must manually update your VMware Tools deployments.

- **Known Issue:**

When reviewing plan results, under rare circumstances the plan's actions list can show duplicate entries.

- **Known Issue:**

For Azure environments, Turbonomic does not discover the Brazil Southeast region. Azure provides this region only to give business continuity and disaster recovery to workloads in Brazil South that require data residence.

The user interface does not display the Brazil Southeast region in any lists or charts. Also, if you do have workloads on that region, Turbonomic will not discover those workloads.

- **Known Issue:**

Customer Issue 112461

If you have configured MySQL 5.7 as an external database for your Turbonomic installation, under some circumstances you can experience poor performance when working with dynamic groups. This can happen when you use extensive regular expressions as filters to generate the dynamic groups.

If you experience poor performance with dynamic groups, consider making them static groups, or consider using MariaDB as your database.

- **Known Issue:**

Customer Issue 112327

Under some circumstances, when you download the data for Pending Actions, the download does not match the data that you see in the Pending Actions chart. This can happen when the categories that the Pending Actions chart uses to group actions do not contain the correct actions. The actions are all correct, and the downloaded data groups the actions correctly.

- **Known Issue:**

When you download a CSV file from an Actions chart, the CSV file only contains the list of actions that show in the current page of data. As a result, if the actions for the current scope of the chart exceed the number of entries in the page, the CSV data will be incomplete.

- **Known Issue:**

For ServiceNow environments, Turbonomic fails to save any automation policy that sets the Action Type to **Request Approval from ServiceNow**.

- **Known Issue:**

For AppDynamics environments, Turbonomic cannot discover databases if the target authentication uses `oAuth` for credentials.

- **Known Issue:**

Under some circumstances, the logs can show the following error:

```
The following settings don't have a mapping in the API component. Not returning them
to the user. Settings: [remainingGcCapacityUtilization, responseTimeCapacity, autoS
etResponseTimeCapacity, transactionsCapacity, autoSetTransactionsCapacity]
```

This occurs because these settings have been deprecated.

- **Known Issue:**

For existing dashboards that include the Capacity And Usage chart for databases, after an upgrade to 7.22.7 or later, the chart can appear empty.

Starting with version 7.22.7, Turbonomic tracks the DTU and Storage Amount commodities for databases. Charts that you configured for earlier versions will not include these commodities. To correct this, edit the charts to display the DTU and Storage Amount commodities. Also, when you create a new Capacity and Usage chart for databases, you must configure it to show these commodities.

- **Known Issue:**

For Application Component automation policies, the user interface allows you to make conflicting settings. The Action Generation setting can show incorrect values that you can choose for the policy. As a result, you cannot save the policy.

- **Known Issue:**

For ServiceNow environments, the Turbonomic user interface allows you to set orchestration for actions that the ServiceNow integration does not support. If you configure orchestration for these actions, then either the action never generates a ServiceNow CR, or the action can fail when the CR is approved.

The actions you can configure but will not generate a CR are:

- Storage Suspend
- VSan Storage Resize

Note that storage resize for a VSan is accomplished by provision/suspend of Host. You should not configure ServiceNow orchestration for VSan Storage Resize. However, Host Provision is not currently supported for ServiceNow orchestration (see next).

- Host Provision
- File Delete
- Application Component - No actions are supported

The actions you can configure but that can fail include actions that you must also configure for execution on the affected targets. These actions include:

- Host Suspend

For this action to succeed, it must be enabled in the given hypervisor, and there must be no VMs currently running on that host.

- Storage Provision

Currently Turbonomic can only execute a CR for this action on Pure and Dell Compellent storage.

- **Known Issue:**

For updates from versions earlier than 7.22.4, the update does not fully migrate policies for Application and Application Server entities.

Starting with version 7.22.4, the supply chain for applications has changed. Application and Application Server are now represented by the Application Component entity type. If you had created policies that affect these older entity types, then many of the settings will revert to their defaults. Before updating to the new version, you should check for affected policies and record the settings.

- **Known Issue:**

When you create reservations (in the Placement page), if you provide a Network constraint the reservation does not recognize that constraint. The user interface displays a notification that the reservation cannot be created. However, the platform does create the reservation, and it does not include the network constraint.

- **Known Issue:**

For Azure environments, when you inspect resource groups, Turbonomic does not currently show the billed costs for those resource groups.

- **Known Issue:**

Customer Issue 111396

For cloud environments, under rare circumstances Turbonomic can recommend resizing a VM to an instance type that is older and less capable than an equally priced instance type.

Under most circumstances, when a cloud provider offers a new instance type that is meant to replace an older type, the provider offers it at a lower cost. In at least one instance we have seen a case with identical costs for the newer and older instance types. If this occurs, and capacity and cost are equal, Turbonomic cannot ensure that it chooses the newer instance type.

To work around this issue, you can create an Action Automation policy that excludes the older instance type.

- **Known Issue:**

Customer Issue 111019

API responses including templates imported from vCenter targets will not have the "type": "disk" key/value pair.

- **Known Issue:**

For Azure environments, analysis currently does not generate resize actions for SQL Server databases.

- **Known Issue:**

The All Actions chart does not include pending actions for databases or database servers.

- **Known Issue:**

Customer Issue 110123

There is a memory limit for the data you can download from the All Actions chart. For example, assume you have executed many actions over time in your environment. As a result, the list of all executed actions might exceed the data limit. In that case, downloading a CSV file from the All Actions chart will fail.

- **Known Issue:**

Under rare circumstances the Turbonomic platform stops responding. This occurs when `etcd.service` fails. When it does occur, you should see the following error:

```
Error response from daemon: endpoint with name etcd1 already exists in network host
```

To recover from this situation, restart the docker service for the Turbonomic platform. execute the command:

```
sudo systemctl restart docker.service
```

- **Known Issue:**

You may now add ActionScript targets from both the Target Addition dialog in the UI and the Turbonomic API.

- **Known Issue:**

When you use the **PLACE** page to set up a reservation or a deployment, you choose the templates to represent the workload you will deploy. The templates you choose must include an **Image** specification that gives the path to the VM package, and optional placement constraints.

Typically, you will use templates that are discovered through your hypervisor targets. Along with discovering resource capacities for the given VM, Turbonomic should also discover the Image specification for a given discovered template. However in this version, Turbonomic does not discover the Image descriptions. In addition, discovered templates and their image specifications are read-only. For this reason, you cannot set up placement or reservations using discovered templates.

- **Known Issue:**

If you run the Alleviate Pressure plan in Turbonomic 7, and then compare it to the same plan and scope in a 6.1 release, then the display of instances in the supply chain are not identical for both versions.

- **Known Issue:**

Ring charts that show the utilization of different resources show a yellow segment whenever the Reserved Capacity for the resource is zero. For some resources there is no concept of reserved capacity, yet the ring chart still shows a yellow segment.

- **Known Issue:**

For cases where actions indicate provisioning new hosts, the Optimized Improvements chart does not include the hosts to provision in the After Plan section.

- **Known Issue:**

Customer Issue 99189,99805

In vCenter environments, you might see unusually high storage latency values or excessive recommendations to provision new storage. There is a known problem with the storage latency values that vCenter Server versions 6.5.u1x and earlier return via the API. These versions can return unusually high storage latency values.

Turbonomic considers storage latency when calculating whether to move a VM to existing storage, or whether to provision new storage. Because of this known problem, Turbonomic can incorrectly recommend provisioning storage when moves are appropriate.

If you encounter this problem, then you should create a policy that disables storage moves for VMs that are managed by vCenter Server versions 6.5.u1x and earlier. To create this policy:

- Create a VM group that contains all the affected VMs. Note that Turbonomic automatically creates a group named `VMs_vCenter` that you might be able to use.
- Create a new VM automation policy. This policy will disable storage move actions.
- Set the group that you created to be the policy scope.
- Under **Action Automation** add the `Storage Move` action and set it to `Disabled`.

- **Known Issue:**

In cases where actions recommend that you suspend hosts, the Optimal Improvements chart should indicate no utilization on the hosts to be suspended. Under some circumstances, the chart can show utilization on these hosts. The result is incorrectly low values for utilization on the other hosts in the current scope.

- **Known Issue:**

Turbonomic generates special average or max utilization templates that it uses when calculating cluster headroom. You should not edit these templates, because Turbonomic will overwrite your changes the next time it generates the templates. However, the Template Catalog presents these templates as editable.

- **Known Issue:**

You should never use duplicate names for groups of the same entity type. However, the user interface does not validate group names to keep you from creating a duplicate name.

- **Known Issue:**

For VMs running on Hyper-V, if you set a VCPU limit (limit VCPU to less than 100%), then the VCPU utilization data that VM returns to Turbonomic is not correct. As a result, Turbonomic will not recommend that you increase the VCPU limit.

- **Known Issue:**

For AWS environments, under very rare circumstances you can have RIs on payment plans that do not resolve to 1-year or 3-year terms. In this case, AWS does not return pricing data for those RIs. Turbonomic does not include such RIs in its calculations of RI utilization or RI cost.

- **Known Issue:**

Customer Issue 105693

The Headroom chart for All On-prem Hosts does not agree with the Top Clusters chart.

Turbonomic generates the All On-prem Hosts headroom data in a nightly plan. When the plan runs, this data is correct. In the course of the day, this data can become stale. To accurately track your cluster usage, you should use the Top Clusters chart.

- **Known Issue:**

For vCenter Server environments, Turbonomic does not recognize DRS rules for VM restart dependencies that are based on `ClusterDependencyRule`. You might be able to achieve a similar effect by expressing dependencies via `ClusterVmHostRule` or cluster affinity or antiaffinity rules.

- **Known Issue:**

- **Customer Issue 109389**

- In vCenter Server environments that have Instant Clone VMs, under some circumstances Turbonomic cannot move these VMs to other hosts in the cluster, even though you can manually migrate them via the vCenter Server user interface.