Turbonomic 7.22.11 Release Notes

April 30, 2021

This document describes issues that are addressed in Turbonomic 7.22.11 – Release Date: April 30, 2021. 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 7.22.11, from version 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://support-turbonomic.force.com/TurbonomicCustomerCommunity/s/customer-support

What's New for Version 7.22.11

Version 7.22.11

- **Optimize Container Cluster Plan**

  This release introduces a new plan type called Optimize Container Cluster. Run this plan to identify performance and efficiency opportunities for a single Kubernetes cluster. The results show the optimal number of nodes you need to assure performance for your existing workloads, and the impact of actions on the health of your container workloads and infrastructure.

  For details, see "Optimize Container Cluster Plan" in the *User Guide*.

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`.

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:**

  Data Export now generates separate action objects for compound actions or actions that change multiple resources.

  Turbonomic can generate actions that make more than one change. For example, a container action might be to resize VCPU and VMEM. Or a single action might be to move a VM to a different host and different storage.

  To improve ingestion and reporting of data for such actions, Data Export flattens these compound actions into separate action objects. Each related action object has the same `oid` value, but it has different action details. For example, assume a compound resize action to increase VMEM and VCPU. In that case:

  - The data exports as two action objects
  - The `oid` value is the same for each object.
  - The `resizeInfo` data is different for each object. For one object the data describes changes to `"commodityType": "VCPU"`. For the other object the data describes changes to `"commodityType": "VMEM"`.

  Or assume a compound action to move a VM to different host and storage providers. In that case:

  - The data exports as two action objects

- The `oid` value is the same for each object.
- The `moveInfo` data is different for each object. For one object the data describes the FROM and TO for `PHYSICAL_MACHINE` entities. For the other object the data describes the necessary data for a `STORAGE` move.

As you consume the exported data, you can use the action `oid` to identify the related action objects, and track the individual changes for each action.

- **Improvement:**

  When it lists databases in different actions lists, the user interface now includes the database server name in the entity name.

  To improve the identification of databases in actions lists, Turbonomic now lists the server name as part of the full database name.

- **Improvement:**

  Customer Issue 114693

  For installations behind a firewall, you can now upload diagnostic data when addressing an issue with Support.

  Starting with this release, you can now optionally configure certificates so that Turbonomic can upload diagnostic reports as part of troubleshooting. This enables uploads for installations that are behind a firewall. For more information, contact your support representative.

- **Improvement:**

  Customer Issue 115041

  Before performing an update, you can now run a script that checks whether your installation is ready for the update.

  Starting with this release, you can now run a pre-check script to determine whether your installation of Turbonomic is ready for an update. See the Updating section of the *Installation Guide* for more information, and instructions to use this script.

Fixed Issues

- **Fixed Issue:**

  Customer Issue 115136

  When editing user accounts, you can unintentionally delete all users from the list of accounts.

  When editing user accounts, you can search for a list of users that match search criteria, choose **Select All** and delete that group of entries. However, if you do that, the action deletes the full, unfiltered list of users.

- **Fixed Issue:**

  Customer Issue

For New Relic, under some circumstances the target can fail to validate because of a DUPLICATE KEY error.

Assume you have configured your environment such that two databases use the same host and port. In that case, a New Relic target will fail to validate, with the error:

```
mediation-newrelic-5759bf578c-9s java.lang.IllegalStateException: Duplicate key
```

- **Fixed Issue:**

  Customer Issue 115061

  For SaaS deployments, Site Administrator users cannot save changes to Price Adjustments

  Turbonomic includes settings to make Price Adjustments, custom pricing schedules that match the pricing you agree to from a service provider. For an enterprise deployment of Turbonomic you must have an Administrator role to save Price Adjustments. For SaaS deployments, the highest role is Site Administrator. However, the Site Administrator user cannot save Price Adjustments.

- **Fixed Issue:**

  Customer Issue 115085

  If you run a plan to remove entities from a scope, but the entities have already been removed from that scope outside of the plan, the plan fails.

  Assume you have a scope with three VMs in it, Vms A, B, and C. Assume you configure a plan to remove VM B, and then externally to the plan you actually shut down VM B. Then if you run the plan, the plan will fail.

- **Fixed Issue:**

  Customer Issue 114850

  For VMAX environments, user settings for latency capacity now override the discovered capacity.

  For VMAX environments, you can set SLO for storage latency, and Turbonomic will discover that capacity and use it in analysis. However, if you set a higher value in the policy settings, analysis will now use that override setting that you make in the user interface.

- **Fixed Issue:**

  Customer Issue 114853

  For New Relic, under some circumstances the New Relic probe cannot discover all the databases in the environment.

  For New Relic environments, under some circumstances a database unique name does not match the naming format that the New Reilc probe expects. In that case, the probe cannot discover that database. In that case, discovery fails with an error similar to:

  ```
  WARN [NewRelic-4] [DatabaseBuilder]   : [1542405:Discovery] Cannot parse database key
  ```

- **Fixed Issue:**

  Customer Issue 114853

For New Relic, if analysis discovers an unknown port setting, then discovery can fail.

For New Relic environments, if analysis discovers a port setting of unknown, then discovery can fail for that target.

- **Fixed Issue:**

  Customer Issue 114871

  The filter to create a group of entities on a given network can give incorrect results.

  When using a filter create a group of all entities on a named network, the resulting group can include fewer entities than reside on that network.

- **Fixed Issue:**

  Customer Issue 114974,115246

  For the public cloud, if RI Utilization is high then under some circumstances analysis can skip valid VM scaling actions.

  For cloud environments with hight RI Utilization, analysis can fail to automatically execute VM scaling actions when the Before and After states both result in RI coverage for the VM. The actions are skipped for Automatic execution, but the actions can execute in Manual mode.

- **Fixed Issue:**

  Customer Issue 114895,115009

  For public cloud, certain settings for Min Observation Period and VMem monitoring can result in no scaling actions for the affected VMs.

  In cloud environments, you can specify that VMem monitoring is not enabled. In that case, if you specify a Minimum Observation Period for the affected VMs, then analysis will not recommend scaling actions for the affected VMs.

- **Fixed Issue:**

  The SEARCH page displays Vendor ID for VMs, but you cannot include Vendor ID in search criteria.

  On the search page, when you display all VMs, you can see the Vendor ID included in the VM name. However, if you try to filter the list by searching for the Vendor ID, the search gives an empty result.

- **Fixed Issue:**

  Customer Issue 114876

  Under some circumstances, the Top Accounts chart can show more savings than you see in the sum of the individual actions.

  For ctions that have multiple risks, analysis can calculate the same saving for each risk addressed by the action. This analysis exaggerates the savings for the action. As a result, the Top Accounts chart can show exaggerated savings.

- **Fixed Issue:**

  Customer Issue 114847

For Dynatrace environments, the probe makes excessive calls to the Dynatrace target.

For Dynatrace environments, the probe makes excessive calls to the Dynatrace target. The probe must make fewer calls to the target.

- **Fixed Issue:**

  Customer Issue 114788

  When defining very large groups, group creation can fail.

  When creating groups, if the group will have a large number of members (e.g. 4000 or more), then Turbonomic can fail to create the group. This can happen with dynamic or static groups.

- **Fixed Issue:**

  Customer Issue 114416,115017

  When using the SEARCH view to find groups, the view can fail to show groups that exist in the environment.

  When using the SEARCH view to find groups, the view can fail to show groups that exist in the environment. However, if you search via filters and use a Regex expression to find the group, then Search can find it.

- **Fixed Issue:**

  Customer Issue 114022

  For the public cloud, under rare circumstances cloud entities can be flagges as not to be moved.

  For internal reasons, analysis can flag an entity so that it will not be moved by actions. However, under rare circumstances related to communication problems between Turbonomic and the cloud target, an entity can be flagged incorrectly.

- **Fixed Issue:**

  For Azure, under some circumstances analysis recommends storage scaling actions that do not add value.

  In Azure environments, Turbonomic can recommend actions to scale storage down, but because of current pricing that scaling action does not save any cost. Analysis should not recommend such actions.

- **Fixed Issue:**

  Customer Issue 111995

  The Density charts show mixed data points.

  When you view a density chart (e.g. VMs over Host Density), the chart should roll data up into th pprporiate data points. For example, for hourly data, it should not also include ten-minute data points. However, the chart display mixes these data point types.

Known Issues

- **Known Issue:**

For New Relic, under some circumstances analysis associates a discovered database with the wrong VM.

For New Relic environments, under some circumstances discovery can associate a database with the VM that hosts the New Relic agent, and not the VM that hosts the database.

- **Known Issue:**

  Customer Issue 114942

  With Executed Actions charts, some data is missing for actions on entities that have been removed from the environment.

  When you view Executed Actions charts or export data from them, some data is missing for actions on entities that have been removed from the environment. For example, assume an action was executed on a storage volume, and that volume has later been removed from the environment. In that case, the exported data for that action will not include values that describe the removed volume.

- **Known Issue:**

  When creating policies, the user interface displays policy editing for AWS Relational Database Services (RDS), but this type of policy is not supported.

  The user interface incorrectly displays controls to create policies for AWS RDS. This feature is not supported at this time. Also, when you configure such a scaling policy you can see data display that is not correct. For example, you can see duplicated entries for a given RDS.

  This is only a display problem. Even if you create and save such a policy, it will have no effect.

- **Known Issue:**

  The Onboarding wizards can sometimes fail to close.

  When you first install Turbonomic, the user interface displays onboarding wizards to walk you through setting up your license, and configuring your first target. Under some circumstances, the button to end the wizard's work flow does not close the wizard. That can result in blocking you from continuing on with your Turbonomic session.

  If the onboarding wizard does not close when you click **End Setup**, refresh the browser. That should close the the wizard and leave you on the last user interface page that you visited.

- **Known Issue:**

  For Hyper-V, Hardware Replace plans that use HCI Host templates can give inconsistent results.

  For Hyper-V environments, if you run a Hardware Replace plan that replaces hosts with HCI Host templates, the results can be inconsistent. Under some circumstances the plan can fail to place all the VMs in the plan scope.

- **Known Issue:**

  For plans that were run in earlier versions, the plans cannot load Azure RI Buy actions when you view them in later versions.

  Because of anomolies that can appear in the RI pricing data that Azure sends to Turbonomic, it was necessary to change the pricing data that analysis uses. This has no impact on real-time analysis. However, if you load an plan that was run in an earlier version, and that plan includes Buy RI actions, then those actions will not appear in the plan.

- **Known Issue:**

For policies that exclude certain cloud tiers, when the cloud provider adds new tiers they can appear as included in the policy.

For public cloud environments, when you make a policy to include only certain tiers (VM or Storage types) of entities, if the service provider deploys new tiers then those will also be included in your policy.

This can be unexpected. For example, assume you create a policy to include only one VM type. Then if your service provider introduces new VM types, your policy will subsequently include those new types.

You should periodically check your policies to see if new tiers have been added to the INCLUDE list.

- **Known Issue:**

  For Kubernetes environments, when you enable Feedback and Diagnostics for your installation, the collected data can include Kubernetes cluster names.

  To help us improve the product, you can enable Turbonomic to collect anonymized and non-confidential data as you go about using the product. However, because of the way Kubernetes discovery works for Turbonomic, the collected data includes the names of any Kubernetes clusters that you have set up as targets. We do not make use of those cluster names in any way.

  If you do not want Turbonomic to collect these cluster names, then you can navigate to **Settings / Maintenance Options / Feedback and Diagnostics** and turn off the option to share anonymized usage data.

- **Known Issue:**

  For environments with SNMP targets, analysis can show incorrect values for memory.

  For environments that include SNMP targets, under some circumstances Turbonomic can discover incorrect memory values for Linux systems. This can occur for the systems that use the net-snmp package, version 5.7.2-43.el7. You should use versions less than 5.7.2-43.el7, or greater than or equal to 5.7.2-47.el7.

- **Known Issue:**

  Changes to a policy do not immediately show up in the user interface view of the affected scope.

  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 113340

  Hitachi Vantara targets can incorrectly show multiple compliance actions.

  For Hitachi Vantara environments that enable storage replication, Turbonomic can generate repeated actions of the type, `Reconfigure Storage to Provide Extent`. In addition, replica storage entities and their providers can show incorrect utilization values.

- **Known Issue:**

  When creating an automation policy, you can assign two or more schedules to the Action Execution Schedule setting. If the action is one that cannot be executed by Turbonomic, then for Service Now integrations the action

appears in the Change Requests for display, only. Also, such an action is *only* affected by the first schedule in the policy.

- **Known Issue:**

  For Migrate to Cloud plans, under rare circumstances the plan's actions list can show duplicate entries.

  For Migrate to Cloud plans, under rare circumstances the plan's actions list can show duplicate entries.

- **Known Issue:**

  For Azure environments, discovery does not support the Brazil Southeast region.

  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, you can experience poor performance when working with dynamic groups.

  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

  When you download the data for Pending Actions, the download might not match the data that you see in the Pending Actions chart.

  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 groups 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.

  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, the platform cannot discover databases if the target authentication uses oAuth for credentials.

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

- **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 user interface allows you to set orchestration for actions that the ServiceNow integration does not support.

  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:**

The user interface does not currently show the billed costs for those Azure resource groups.

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 analysis 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:**

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

  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.

  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 etcd.service can fail.

  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 must use certain templates when using PLACE to set up reservations or deployments.

  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:**

  For resources that do not support Reserved Capacity, charts can show them with zero reserved capacity.

  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:**

  Optimized Improvements for plans do not include hosts to provision.

  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 high storage latency, or excessive storage provision.

  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:**

  The Optimal Improvements chart can show incorrect data for hosts to be suspended.

  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:**

  For vSAN environments, under some circumstances a plan that is scoped to a datacenter can fail.

  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 105693

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

  The Headroom chart for All On-prem Hosts does not always 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:**

  Customer Issue 107699,108212,109349,110474,110896,112196,112639,112749,112790,113104,114386

  Hardware Refresh plans to replace hosts can give unexpected results.

  When you run a plan to replace hosts in a cluster, the results can incorrectly show that you need more hosts than you would expect. This can occur for two reasons:

  - If the host template for the replacements does not use CPU specifications from the catalog, then the calculations for host capacity can be incorrect.
  - When placing VMs on the replacement hosts, analysis assumes all the VM peaks can occur at the same time. This results in excessive utilization of peaks capacity in the plan.

  To configure a plan in a way that avoids these problems, you can:

  - Make sure the plan scope is for a single cluster.

    This is the typical use case for a Replace Hosts plan. Record the cluster name, because the name will come in handy in later steps.
  - Always use the **Select from Catalog** option when you create your Host template.

    If the catalog does not include the CPU specifications that you want, choose an entry that is as close as possible.

    To adjust the number of cores, you can then specify a different number of sockets. For example, assume you choose a CPU spec that includes 4 cores of a given core frequency, but you actually want 32 cores. You can choose that spec, and then set **Sockets** to 8 to achieve that number.
  - Turn off **Scale** for the VMs.

    After you choose the host template to use, click **NEXT: VIRTUAL MACHINE ACTIONS**. Then turn off the **Scale** option.

    When replacing hosts, it's important to *not* scale the VMs, so you can see how the hosts can support your given workload.
  - Replace all your VMs with a Cluster Average template.

    Click **SKIP TO CONFIGURATION** to display the plan configuration, and open **Replace/Virtual Machine**. Display **Clusters** and click **Select all**. Then click **NEXT** to choose the VM template.

To choose the VM template you will replace with, type your cluster name in the Search box. The Templates list will show an AVG template for that cluster. For example, if your cluster name is MyCluster1, then the template name would be `myDomain.com::AVG:MyCluster1`. This template captures the average VM utilization over the last ten days.

Choose this template and click **SUBMIT**.

- You can now run the plan.

- **Known Issue:**

  For vCenter Server environments, Turbonomic does not recognize DRS rules for VM restart dependencies that are based on ClusterDependencyRule.

  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.