Understanding rules and data policy

OnCommand Unified Manager 9.5

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Understanding rules and data policy

Understanding the concepts about rules and data policy help you to manage your Infinite Volumes efficiently.

What rules and data policies are

A *rule* determines the placement of files (data) in a storage virtual machine (SVM) with Infinite Volume. A collection of such rules is known as a *data policy*.

- **Rule**

  Rules mainly consist of a set of predefined conditions and information that determine where to place files in the Infinite Volume. When a file is placed in the Infinite Volume, the attributes of that file are matched with the list of rules. If attributes match the rules, then that rule's placement information determines the storage class where the file is placed. A default rule in the data policy is used to determine the placement of files if the attributes do not match any of the rules in the rule list.

  For example, if you have a rule, "Place all files of type .mp3 in the bronze storage class.", all .mp3 files that are written to the Infinite Volume would be placed in the bronze storage class.

- **Data policy**

  A data policy is a list of rules. Each SVM with Infinite Volume has its own data policy. Each file that is added to the Infinite Volume is compared to its data policy's rules to determine where to place that file. The data policy enables you to filter incoming files based on the file attributes and place these files in the appropriate storage classes.

What the default rule is

The default rule is the rule present in the data policy of a storage virtual machine (SVM) with Infinite Volume. It is used to determine the placement of data written to the Infinite Volume when none of the conditions in the existing rules match with the data being written.

The default rule is always the last rule in a data policy and cannot be reordered. For example, consider a data policy with three rules. Rule-1 places all .pdf files in the *high_performance*storage class. Rule-2 places all files owned by the administrator and file names that end with *.xls in the *archival_constituent* storage class. The third rule is the default rule with the *low_performance* storage class.

When a set of *.jpg files that are not owned by the administrator is written to the Infinite Volume, the default rule is used to place these .jpg files in the *low_performance* storage class. Rule-1 and Rule-2 are not used because the data that is written does not match these rules.

How a data policy filters data written to an Infinite Volume

A data policy automatically filters data written to the Infinite Volume into different storage classes. All files are written to the single file system in the Infinite Volume's namespace, and rules in the data policy determine which storage class stores the data for the files.

A default data policy is automatically created for a storage virtual machine (SVM) with Infinite Volume when you create the Infinite Volume. The data policy is active and contains a default rule. The default rule stores incoming data for files as follows for Infinite Volumes with and without storage classes:

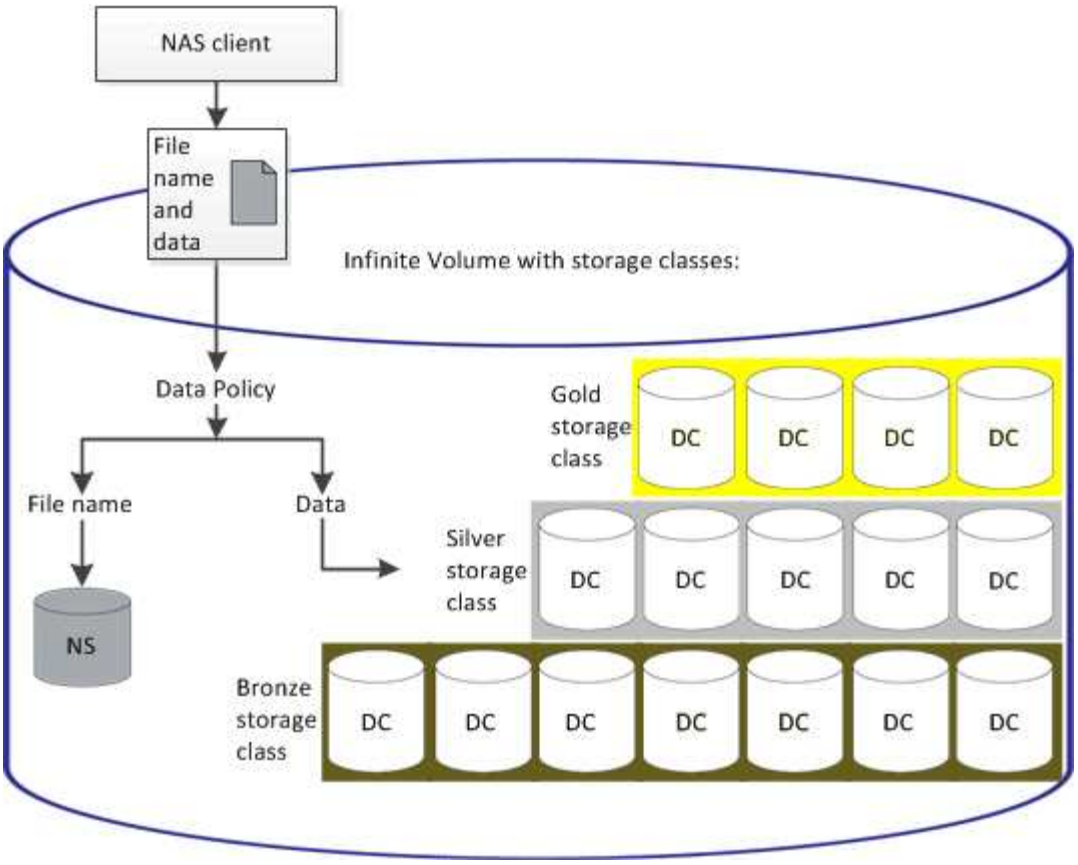
For an Infinite Volume…	The default data policy does this…
Without storage classes	Places all incoming data for files in the Infinite Volume
With one storage class	Places all incoming data for files into the storage class
With one or more storage classes	Places all incoming data for files into the first storage class that is created

For an Infinite Volume with two or more storage classes, you should modify the data policy as soon as possible to create rules that filter data for different types of files into the different storage classes. You should modify the data policy by using Unified Manager.

The data policy does not affect the location of the files in the file system in the Infinite Volume's namespace, and storage classes are transparent to client applications. The file system in the namespace contains the file names. The data policy affects only which storage class is used to store the data for the files. Data policies are useful when you assign two or more storage classes to an Infinite Volume.

You can modify the data policy to create additional rules, but you cannot delete the data policy or its default rule.

The following diagram illustrates how a data policy filters data for an Infinite Volume. The file name is stored in the namespace constituent, and rules in the data policy specify that data for this particular file is stored in the silver storage class.



What a rule template is

A rule template is a predefined template that can be used to create rules in a data policy. A rule template enables you to create a rule based on three categories: owner, file type, and directory path.

Example of a rule template for file types

The rule template “Place all files with the specified extensions in a suitable storage class” places all the .mp3 files that are written to the Infinite Volume in a storage class that you specify.

What conditions and condition sets are

Conditions are a set of matching criteria based on rule properties—such as the file name, directory path, and owner—that define a rule. A collection of such conditions is known as a *condition set*. You can use conditions and condition sets only for custom rules to determine where to place content that is written into your Infinite Volume.

Conditions

For a custom rule, you can specify conditions based on rule properties such as the file name, directory path, or owner, or a combination of all the rule properties. The logic is similar to a Boolean AND operation. For example, by using conditions, you can create a custom rule to place files with `.mp3` extensions and files owned by John in the directory path starting with `/NS/`.

Condition sets

The logic used for condition sets is similar to a Boolean OR operation. For example, by using conditions and condition sets, you can create a complex custom rule that matches either of the following conditions:

- condition-1

  All files owned by Mary and are placed in `/NS/Eng/`

- condition-2

  All files that have names ending with `.pdf`and owned by Mary

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