Namespaces and junction points

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Namespaces and junction points

Namespaces and junction points overview

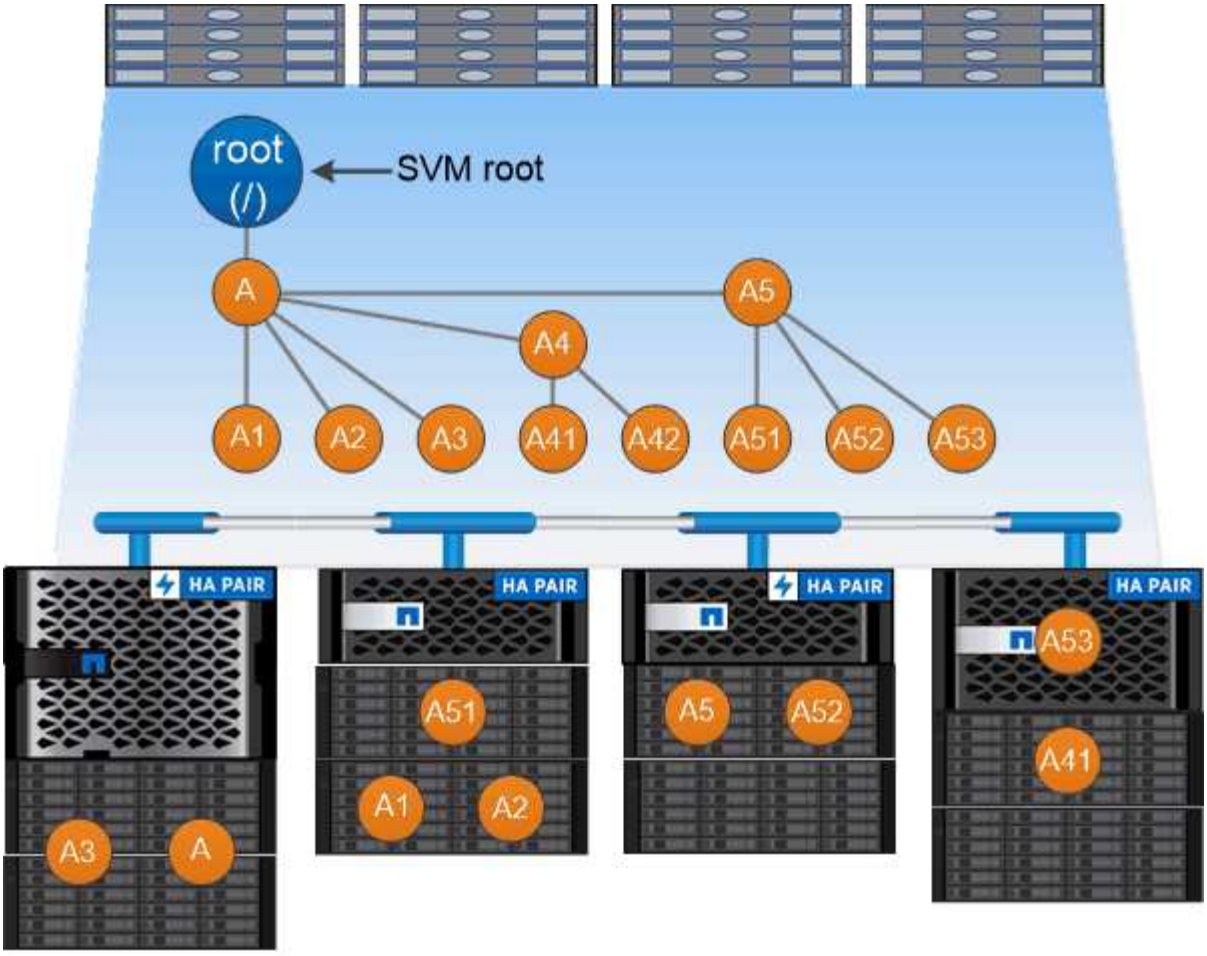
A NAS *namespace* is a logical grouping of volumes joined together at *junction points* to create a single file system hierarchy. A client with sufficient permissions can access files in the namespace without specifying the location of the files in storage. Junctioned volumes can reside anywhere in the cluster.

Rather than mounting every volume containing a file of interest, NAS clients mount an NFS *export* or access an SMB *share.* The export or share represents the entire namespace or an intermediate location within the namespace. The client accesses only the volumes mounted below its access point.

You can add volumes to the namespace as needed. You can create junction points directly below a parent volume junction or on a directory within a volume. A path to a volume junction for a volume named “vol3” might be `/vol1/vol2/vol3`, or `/vol1/dir2/vol3`, or even `/dir1/dir2/vol3`. The path is called the *junction path.*

Every SVM has a unique namespace. The SVM root volume is the entry point to the namespace hierarchy.

To ensure that data remains available in the event of a node outage or failover, you should create a *load-sharing mirror* copy for the SVM root volume.



A namespace is a logical grouping of volumes joined together at junction points to create a single file system hierarchy.

Example

The following example creates a volume named “home4” located on SVM vs1 that has a junction path `/eng/home`:

```
cluster1::> volume create -vserver vs1 -volume home4 -aggregate aggr1
-size 1g -junction-path /eng/home
[Job 1642] Job succeeded: Successful
```

What the typical NAS namespace architectures are

There are several typical NAS namespace architectures that you can use as you create your SVM name space. You can choose the namespace architecture that matches your business and workflow needs.

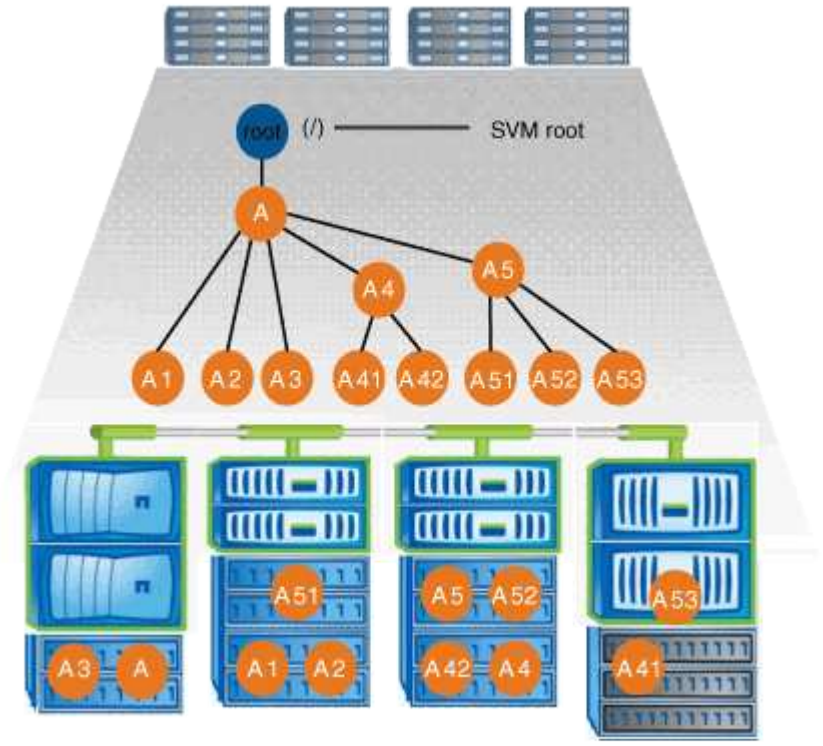
The top of the namespace is always the root volume, which is represented by a slash (/). The namespace architecture under the root falls into three basic categories:

- A single branched tree, with only a single junction to the root of the namespace

- Multiple branched trees, with multiple junction points to the root of the namespace
- Multiple stand-alone volumes, each with a separate junction point to the root of the name space

Namespace with single branched tree

An architecture with a single branched tree has a single insertion point to the root of the SVM namespace. The single insertion point can be either a junctioned volume or a directory beneath the root. All other volumes are mounted at junction points beneath the single insertion point (which can be a volume or a directory).

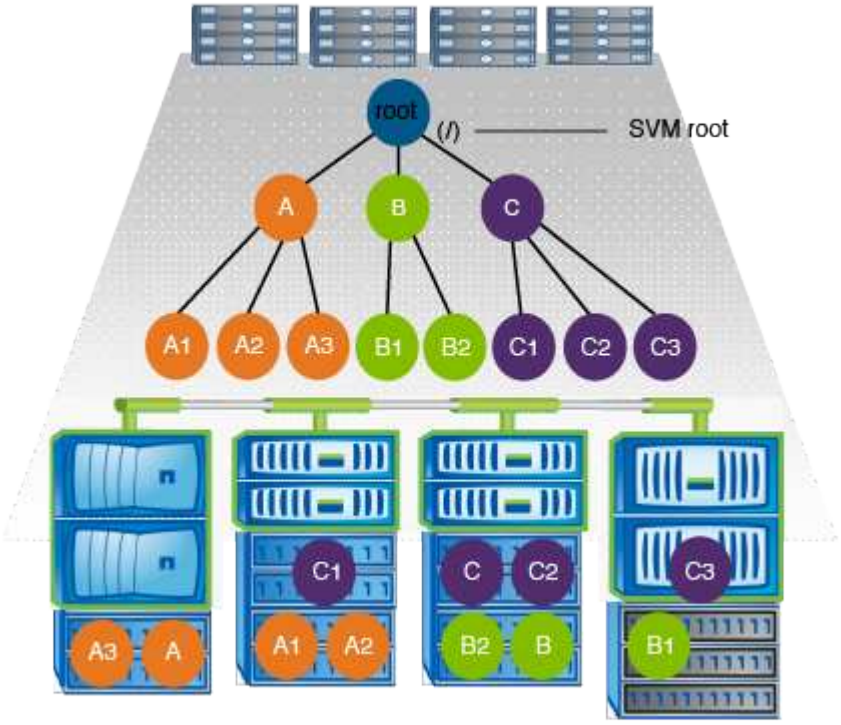


For example, a typical volume junction configuration with the above namespace architecture might look like the following configuration, where all volumes are junctioned below the single insertion point, which is a directory named “data”:

```
                    Junction                        Junction
Vserver Volume      Active   Junction Path          Path Source
------- ----------- -------- --------------------   -----------
vs1     corp1       true     /data/dir1/corp1       RW_volume
vs1     corp2       true     /data/dir1/corp2       RW_volume
vs1     data1       true     /data/data1            RW_volume
vs1     eng1        true     /data/data1/eng1       RW_volume
vs1     eng2        true     /data/data1/eng2       RW_volume
vs1     sales       true     /data/data1/sales      RW_volume
vs1     vol1        true     /data/vol1             RW_volume
vs1     vol2        true     /data/vol2             RW_volume
vs1     vol3        true     /data/vol3             RW_volume
vs1     vs1_root    -        /                      -
```

Namespace with multiple branched trees

An architecture with multiple branched trees has multiple insertion points to the root of the SVM namespace. The insertion points can be either junctioned volumes or directories beneath the root. All other volumes are mounted at junction points beneath the insertion points (which can be volumes or directories).



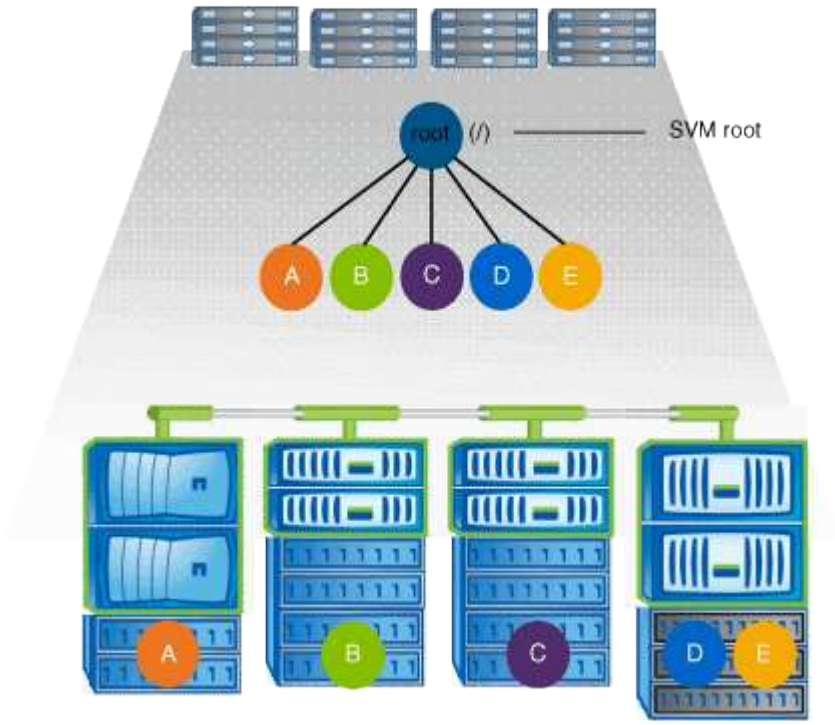
For example, a typical volume junction configuration with the above namespace architecture might look like the following configuration, where there are three insertion points to the root volume of the SVM. Two insertion points are directories named “data” and “projects”. One insertion point is a junctioned volume named “audit”:

```
                    Junction                        Junction
Vserver Volume      Active   Junction Path          Path Source
------- ----------- -------- --------------------   -----------
vs1     audit       true     /audit                 RW_volume
vs1     audit_logs1 true     /audit/logs1           RW_volume
vs1     audit_logs2 true     /audit/logs2           RW_volume
vs1     audit_logs3 true     /audit/logs3           RW_volume
vs1     eng         true     /data/eng              RW_volume
vs1     mktg1       true     /data/mktg1            RW_volume
vs1     mktg2       true     /data/mktg2            RW_volume
vs1     project1    true     /projects/project1     RW_volume
vs1     project2    true     /projects/project2     RW_volume
vs1     vs1_root    -        /                      -
```

Namespace with multiple stand-alone volumes

In an architecture with stand-alone volumes, every volume has an insertion point to the root of the SVM namespace; however, the volume is not junctioned below another volume. Each volume has a unique path,

and is either junctioned directly below the root or is junctioned under a directory below the root.



For example, a typical volume junction configuration with the above namespace architecture might look like the following configuration, where there are five insertion points to the root volume of the SVM, with each insertion point representing a path to one volume.

```
                    Junction                        Junction
Vserver Volume      Active   Junction Path          Path Source
------- ----------- -------- --------------------   -----------
vs1     eng         true     /eng                   RW_volume
vs1     mktg        true     /vol/mktg              RW_volume
vs1     project1    true     /project1              RW_volume
vs1     project2    true     /project2              RW_volume
vs1     sales       true     /sales                 RW_volume
vs1     vs1_root    -        /                      -
```

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