StratusLab

Enhancing Grid Infrastructures with Virtualization and Cloud Technologies

Persistent Disk Service

The StratusLab cloud distribution contains a service for managing "disk-like" storage areas. Disk-based abstractions allow both read-only distribution of disk images through the StratusLab Marketplace and persistent read-write disks within a particular cloud instance.

Users can continue to use their standard file-based storage services, provided that the clients for these services are available within the running virtual machine. In particular, grid users can continue to use the standard SRM interfaces for files stored on the grid.

Persistent Disks

These may be created and used by a single machine instance within a single cloud. They are useful for saving the persistent state of services.

Disks can be mounted when the machine starts, or added and removed dynamically if the VM supports ACPI.

Using a Persistent Disk

1. Create a disk with a given size via the web or command-line client.

2. Launch a machine instance referencing that disk image.

3. Partition (fdisk) and format (mkfs) the disk via the running virtual machine.

4. Store data to the disk as usual.

5. Dismount the disk or halt the machine instance.

6. Disk with the persistent data is available for use by another machine instance.
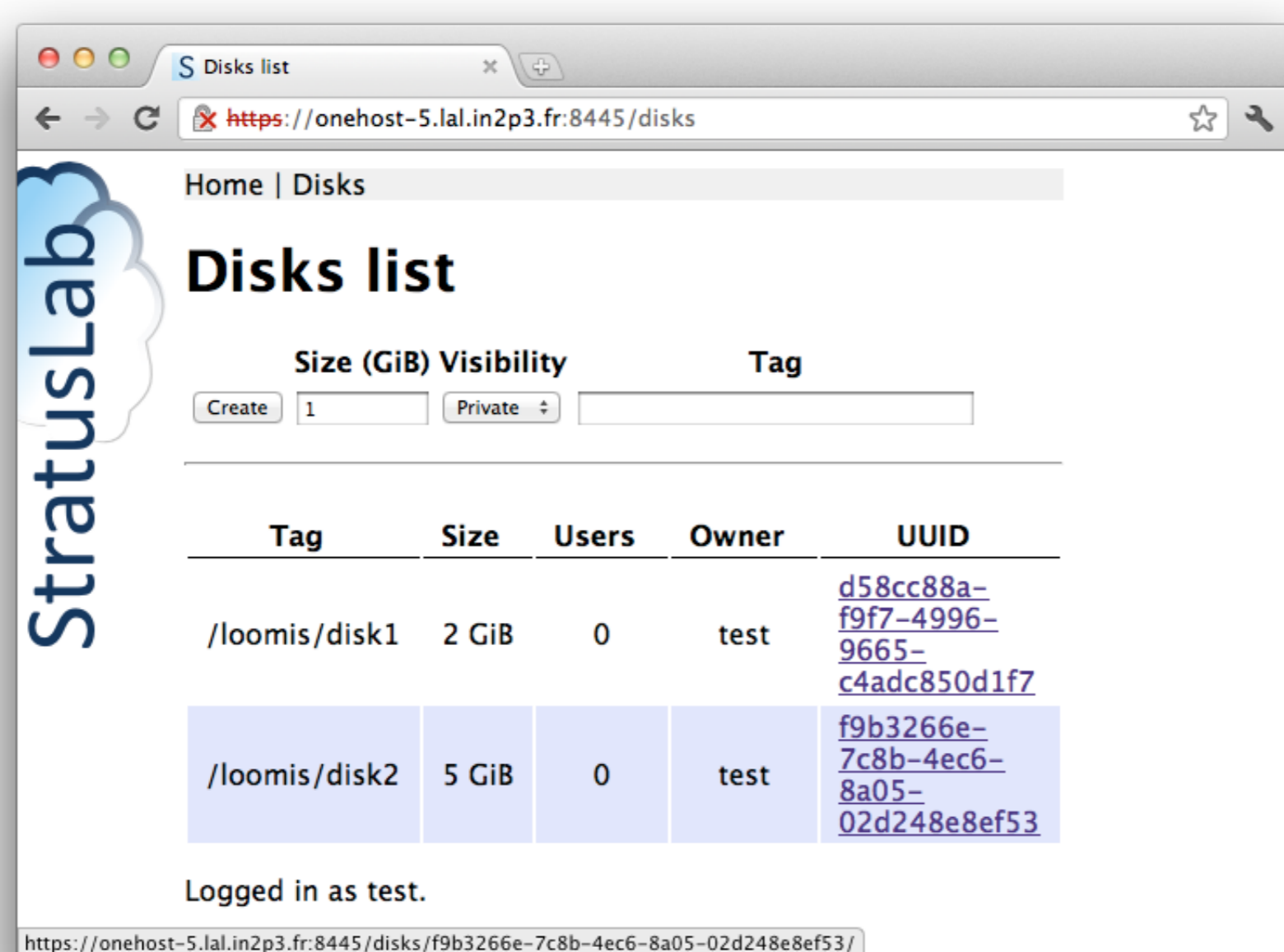
Shared Read-Only Disks

It is often useful to share datasets via read-only disks. This allows caching of these disks and sharing between different cloud instances. It also permits users to use specific versions of the database for their analyses.

These are supported though the Marketplace and via the StratusLab access and caching mechanisms.

Using a Shared Read-Only Disk

1. Launch a machine giving the Marketplace reference for the image.

2. Machine is launched with the given disk image on the given device (typically /dev/hdd).

3. Mount the disk on the machine and use the data for an analysis.

4. Dismount or halt the machine instance.

The disk is read-only and no changes can be made to the disk image.

Persistent disks can be created and managed via the web or command line interfaces, including dynamic mounting on running virtual machines.

1. Interact via browser or REST interface to create persistent disk images.

2. Start machine referencing the desired persistent disk image.

3. During initialization, the desired disk is mounted via iSCSI on physical host.

4. VM sees the disk as a standard IDE or SCSI disk device. No special software required on VM.