

How to backup/protect KVM Hosts and their VM client machines

1. What we need to backup/protect in case of disaster:

We need to protect VM clients, and KVM Hosts

How to protect

*Easy recover of a virtual client (i.e in case of failed upgrade)

*Full recovery of KVM Host in case of Host failure (either because of hardware failure of hosts, or os upgrade failure)

2. Backup & restore of vm machines with TSM

- Method 1 (currently used): Inside vm clients – Backup at file-level . This method should continue to be used, for easy backup/restore, of single files, directories etc
- Method 2: Image backup of VM clients from KVM Hosts.

3. Image Backup of VM Clients from KVM Hosts using TSM

On KVM Hosts , each VM client machine is a Logical Volume (LV), which is a member of a Volume Group (VG) on the machine.

TSM image backup, creates a snapshot of the corresponding LV in the same VG, and then proceeds with the backup and transfer of image to TSM server of the snapshot. When backup finishes, the snapshot automatically removed by the TSM process.

Requirements for KVM Hosts

- TSM ver 6.3.0 and above (limitations in 6.2.4 we currently use)
- Free space in VG which must be at least equal in size to the biggest LV that exists in VG

Requirements of TSM

- TSM database seems to increase in some KB
- Required storage needed to keep the image backup equals approximately the size of lv (tested on disk storage and tape storage)

Testing Image backup on Mestor and laso

KVM Host		Disk backups(image backup kept on local tsm disk)	Tape backups(image backup kept on tapes)	Restore time
Mestor	/dev/VMvgLocal/loizos-centosmin (19.53 GB size)	17.2 GB, 4.5 min for the backups	under investigation regarding the pace occupied, 4.5 min for the backups	depends on when to be done
laso	/dev/VMvgRemote/lisis.cs.ucy.ac.cy (100GB)		needs 30 minutes	

KVM Host Backup

- People responsible for VM clients should decide :
 1. How often to backup vm machines through image backup (weekly, 15-days, monthly, on request)
 2. Do we need to keep backups for all clients? (primary and secondary server)
 3. Do we need to backup primary on one week, secondary server next week and so on?
 4. How many versions we need to retain for each node (active and inactive versions)
 5. How long to keep the last version of backup, when machine is deleted/removed ?
 6. How often to test backup through restore on KVM testing hosts?

KVM Host Recover/Restore Testing procedures

Restore/Recover procedures of KVM should be perform on regular basis to :

- 1 Recover a single vm client on kvm host
- 2 Recover a KVM Host completely with its vm machine clients

- **TSM Server needs and resources**
 1. Based on answers above we will create a schedule, and a policy for the KVM Hosts
 2. Storage : We need to calculate how much storage is needed if we decide to store backups on disks.
 3. We may organize our backups to be kept first on disks and then on tapes (on tapes we may turn on collocation, where every backups from a single node, kept on same tapes) OR we may decide to keep primary server’s or crucial server’s backups on disks and then on tapes. For secondary servers or less important servers we may keep them directly on tapes (with collcation)
 4. Activate DR procedure for offsite tapes