
Virtualization Software: Xen

Lab. 2

Overview

- Task 1: Xen setup
 - Pre-installation
 - Infrastructure Setup
 - Installation
 - Post-installation
 - Virtual environment configuration: dom0 and Xend
- Task 2: VM (*DomU*) creation
 - Snapshots
 - Clones
- Task3: *DomU* management and resource control

Task 1: Infrastructure Setup

- Pre-installation
 - Check if VT-x enabled if not enable it in BIOS
 - [**LAB**] Storage setup: setup a LVM in /dev/sda7 (delete GRUB entry in ubuntu)
 - [**BYOD**] Storage setup LVM of 20GB
- Installation
 - Install from repositories (up to Xen 4.1)
 - Install from Xenproject.org (up to Xen 4.4)
 - Some functionalities are only available in 4.4 (v.gr. PVH)
 - Configure Xen as default entry in GRUB
 - Configure vCPU and min-max for dom0 (1 CPU and 1GB-2GB)
 - Reboot and check dmesg or other log for errors or warnings in hypervisor or dom0
- Post-installation
 - Configure xend networking (either NAT or bridge)
 - Fix X11 glitch in dom0
 - Reboot and check dmesg or other log for errors or warnings

Task 2: DomU installation (30%)

■ Installation

- Create a 10GB logical volume on sda7 and prepare a Debian 7 with SpecWeb2005 deployed
 - Use Ubuntu boot to perform a “dd” clone
- Clone the domU using a SAFE snapshot (called clon1)
- Make a compressed backup in a file
- Restore the backup to a monolithic file and use it for a third domU (called clon2)

Task3: DomU management (30%)

- Usage
 - Add all the domUs to xend-store
 - Boot/stop/destroy/checkpoint the domU base and compare the elapsed time in each operation
- Booting
 - Install the kernel from backports repository in base
 - Configure and use PV-GRUB in base
- Resource QoS (CPU)
 - Run concurrently three domU with of SpecCPU and compare with previous execution
 - Assign one physical core to each domU and repeat
 - Restrict CPU #2 and #3 for domU and repeat
 - Increase the weight of base 16x times and repeat
- Clean-up
 - Delete snapshots and clones

Grades

- Guide and presentation (25%)
- Content (75%)
 - Task 1: Infrastructure Setup (25%)
 - Task 2: DomU installation(25%)
 - Task 3: DomU management and resource control (25%)