Linux in a Virtual Environment

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Need for virtualization

Separate computer system:

- expensive
- low utilization of resources

Dual boot:

- boot time OS selection
- changes to a disk partition
- no concurrent execution

Virtualization

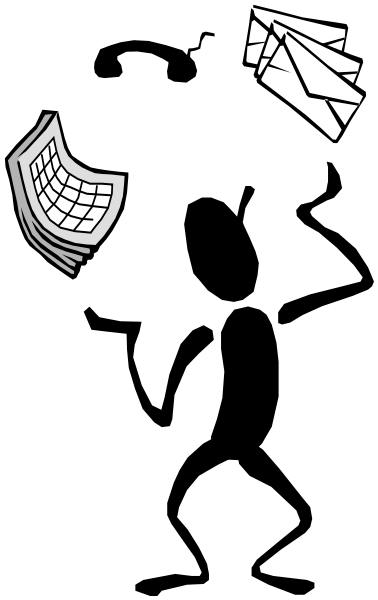
Supports virtual machines (VM)

The host operating system supports

guest operating system(s) VMs

with virtual resource allocation

Runtime sharing of resources



Virtualization Software

Microsoft Virtual PC

VMware

VirtualBox (open source)

Xen Hypervisor (open source)

VirtualBox

- Download Dir

  UserManual.pdf

  VirtualBox-4.1.8-75467-HostArch* (87.9 MB)

  Oracle_VM*-73507.vbox-extpack (9.3 MB)

- Download Fedora_16 (about 3.54 GB)

  32-bit: JCCL: \\buffalo\vmstorage-cgs3767\Fedora-16-i386-DVD.iso

  32-bit: http://torrent.fedoraproject.org/torrents/Fedora-16-i386-DVD.torrent

  64-bit: http://torrent.fedoraproject.org/torrents/Fedora-16-x86_64-DVD.torrent

Installation

- Run VirtualBox-4.1.8-75467-HostArch*
- Run VM_VirtualBox_Extension_Pack-4.1.8-75467. vbox-extpack
- Run Oracle VM VirtualBox Manager

  Follow the user manual

  New -> Next ->

  GuestOS name [Fedora_16_32 or 64],
  GuestOS type [Linux],
  GuestOS version [Fedora or Fedora (64 bit)]
  -> Next

Installation …

Memory [1024 MB]

Virtual Hard Disk

- Enable Start-up Disk
- Create new hard disk
- File type: VMDK
- Storage details: Fixed size
- Virtual disk file location(browse) and size [10 GB]
- Create -> Create

Installation of the Guest OS

VirtualBox Manager window

Select the new Virtual Hard Disk

Click Start menu button

Load the guest OS installation CD

or Browse to the ISO file

Install the Guest OS

in the Virtual Hard Disk

Installation of the Guest Additions

VirtualBox Manager window

Select the any Virtual Hard Disk

Click Start menu button

From the guest OS window

Device -> Install Guest Additions…

browse to VBoxGuestAdditions.iso in C:\program Files\Oracle\VirtualBox\ folder and install it

Sharing Folders

VirtualBox Manager window

Select the any Virtual Hard Disk

Click Start menu button

From the guest OS window

Device -> Shared Folders…

add a shared folder

Folder path (share location in Host)

Folder name (share name)

Enable “Make permanent” option only

Mounting Shared Folders

In the VM, login as root

Fedora: $ su - Ubuntu: $ sudo -i

Create mounting directory as

```
# mkdir /media/mountDir
```

Mount the share as

```
# mount –t vboxsf sharename mountpoint
```

or automate this permanently by adding the following line to /etc/fstab

```
sharename mountpoint vboxsf defaults 0 0
```

Limitations of virtualization

- Marginal performance degradation
- Each VM is associated with one user
- A VM cannot use all resources of the host

Conclusion

- Simple and reliable installations
- Snapshot feature for future restorations
- One guest OS in each VHDisk
- Concurrent execution of several OS and sharing files

http://users.cis.fiu.edu/~prabakar/resource/Linux

Thank you