

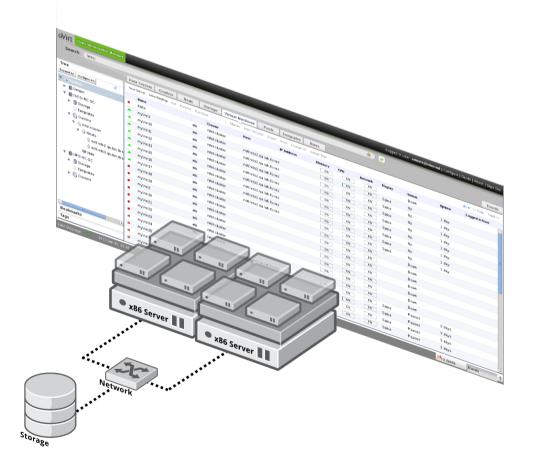
oVirt Introduction

Shanghai 2013

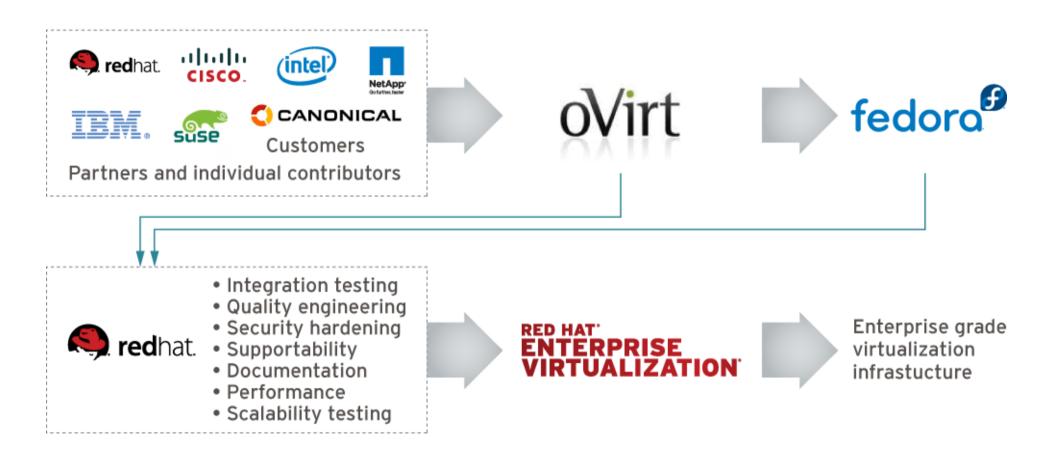
Doron Fediuck Red Hat

What is oVirt?

- Large scale, centralized management for server and desktop virtualization
- Based on leading performance, scalability and security infrastructure technologies
- Provides an open source alternative to vCenter/vSphere



OPEN VIRTUALIZATION MANAGEMENT OVIT



JBoss-based Java application

- Communicates with hypervisor nodes
- Manages VM lifecycle
- Controlled with:
 - Admin Portal
 - User Portal
 - REST API
 - Python SDK
 - Command Line Shell

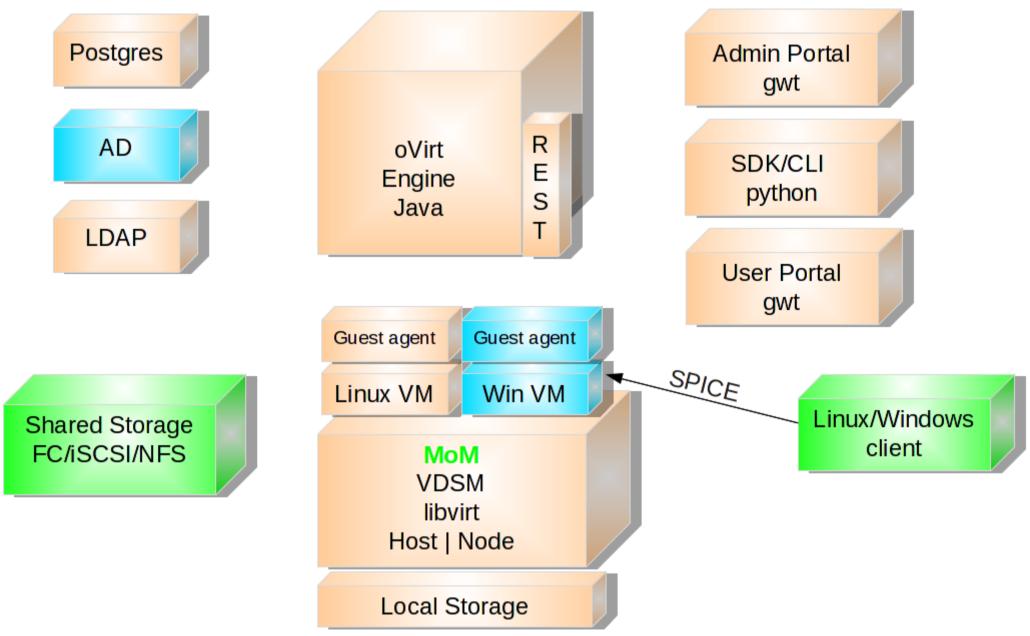
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Overview: architecture



Administration Console

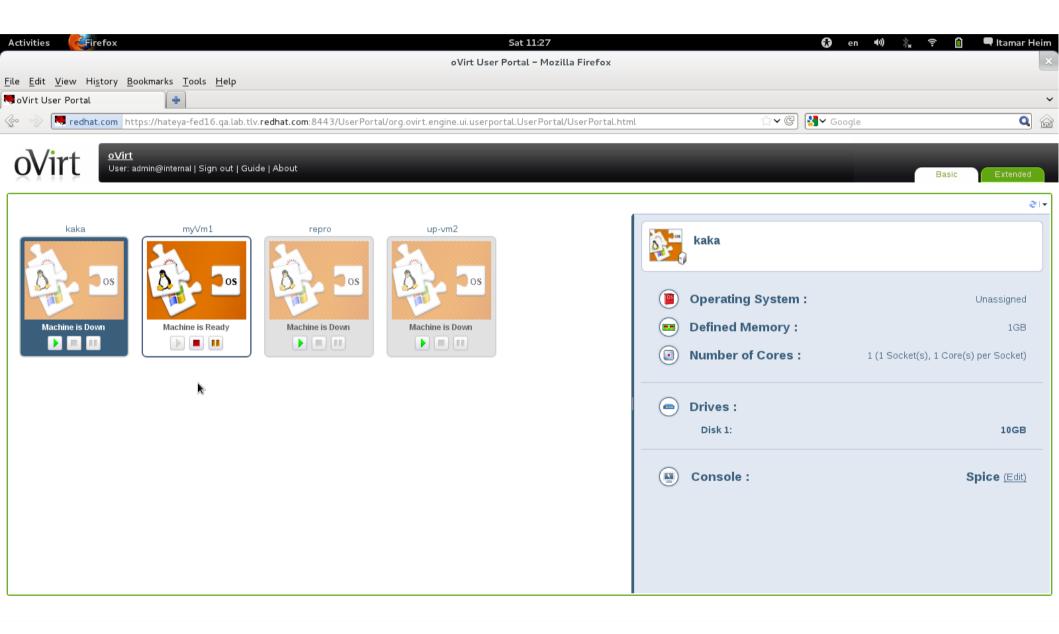
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Last Message: 🗹 2012-Jan-31, 23:18:41 User admin@internal logged in.

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Self Provisioning Portal

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REST API

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Power Management

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Setup Networks: Edit Bond

Click the pencil icon to edit bond configuration

oVirt

Setup Host Networks		
Drag to make changes		
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Host Aspects

oVirt

Logged in user: admin@internal | Configure | Guide | About | x X Virtual Machines Data Centers Clusters Hosts Networks Storage Disks Pools Templates Volumes Users 📕 💻 🦉 Migrate Cancel Migration Make Template Export Change CD Assign Tags 🍰 Guide Me New Server New Desktop Edit Remove Run Once 1-1 👻 🚽 æ Logged-in User Name Host Status Uptime New Server Virtual Machine (i) demo-vm zeus02 Up 2 days General Run On: demo-vm-2 Down Initial Run Any Host in Cluster linux-vm Down Console O Specific grey-vdsh nw-filter-vm-1 -Down Host Run/Migration Options: High Availability 📼 rhel63-vm zeus02 Up 2 h Run VM on the selected host (no migration allowed) Resource Allocation vm-1-dc-30-cluster-3 Down Allow VM migration only upon Administrator specific request (system will Boot Options vm-del-net-2 Down not trigger automatic migration of this VM) Custom Properties vm-del-net-bug Down vm-tempalte-test-1 Down CPU Pinning topology vm-tempalte-test-2 Down Format: v#p[v#p] Examples: vm-tempalte-test-3 Down 0#0 => pin vCPU 0 to pCPU 0 vm-tempalte-test-4 Down 0#0 1#3 => pin vCPU 0 to pCPU 0 and pin VCPU 1 to pCPU 3 win2008 Down •1#1-4, ^2 => pin vCPU 1 to pCPU set 1 to 4, excludina 2 General Network Interfaces Name: nwfilter-vm-Origin: oVirt Run On: Description: Any Host in Cluster Template: Blank Custom Properties: Not-Configured Cluster Compatibility Version: 3.2 Operating System: Red Hat Ent OK Cancel Default Display Type: Spice Priority: Low

High Availability

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Control Allocated Resources (Disk, Memory)

Logged in user: admin@internal | Configure | Guide | About | x X Virtual Machines Data Centers Clusters Hosts Networks Storage Disks Pools Templates Volumes Users II 📕 🖳 Migrate Cancel Migration Make Template Export Change CD Assign Tags 🍰 Guide Me New Server New Desktop Edit Remove Run Once 1-1 👻 🚽 æ Uptime Logged-in User Name Host Status New Server Virtual Machine demo-vm zeus02 Up 2 days General Memory Allocation: demo-vm-2 Down Initial Run Physical Memory Guaranteed 512 MB linux-vm Down Console nw-filter-vm-1 Down Host Storage Allocation: (Available only when a template is selected) High Availability Template Provisioning O Thin Clone rhel63-vm zeus02 Up 2 h **Resource** Allocation vm-1-dc-30-cluster-3 Down Boot Options vm-del-net-2 Down Custom Properties vm-del-net-bug Down vm-tempalte-test-1 Down vm-tempalte-test-2 Down vm-tempalte-test-3 Down vm-tempalte-test-4 Down win2008 Down General Network Interfaces Name: nwfilter-vm-Origin: oVirt Run On: Description: Any Host in Cluster Template: Blank Custom Properties: Not-Configured Cluster Compatibility Version: 3.2 Operating System: Red Hat Ent OK Cancel Default Display Type: Spice Priority: Low

Boot Devices

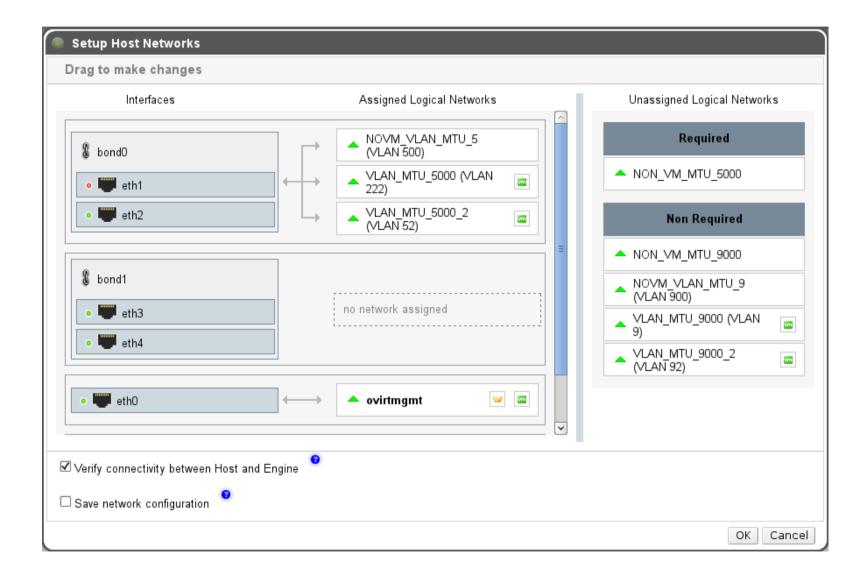
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Advanced Options via Custom Properties OVirt

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Setup Networks: Dialog



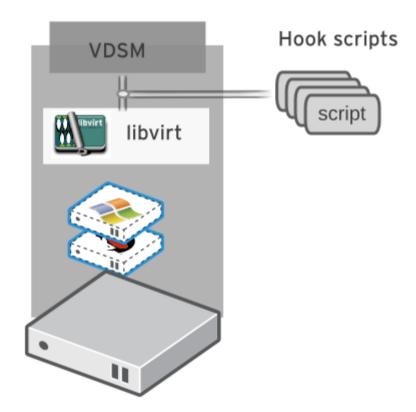
Controlling resources: Quota

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Hooks

- "Hook" mechanism for customization
 - Allows administrator to define scripts to modify VM operation
 - eg. Extend or modify VM configuration



Hooks



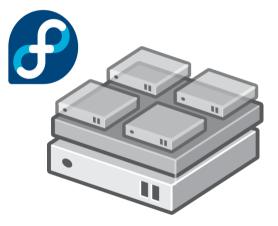
- Hook scripts are called at specific VM lifecycle events
 - VDSM (management agent) Start
 - Before VM start
 - After VM start
 - Before VM migration in/out
 - After VM migration in/out
 - Before and After VM Pause
 - Before and After VM Continue
 - Before and After VM Hibernate
 - Before and After VM resume from hibernate
 - Before and After VM set ticket
 New in 3.1
 - On VM stop
 - On VDSM Stop
- Hooks can modify a virtual machines XML definition before VM start
- Hooks can run system commands eg. Apply firewall rule to VM

oVirt - Full Host

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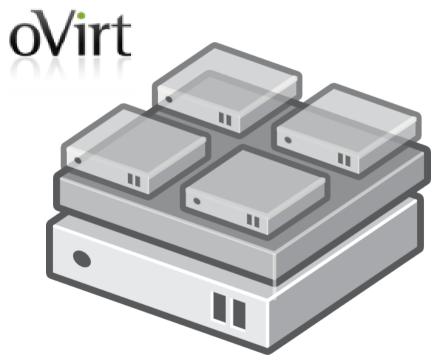
Full Host

- · Flexible
- Add monitoring agents, scripts etc.
 Leverage existing infrastructure.
- Hybrid mode capable



oVirt Node

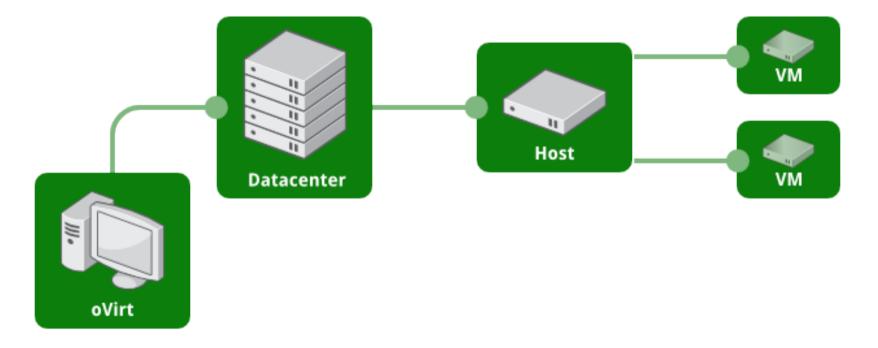




- Standalone hypervisor
 - Small footprint ~ 170MB
 - Customized 'spin' of Fedora + KVM
 - 'Just enough' Fedora to run virtual machines
 - Runs on all RHEL hardware with Intel VT/AMD-V CPUs
 - Easy to install, configure and upgrade
 - PXE boot, USB boot, CD or Hard drive

Example 1: One Host Environment

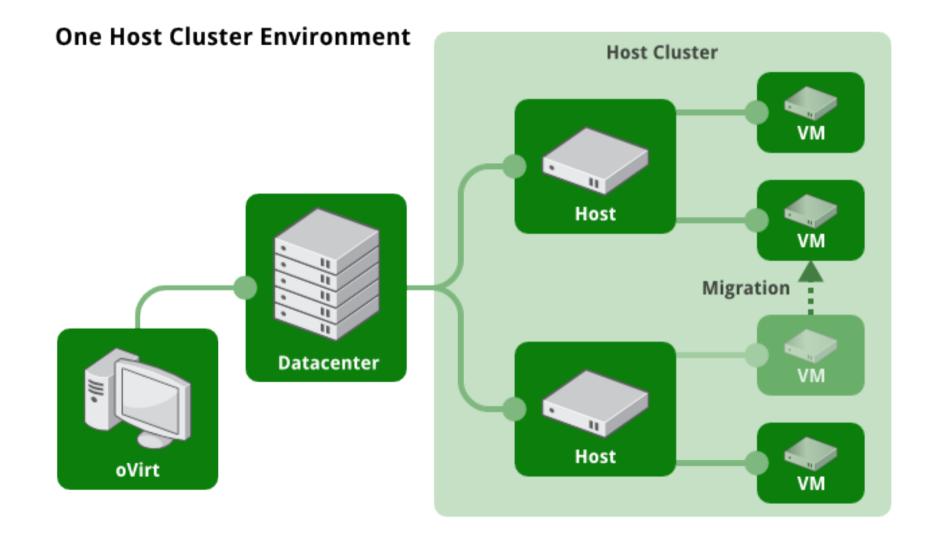
Basic One Host Environment



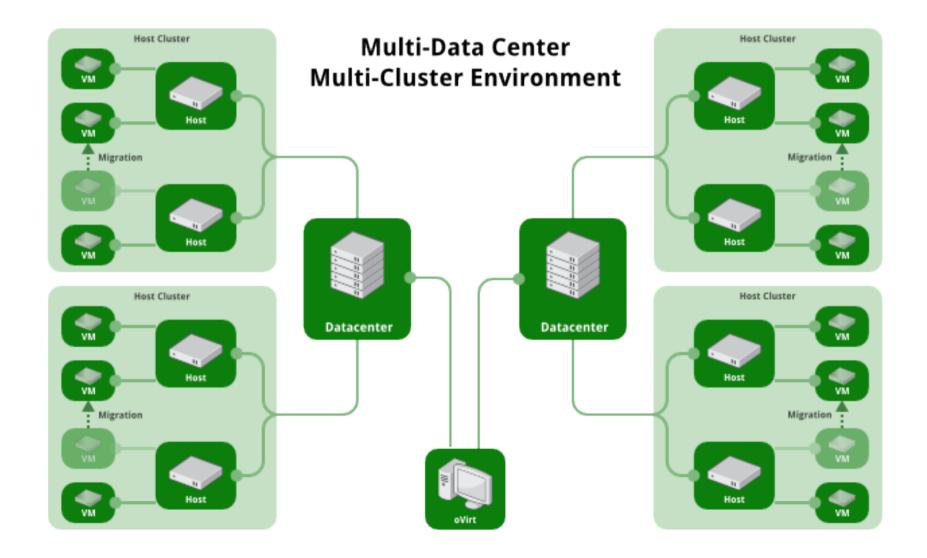
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Example 2: Multiple hosts





Example 3: Multi-Datacenter/Multi-Host



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Features



Feature	Description
Scalability	Extend your virtualization environment by adding more host nodes
High Availability	Restart guest VMs from failed hosts automatically on other hosts
Host Live Migration	Move running VM between hosts with zero downtime
Storage Live Migration	Move running VM between storage domains with zero downtime
Network Filtering	Control network traffic in your virtualization environment
Port Mirroring	Mirror network traffic to a specific VM
Image Management	Template based provisioning, thin provisioning and snapshots
Live Snapshots	Take snapshot of a running virtual machine
Direct LUNs	Being able to attach block devices as volumes directly to virtual machines
Shared/Floating Disks	Share and hotplug disks between virtual machines

Features



Feature	Description
System Scheduler	Continuously load balance VMs based on resource usage/policies
Power Saver	Concentrate virtual machines on fewer servers during off-peak hours
Maintenance Manager	No downtime for virtual machines during planned maintenance windows. Hypervisor patching
Monitoring Tools	For all objects in system – VM guests, hosts, networking, storage etc.
SLA-MOM	A policy engine to help with memory management
Reports	Customized JasperReports and JasperServer reporting tools
OVF Import/Export	Import and export VMs and templates using OVF files
V2V & P2V	Convert Physical servers or VMs from Vmware and Xen
Remote Access	SPICE and VNC protocols for accessing your virtual machines
USB and Smartcards	Passthrough USB and Smartcards to VMs

Features



Feature	Description
Gluster Support	Manage your Gluster volumes and bricks, and integrate them with oVirt
REST API	RESTful web service using HTTP methods to control oVirt objects
Development Tools	Python SDK and CLI Shell

New in 3.2



Infrastructure

The administration portal supports custom user interface (UI) plugins written in JavaScript. Live Snapshots of a virtual machine can now be created without first having to stop it. Support has been added for the Windows 8, Windows 8 x64, and Windows 2012.

Storage

Supporting storage live migration. Enables migration of disks between storage without downtime. Supporting storage domain live upgrade. Enables upgrade from the old to the new V3 domain, online.

Performance

Memory Overcommit Manager (MOM) is enabled by default for hosts. It provides the ability to manage memory ballooning and Kernel Same-page Merging (KSM) of the Linux kernel

Virtualization

Virtual machines can now utilize the host's CPU flags, enables better performance in VM. Clusters can now be configured to treat host CPU threads as cores for the purposes of virtual machine resource allocation and migration.

User Interface

A new "Network" tab has been added to the main resource tabs oVirt Engine now retrieves and displays host BIOS information when a host is added to the engine

35+ additional new features listed at: http://www.ovirt.org/OVirt_3.2_release_notes

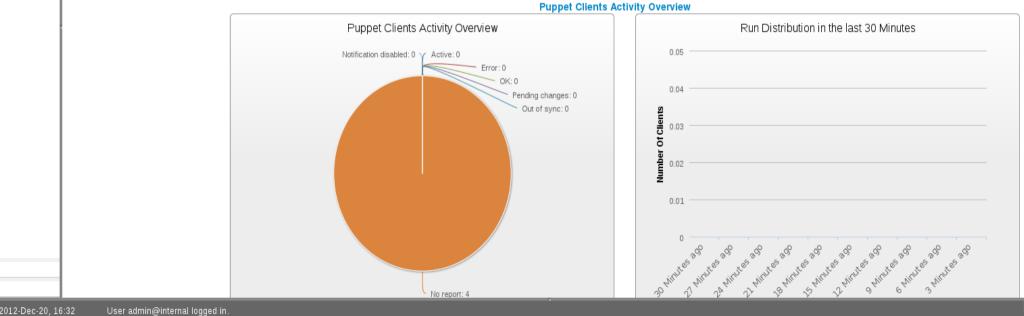
UI-Plugin: Foreman main tab



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UI-Plugin: oVirt Monitoring sub-tab

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More info at: https://labs.ovido.at/monitoring/wiki/ovirt-monitoring-ui-plugin

Getting oVirt



- Obtain from oVirt website
- Live USB http://wiki.ovirt.org/wiki/OVirt_Live
- Build from source
- Fedora repositories
 - yum install ovirt-engine
 - engine-setup
 - Add managed hosts

oVirt

Join the community

- Find bugs, File Them, Correct Them.
- Translate, Write Documentation.
- Design Interfaces, Develop new features
- Share your experiences.

Everyone can make a difference.

- Website and Repository:
 - http://www.ovirt.org
 - http://www.ovirt.org/wiki
 - http://www.ovirt.org/project/subprojects/

- Mailing lists:
 - http://lists.ovirt.org/mailman/listinfo
- IRC:
 - #ovirt on OFTC



THANK YOU !

http://www.ovirt.org