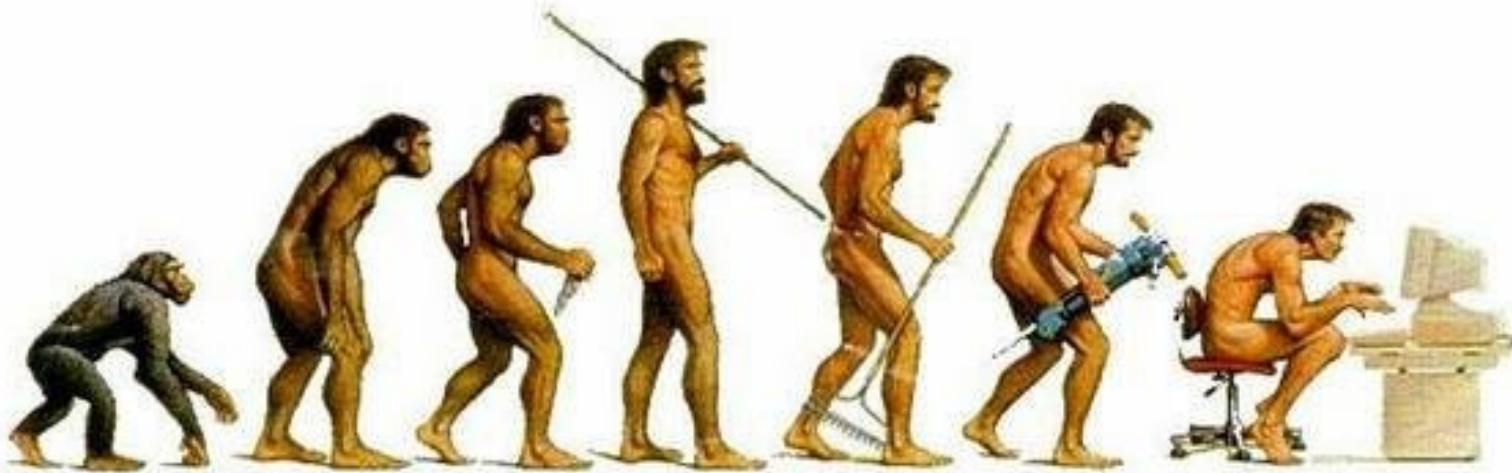




VE Evolution





Modern Infrastructure for Oracle (and beyond)

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KVM – Kernel-based Virtual Machine



- since 2006 by Qumranet, acquired by Red Hat in 2008
- clouds based on KVM: Openstack, IBM Cloud, Rackspace, Google, ...
- virtualizations based on KVM: Red Hat Enterprise Virtualization, Oracle Virtualization, Proxmox VE, oVirt, ...





KVM – Kernel-based Virtual Machine

Run a VM

```
# qemu-system-x86_64 -enable-kvm -hda /tmp/test.raw  
VNC server running on 127.0.0.1:5900
```

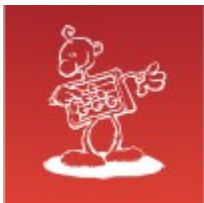
- initial parameters of VM are specified in a command line
- default graphical console is at VNC localhost:5900 (or specified in command line)
- VM management goes through UNIX socket (JSON format) or QEMU/Monitor (Ctrl-Alt-2)

Manage a VM – example: eject CD/DVD

```
# find and connect to right socket
```

```
{ "execute": "eject", "arguments": { "device": "ide1-cd0" } }  
{"return": {}}
```





libvirt



- since 2005 by Red Hat
<https://libvirt.org/>
- is a toolkit to manage virtualization platforms
- XML configuration

Manage a VM – example: eject CD/DVD

```
# virsh change-media VMname hdc --eject  
succeeded to complete action eject on media
```





GUI Management

- 44 management utilities
according to https://www.linux-kvm.org/page/Management_Tools
- Oracle Linux Virtualization Manager is not one of them, oVirt is





Red Hat Virtual Machine Manager



- since 2008 by Red Hat
<https://virt-manager.org/>
- Red Hat Virtual Machine Manager, also known as virt-manager, is a **desktop** virtual machine manager/monitor
- just tool, not an environment





virt-manager

File Virtual Machine View Send Key

Overview OS information Performance CPUs Memory Boot Options VirtIO Disk 1 NIC :b9:6c:87 NIC :76:e9:f3 Tablet Mouse Keyboard Display Spice Serial 1 Channel qemu-ga Channel spice Video Virtio Controller USB 0 Controller SATA 0 Controller PCIe 0 Controller VirtIO Serial 0 USB Redirector 1 USB Redirector 2 RNG /dev/urandom

+ Add Hardware

Details XML

CPU usage

55 %

Memory usage

1522 MiB of 4096 MiB

Disk I/O

0 KiB/s read 20 KiB/s write

Network I/O

1 KiB/s in 0 KiB/s out

Prekliči Uveljavi



Proxmox VE



- since 2008 by Proxmox Server Solutions GmbH, Austria
<https://www.proxmox.com/en/proxmox-ve>
- web-based graphical interface management
- simple and intuitive use
- robust, not easy to break
- **well integrated with all modern hardware and storage systems**
- can be all-in-one solution



Proxmox VE



Browser address bar: <https://kvm1:8006/#v1:0=qemu%2F10083:4:.....>

Page title: Proxmox Virtual Environment 7.1-8

Server View: Virtual Machine 10083 (artemis) on node 'kvm1'

Summary for VM 10083 (artemis):

- Status: running
- HA State: started, Group: none
- Node: kvm1
- CPU usage: 13.51% of 8 CPU(s)
- Memory usage: 96.45% (15.43 GiB of 16.00 GiB)
- Bootdisk size: 180.00 GiB
- IPs: No Guest Agent configured

Notes: tukaj gor teče IPA in APPM. Pa tudi abakus docker repository, čeprav mislim, da se ta ne uporablja več.

CPU usage (Hourly average):

Memory usage (Total and RAM usage):

Network traffic (netin and netout):

Disk IO (diskread and diskwrite):

Tasks:

Start Time	End Time	Node	User name	Description	Status
May 25 06:22:03		kvm1	root@pam	VM/CT 50108 - Console	
May 25 02:47:44	May 25 02:47:45	kvm2	root@pam	VM 99007 - Stop	OK



Modern Infrastructure

Boris will now tell us about the experience with the Oracle database in virtual and non-virtual environments.

Thank you

