

Virtualization

the big squeeze

Marius Cornea

Why ?



Tipuri de virtualizare (hipervizoare)

Native (Type 1): VMware ESXi, Xen, KVM

Hosted (Type 2): Virtualbox, VMware Workstation

Containers: LXC, Docker

KVM - Kernel-based Virtual Machine

- virtualizare hardware - Intel VT or AMD-V
- modul kernel - kvm.ko
- suport pentru majoritatea SO
- device-uri I/O paravirtualizate

Resurse

- Compute
- Storage
- Networking

Compute

VM definition:

- vCPUs
- memory
- I/O devices

```
<domain type='kvm'>
  <name>kvm4</name>
  <uuid>85badf15-244d-4719-a2da-8c3de0641373</uuid>
  <memory>1677721</memory>
  <currentMemory>1677721</currentMemory>
  <vcpu>1</vcpu>
  <os>
    <type arch='x86_64' machine='pc'>hvm</type>
    <boot dev='cdrom'>/>
  </os>
  <features>
    <acpi/>
    <apic/>
    <pae/>
  </features>
  <clock offset='localtime'>/>
  <on_poweroff>destroy</on_poweroff>
  <on_reboot>destroy</on_reboot>
  <on_crash>destroy</on_crash>
  <devices>
    <emulator>/usr/libexec/qemu-kvm</emulator>
    <disk type='file' device='disk'>
      <source file='/var/lib/libvirt/images/kvm4.img'>/>
      <target dev='hda' bus='ide'>/>
    </disk>
    <disk type='file' device='cdrom'>
      <source file='/tmp/SLES-11-DVD-i586-GM-DVD1.iso'>/>
      <target dev='hdb' bus='ide'>/>
      <readonly/>
    </disk>
    <disk type='file' device='cdrom'>
      <source file='/tmp/SLES-11-DVD-i586-GM-DVD2.iso'>/>
      <target dev='hdc' bus='ide'>/>
      <readonly/>
    </disk>
    <interface type='bridge'>
      <source bridge='br0'>/>
      <mac address='0E:1F:35:AB:45:0C'>/>
    </interface>
    <input type='mouse' bus='ps2'>/>
    <graphics type='vnc' port='-1' autoport='yes' keymap='en-us'>/>
  </devices>
</domain>
```

tools -> libvirt - virtualization API

virsh, virt-manager, virt-install

Storage

path -> DAS, iSCSI, NFS, FC, GlusterFS, Ceph

format -> raw, qcow2, vmdk

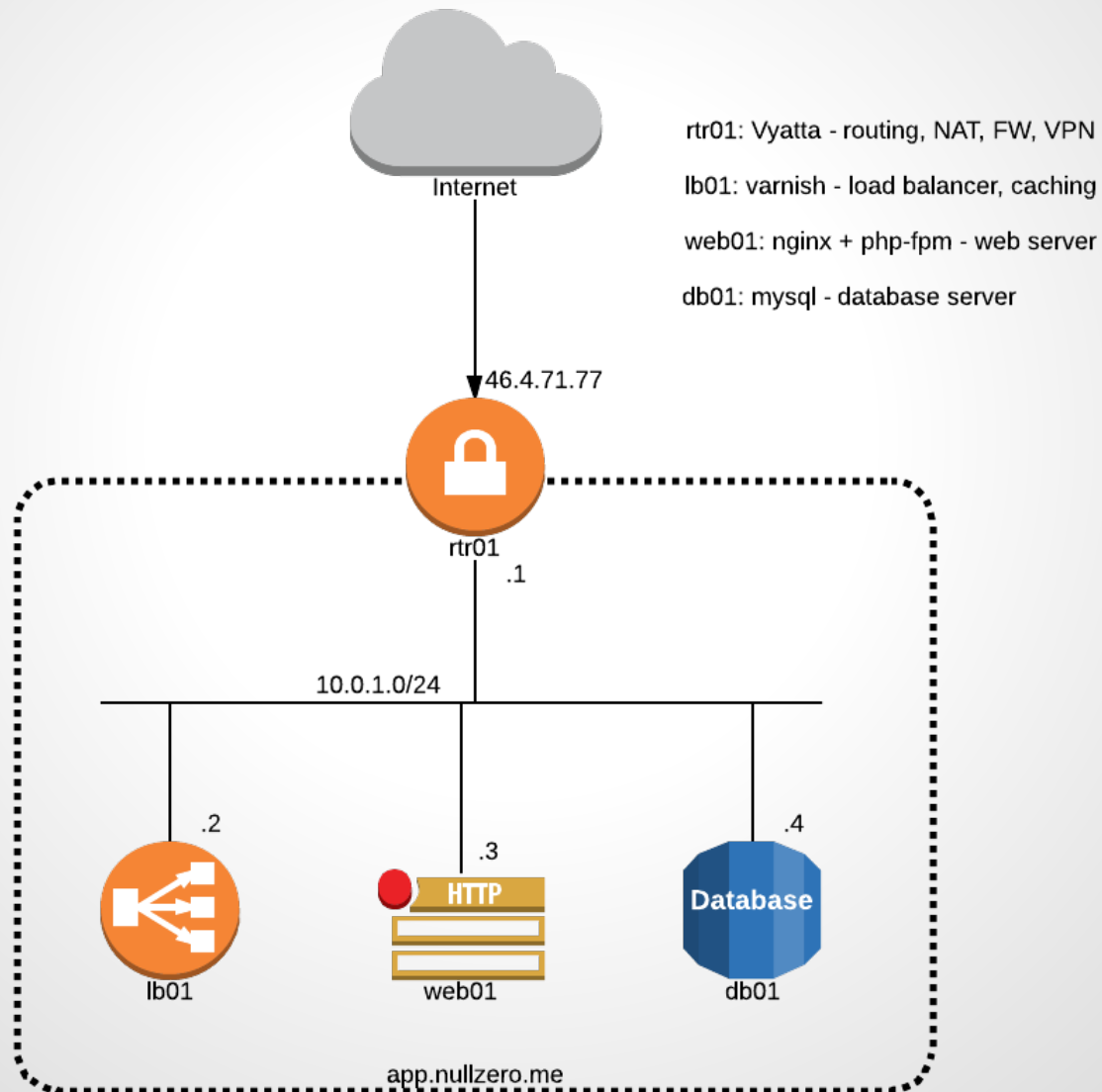
tools -> qemu-img, qemu-nbd

Networking

- Linux bridges
- Open vSwitch

tools -> ovs-vsctl, ovs-ofctl, ovs-dpctl

Infrastructura de aplicatie



Intrebari ?

Marius Cornea -> Infrastructure Admin

marius@remote-lab.net

<https://remote-lab.net>

<https://remote-lab.net/virtualized-application-infrastructure/>