oVirt networking

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Agenda

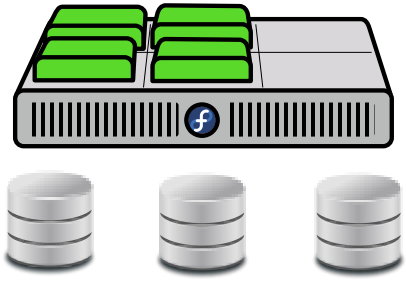
- Introduction
- Features
- Architecture
- Configuration
- Roadmap
- Conclusion

Introduction

Virtual datacenter management

Apache License 2.0

Fedora and RHEL compatible
(Gentoo & Ubuntu in the making)
Organized in subprojects



Features
Architecture
Configuration
Roadmap
Conclusion

Features

Graphical network management
- VM/non-VM networks
- Migration, Display network

Required/Optional networks

Configurable MTU (Jumbo frames)

Rollback

Features

Port mirroring

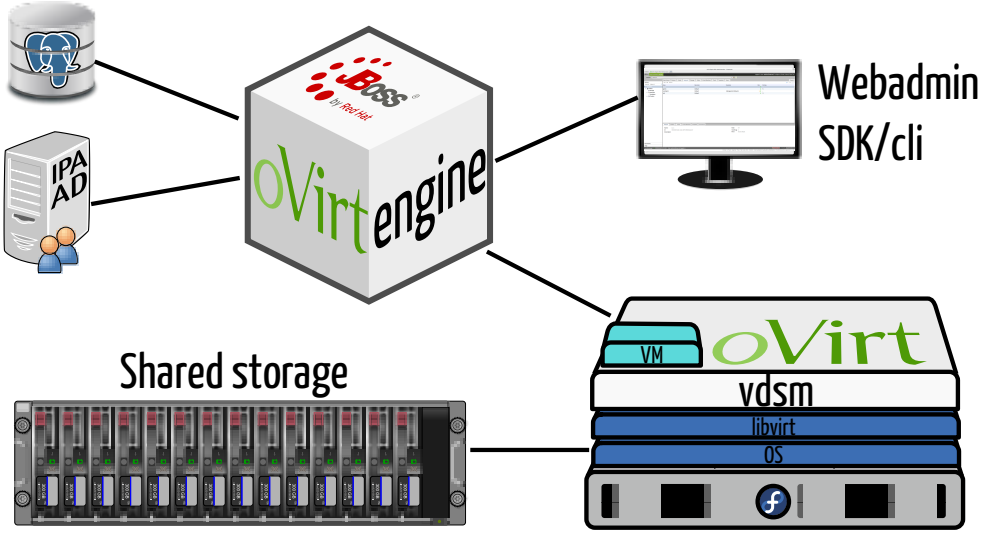
Hot plug/unplug nic

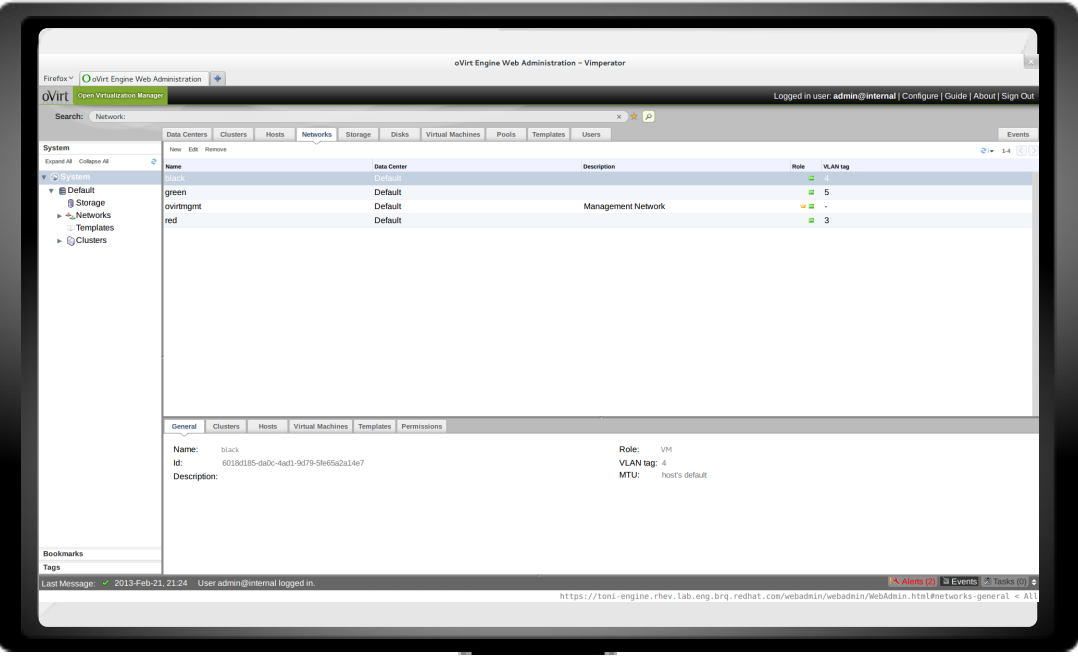
Network linking

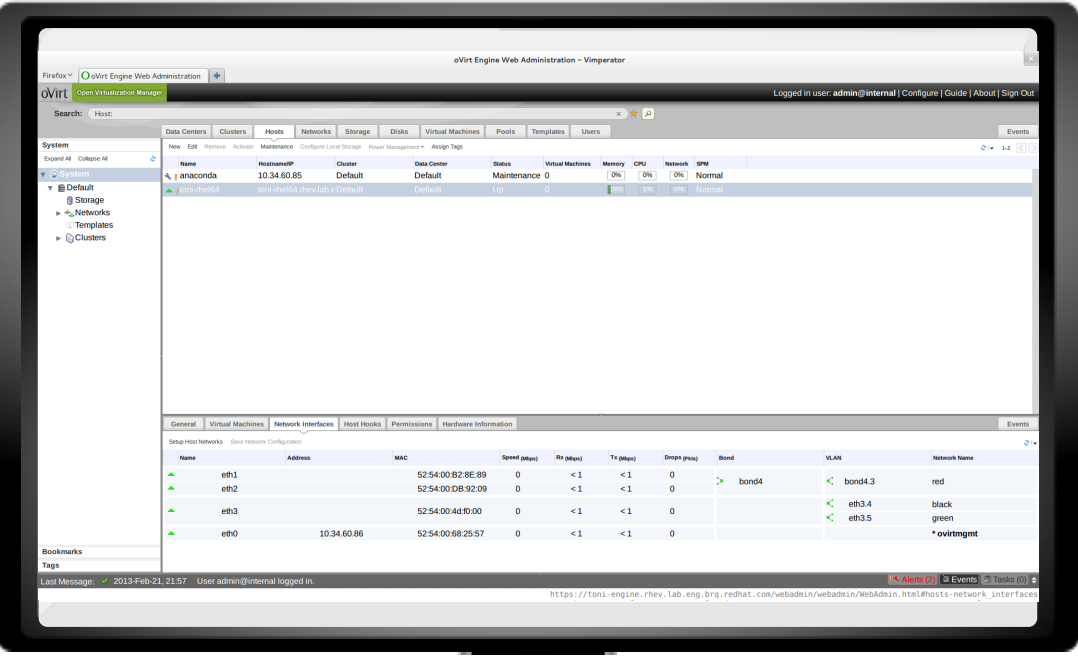
Network filters (anti-spoofing)

Extenstible by hooks

Architecture




oVirt Engine Web Administration – Vimperator
Firefox
oVirt Engine Web Administration
oVirt
Open Virtualization Manager
Logged in user: admin@internal | Configure | Guide | About | Sign Out
Search:
Network:
Data Centers
Clusters
Hosts
Networks
Storage
Disks
Virtual Machines
Pools
Templates
Users
Events
System
Expand All
Collapse All
New
Edit
Remove
1-4
Name
Data Center
Description
Role
VLAN tag
black
Default
4
green
Default
5
ovirtmgmt
Default
Management Network
-
red
Default
3
Default
Storage
Networks
Templates
Clusters
General
Clusters
Hosts
Virtual Machines
Templates
Permissions
Name: black
Id: 6018d185-da0c-4ad1-9d79-5fe65a2a14e7
Description:
Role: VM
VLAN tag: 4
MTU: host's default
Bookmarks
Tags
Last Message: 2013-Feb-21, 21:24 User admin@internal logged in.
Alerts (2)
Events
Tasks (0)
https://toni-engine.rhev.lab.eng.brq.redhat.com/webadmin/webadmin/WebAdmin.html#networks-general < All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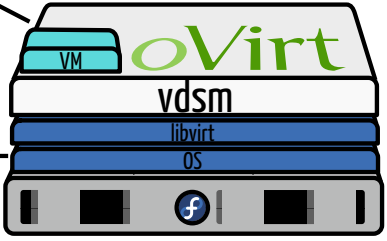
Templates
Users
Events
System
Expand All
Collapse All
New
Edit
Remove
Activate
Maintenance
Configure Local Storage
Power Management
Assign Tags
Name
Hostname/IP
Cluster
Data Center
Status
Virtual Machines
Memory
CPU
Network
SPM
anaconda
10.34.60.85
Default
Default
Maintenance
0
0%
0%
0%
Normal
toni-rhel64
toni-rhel64.rhev.lab.e
Default
Default
Up
0
1%
1%
0%
Normal
System
Default
Storage
Networks
Templates
Clusters
Bookmarks
Tags
General
Virtual Machines
Network Interfaces
Host Hooks
Permissions
Hardware Information
Events
Setup Host Networks
Save Network Configuration
Name
Address
MAC
Speed (Mbps)
Rx (Mbps)
Tx (Mbps)
Drops (Pkts)
Bond
VLAN
Network Name
eth1
52:54:00:B2:8E:89
0
< 1
< 1
0
bond4
bond4.3
red
eth2
52:54:00:DB:92:09
0
< 1
< 1
0
eth3.4
black
eth3
52:54:00:4d:f0:00
0
< 1
< 1
0
eth3.5
green
eth0
10.34.60.86
52:54:00:68:25:57
0
< 1
< 1
0
* ovirtmgmt
Last Message:
2013-Feb-21, 21:57
User admin@internal logged in.
Alerts (2)
Events
Tasks (0)
https://toni-engine.rhev.lab.eng.brq.redhat.com/webadmin/webadmin/WebAdmin.html#hosts-network_interfaces

Architecture: engine

Aggregate host info
Validate commands
Call hosts' VDSM

Shared storage



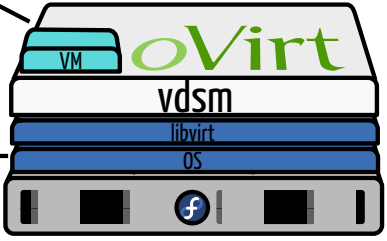
Architecture: vdsm

Gather network info

Validate configuration

Apply configuration

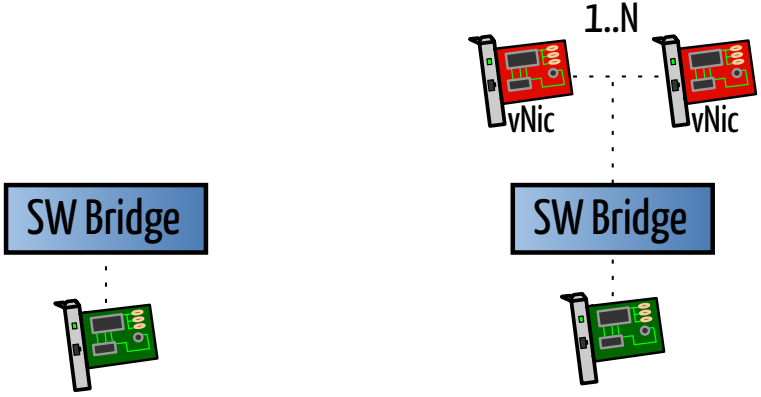
Shared storage



Configuration
Roadmap
Conclusion

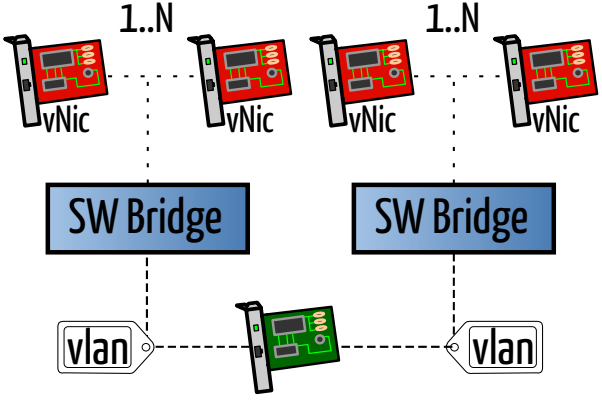
Configuration

VM networks



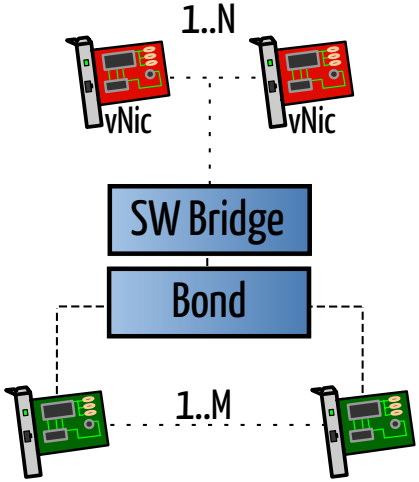
Configuration

VM networks: share/segregate



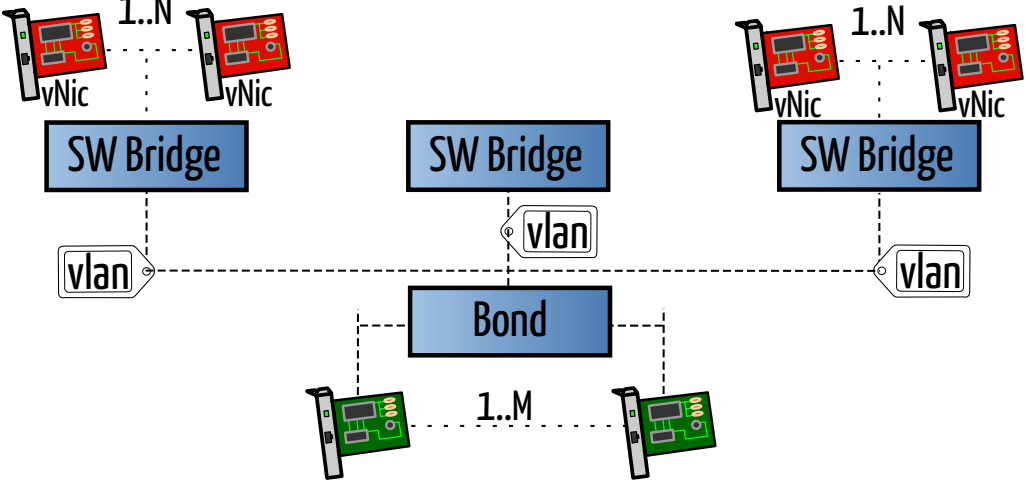
Configuration

VM networks: bonding



Configuration

VM networks: combined

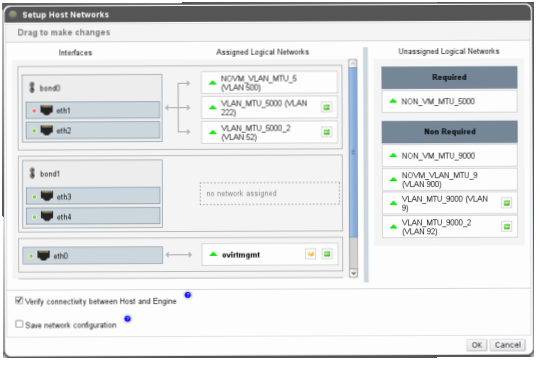


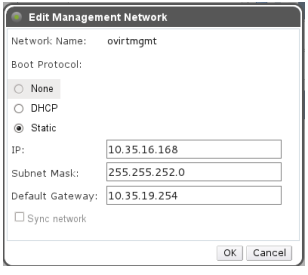
Configuration

networks: Drag & drop UI

Attach nets to dev

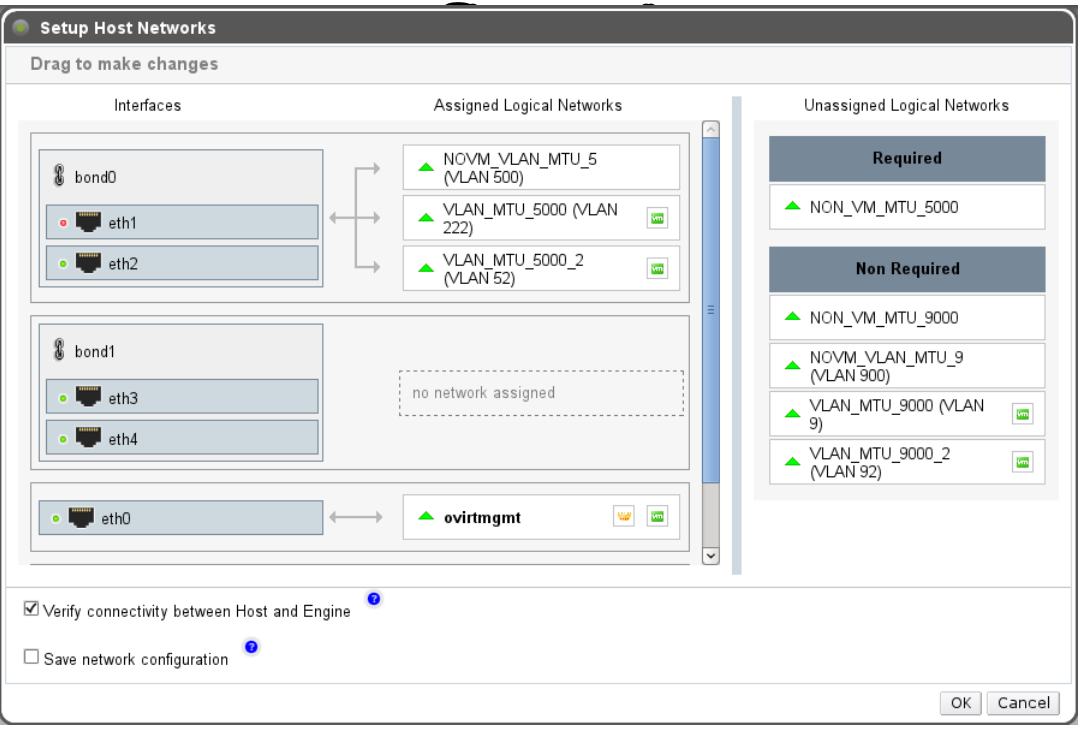
Bond

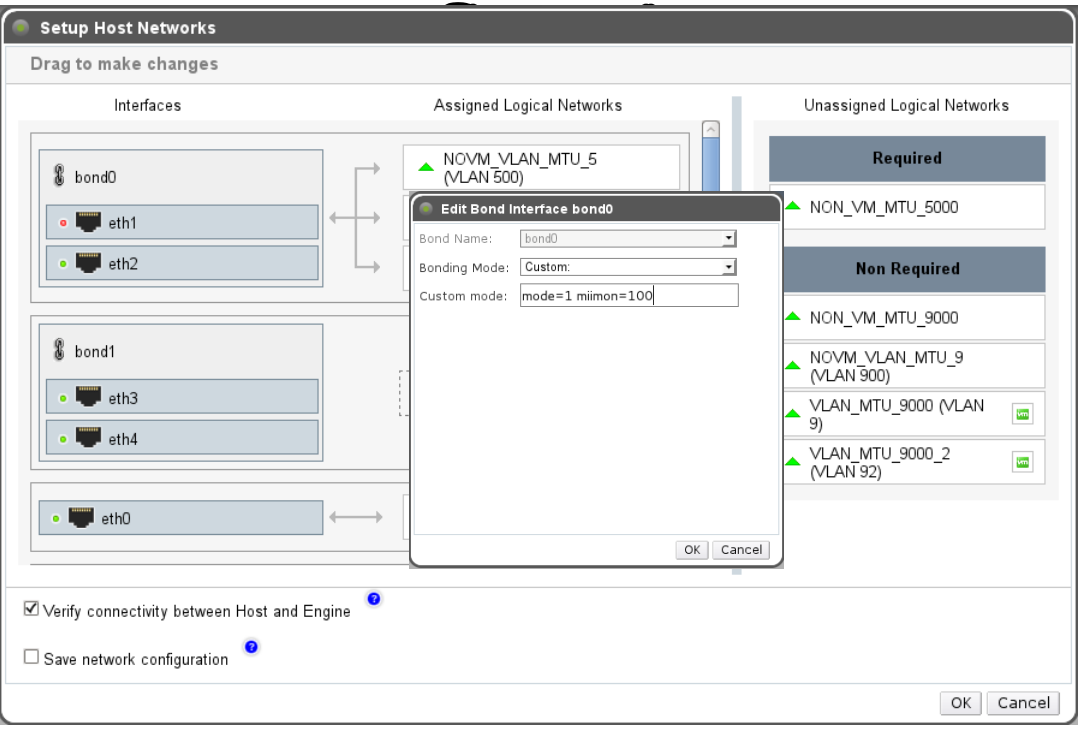


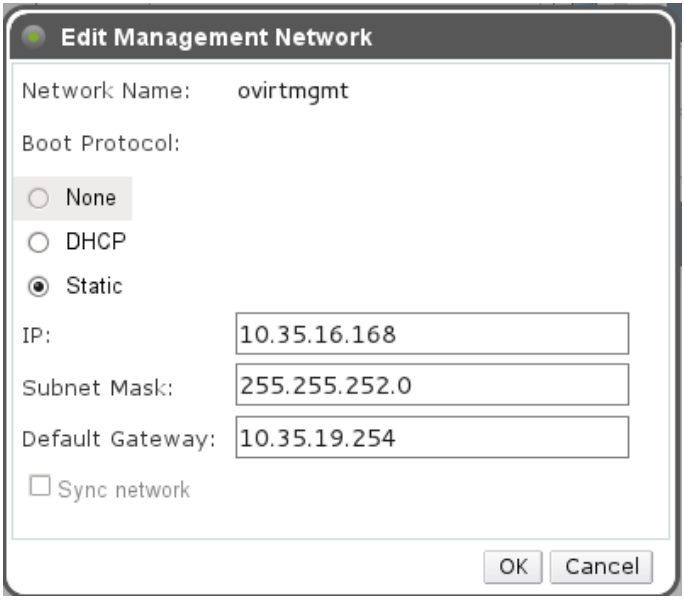


IP conf

Sync networks


Setup Host Networks
Drag to make changes
Interfaces
Assigned Logical Networks
Unassigned Logical Networks
bond0
eth1
eth2
NOVM_VLAN_MTU_5 (VLAN 500)
VLAN_MTU_5000 (VLAN 222)
VLAN_MTU_5000_2 (VLAN 52)
bond1
eth3
eth4
no network assigned
eth0
ovirtmgmt
Required
NON_VM_MTU_5000
Non Required
NON_VM_MTU_9000
NOVM_VLAN_MTU_9 (VLAN 900)
VLAN_MTU_9000 (VLAN 9)
VLAN_MTU_9000_2 (VLAN 92)
Verify connectivity between Host and Engine
Save network configuration
OK
Cancel


Setup Host Networks
Drag to make changes
Interfaces
Assigned Logical Networks
Unassigned Logical Networks
bond0
eth1
eth2
bond1
eth3
eth4
eth0
NOVM_VLAN_MTU_5 (VLAN 500)
Edit Bond Interface bond0
Bond Name: bond0
Bonding Mode: Custom:
Custom mode: mode=1 miimon=100
OK
Cancel
Required
NON_VM_MTU_5000
Non Required
NON_VM_MTU_9000
NOVM_VLAN_MTU_9 (VLAN 900)
VLAN_MTU_9000 (VLAN 9)
VLAN_MTU_9000_2 (VLAN 92)
Verify connectivity between Host and Engine
Save network configuration
OK
Cancel



IP conf

Sync net

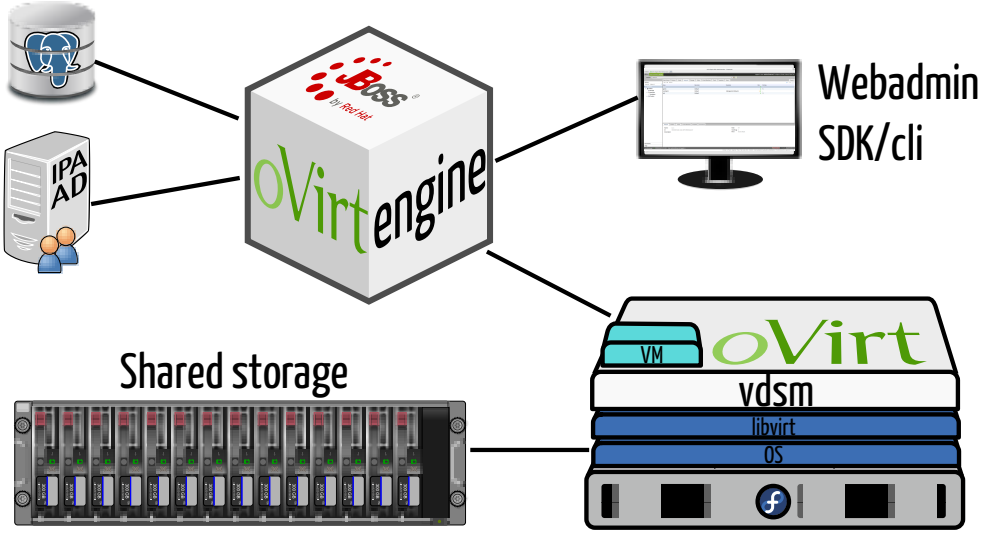
Sync networks

VM net

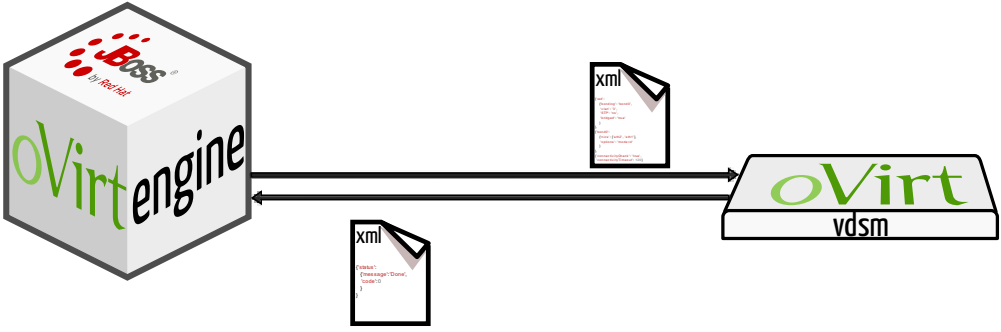
vlan ID

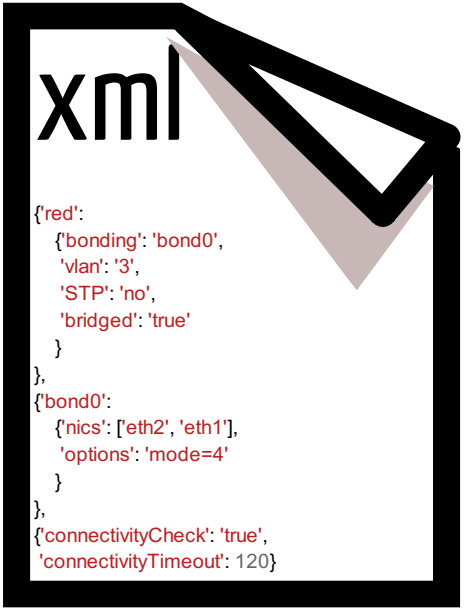
MTU

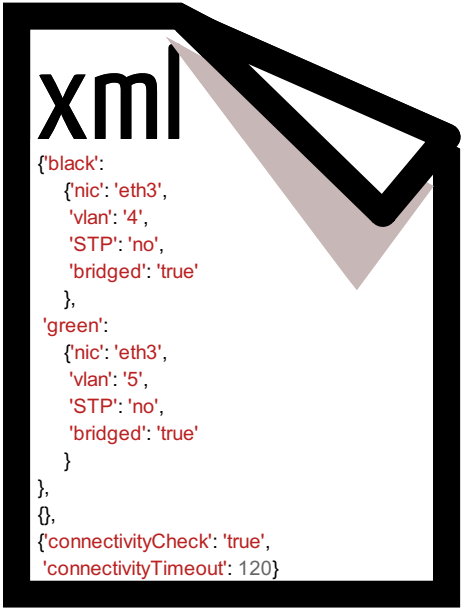
Configuration

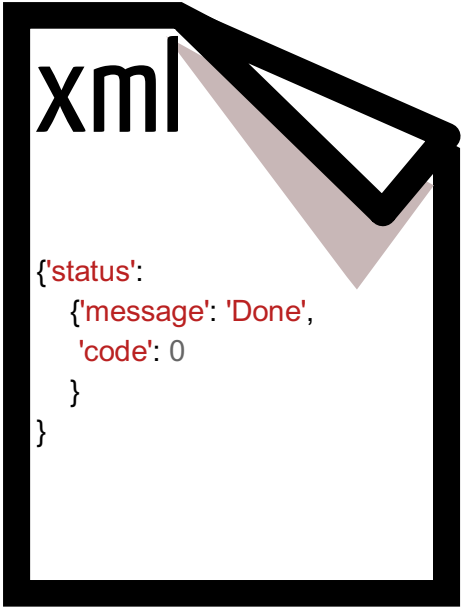


Configuration

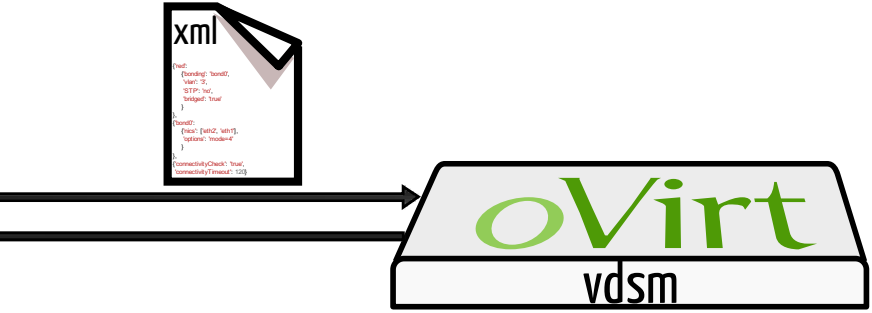



xml
{'red':
{'bonding': 'bond0',
'vlan': '3',
'STP': 'no',
'bridged': 'true'
}
},
{'bond0':
{'nics': ['eth2', 'eth1'],
'options': 'mode=4'
}
},
{'connectivityCheck': 'true',
'connectivityTimeout': 120}

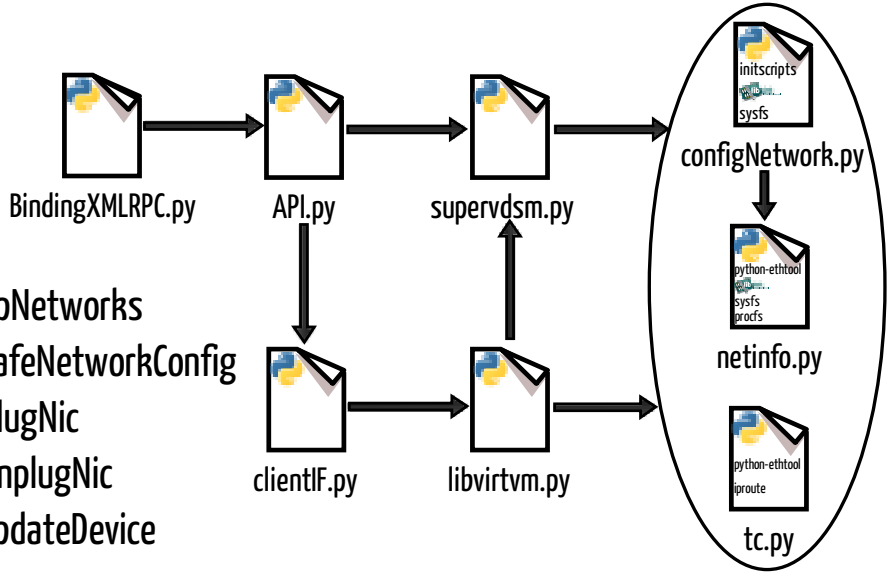

xml
{'black':
{'nic': 'eth3',
'vlan': '4',
'STP': 'no',
'bridged': 'true'
},
'green':
{'nic': 'eth3',
'vlan': '5',
'STP': 'no',
'bridged': 'true'
}
},
{},
{'connectivityCheck': 'true',
'connectivityTimeout': 120}


xml
{'status':
{'message': 'Done',
'code': 0
}
}

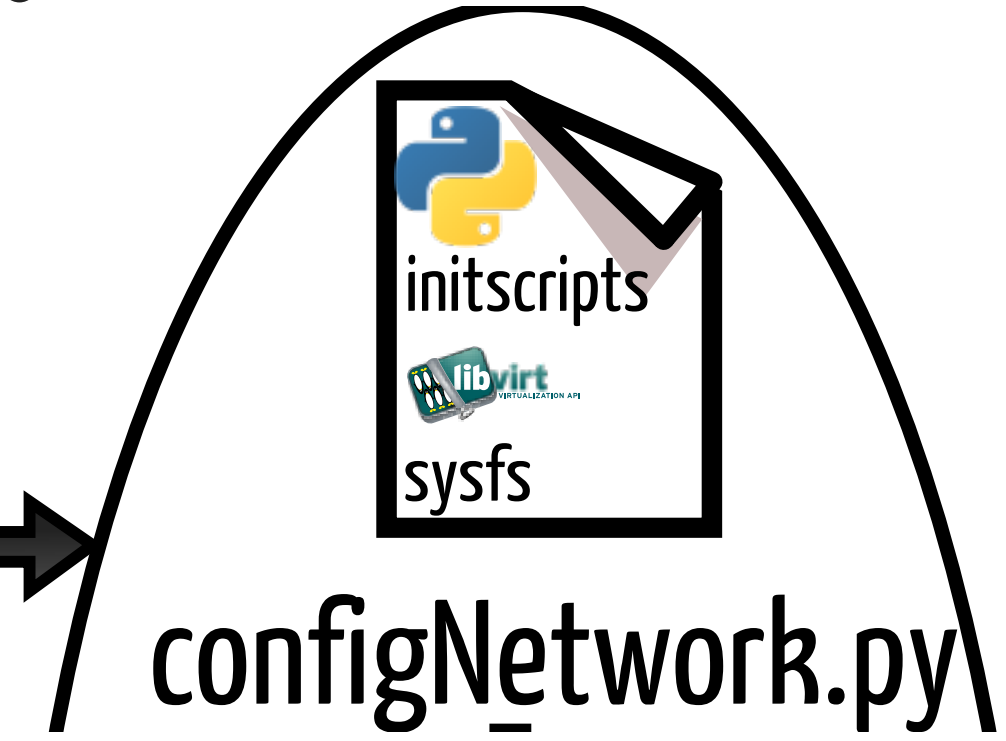
Configuration

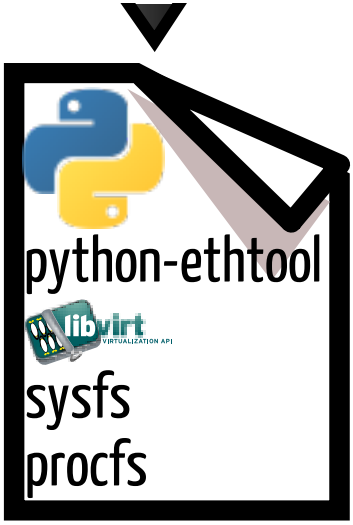


Configuration

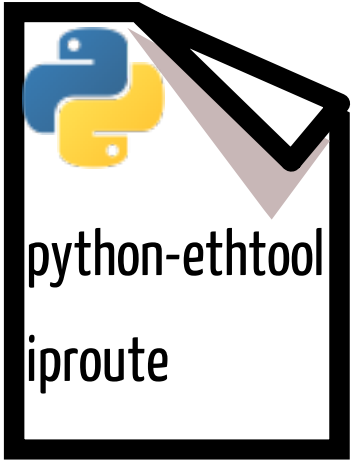


setupNetworks
setSafeNetworkConfig
hotplugNic
hotunplugNic
vmUpdateDevice


initscripts
libvirt
VIRTUALIZATION API
sysfs
configNetwork.py



netinfo.py



tc.py

Configuration

Initscripts

1. Back-up ifcfg files
2. ifdown devices
3. create new ifcfg files
4. ifup

Configuration

sysfs

All dev
- mtu
- MAC address
- virtio
- operstate
- speed

Bridge
- list
- port list
- stp state

Vlan Nics
- list

Bonds
- Create
- Validate opts
- list
- slaves and mode info

Configuration

procfs

- IPv4/IPv6 routes
- vlan device by tag
- vlan tag by device
- Get bonding slaves permanent address

Configuration

python-ethtool

- IPv4/IPv6 addresses
- IPv4/IPv6 netmask
- Device list
- Get/Set flags

Configuration

iproute

- Set/Unset port mirroring

Configuration

- Define bridge as VM network
- Attach vNic to bridge
- Hot(un)plug vNics
- Update vNic
- Set no-arp no-mac spoofing filters

Roadmap

Conclusion

Roadmap

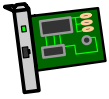
oVirt Engine

- Network providers (Quantum)
- Network permissions
- IP allocations
- IPv6

Roadmap

oVirt vdsm: OOP network models

SW Bridge



Bond

Attributes + configuration actions

- configure
- remove

Roadmap

oVirt vdsm: Configurators

Transactional

begin
commit
rollback

Versatile

- Ends ifcfg dependency
- Different network interpretations
- Composability (future)

ConfigureEnt
removeEnt

Transactional

begin

commit

rollback

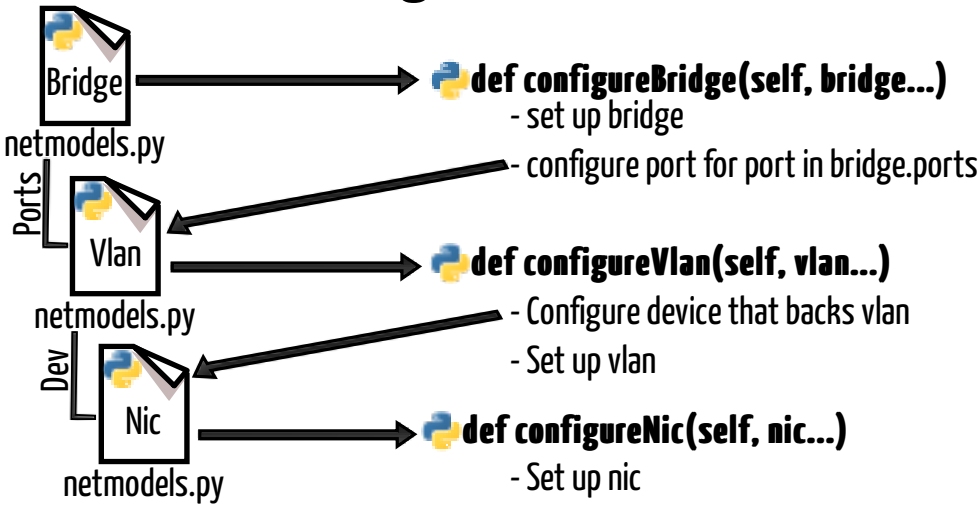
Versatile

- Ends ifcfg dependency
- Different network interpretations
- Composability (future)

ConfigureEnt
removeEnt

- Uses net models
- Responsible for underlying devices

Model - configurator



Conclusion

Conclusion

Network management made easy

Powered by OS and libvirt

Feature growth

join oVirt

http://gerrit.ovirt.org

#ovirt@OFTC.net

#vdsm@irc.freenet.net