Linux Network Stack Test

Automated and Portable Network Tests

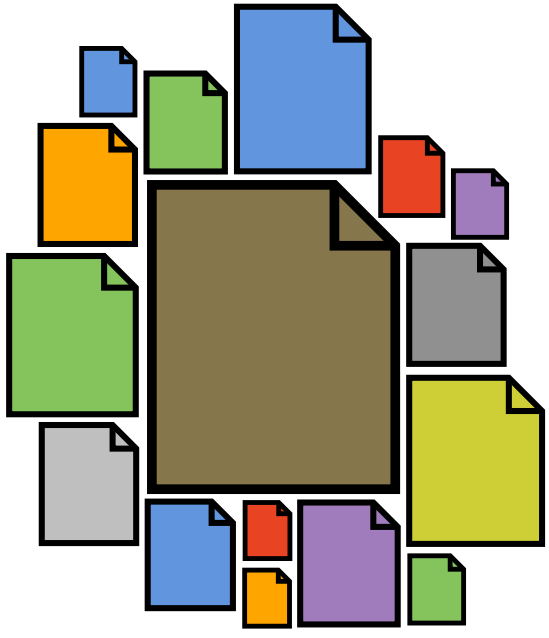
Red Hat
Radek Pazdera
February 2, 2013

Abstract

Introduction of our approach towards effective network testing.

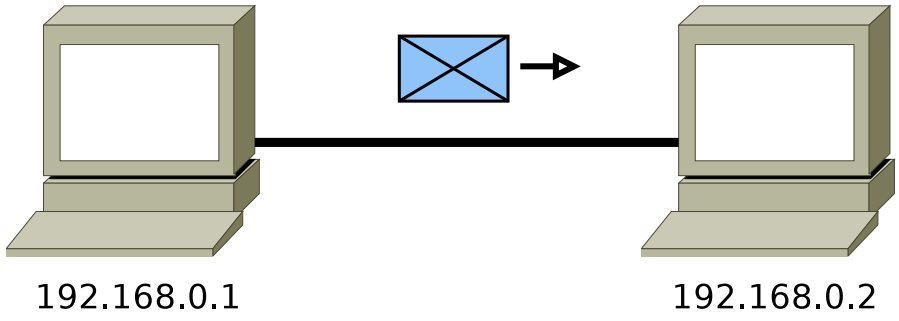
redhat.

Our Goal



A **library** of network tests to easily catch regressions in networking code

The Problem Is Portability



Simple Ping Test

```
$ ping 192.168.0.2
```

The test will break when the addresses change

redhat.

And Too Much Configuration

Simple Bonding Configuration

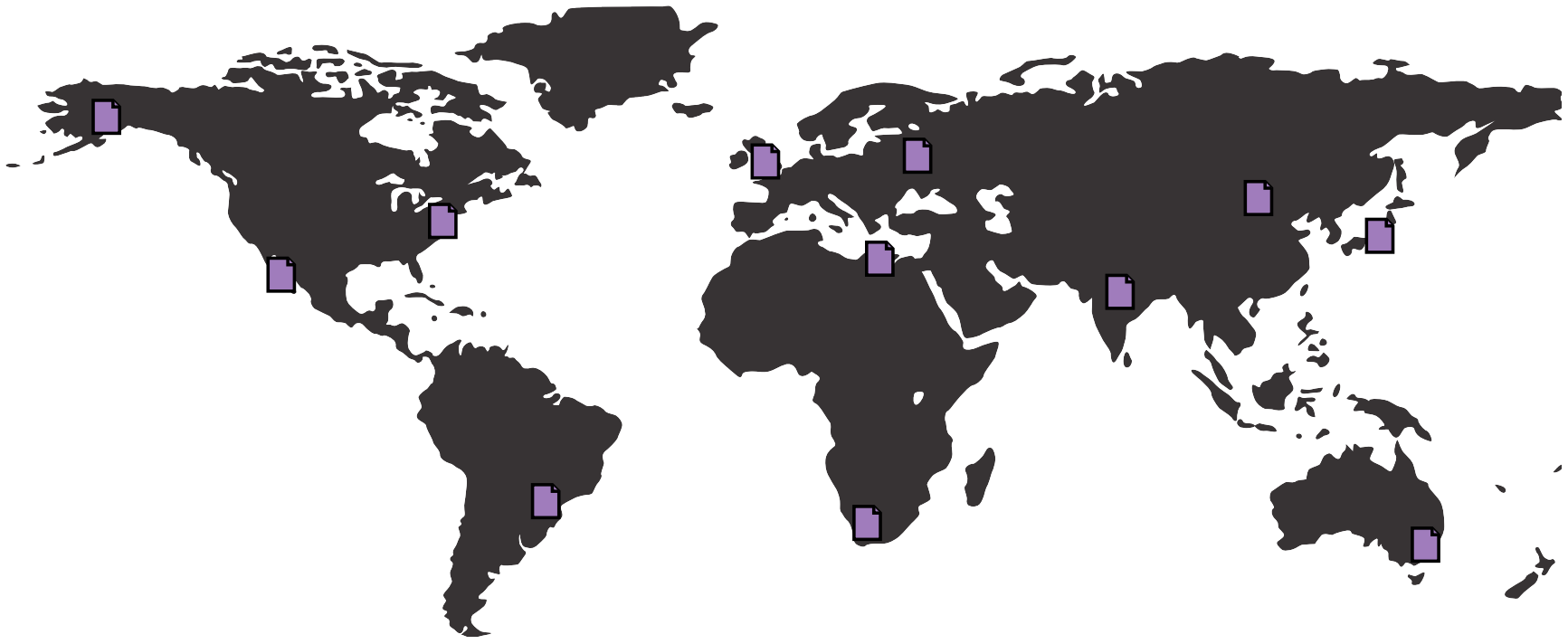
```
ip addr flush eth4
ip addr flush eth1
modprobe bonding max_bonds=0
echo "+bond0" > /sys/class/net/bonding_masters
ip link set eth4 down
echo "+eth4" > /sys/class/net/bond0/bonding/slaves
ip link set eth1 down
echo "+eth1" > /sys/class/net/bond0/bonding/slaves
ip addr add 192.168.100.240/24 dev bond0
ip link set bond0 up
```

Network Testing Tool/Framework

To fully automate test execution and handle even the configuration of **advanced networking setups** with bonds, VLANs, and teams

redhat.

Network Testing Tool/Framework

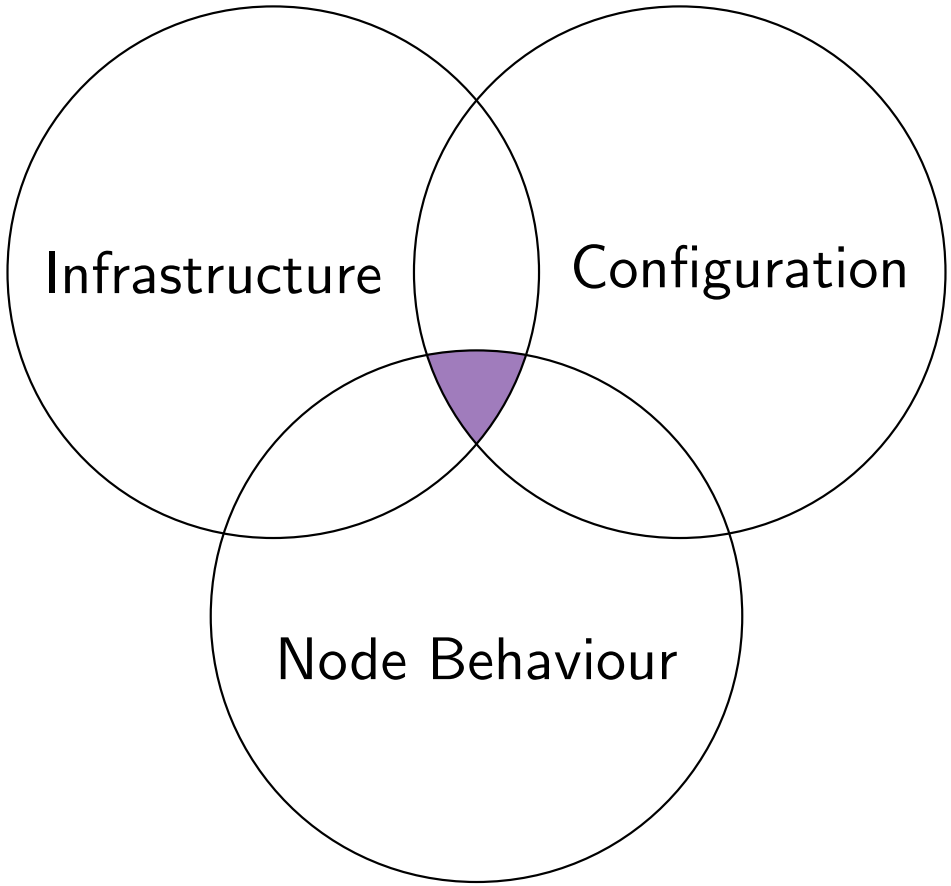


And to make the tests independent of the underlying infrastructure

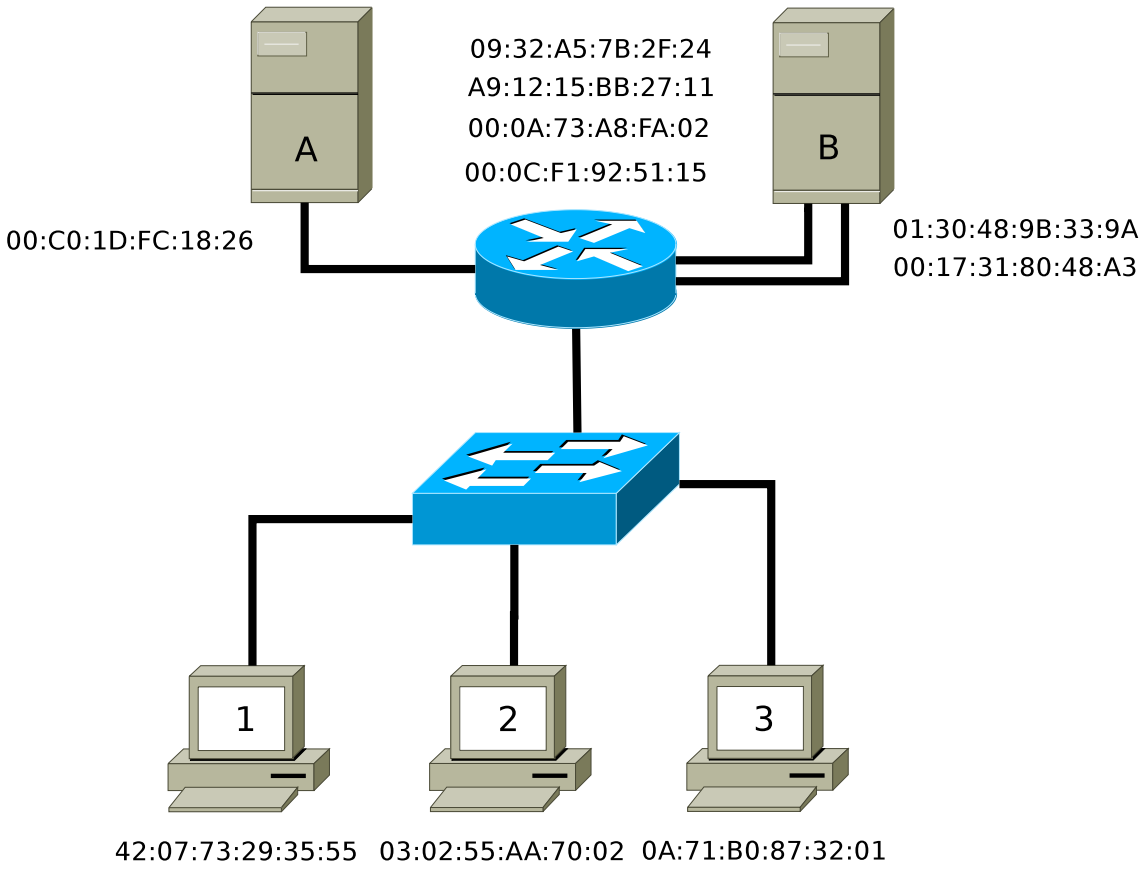
Linux Network Stack Test

redhat.

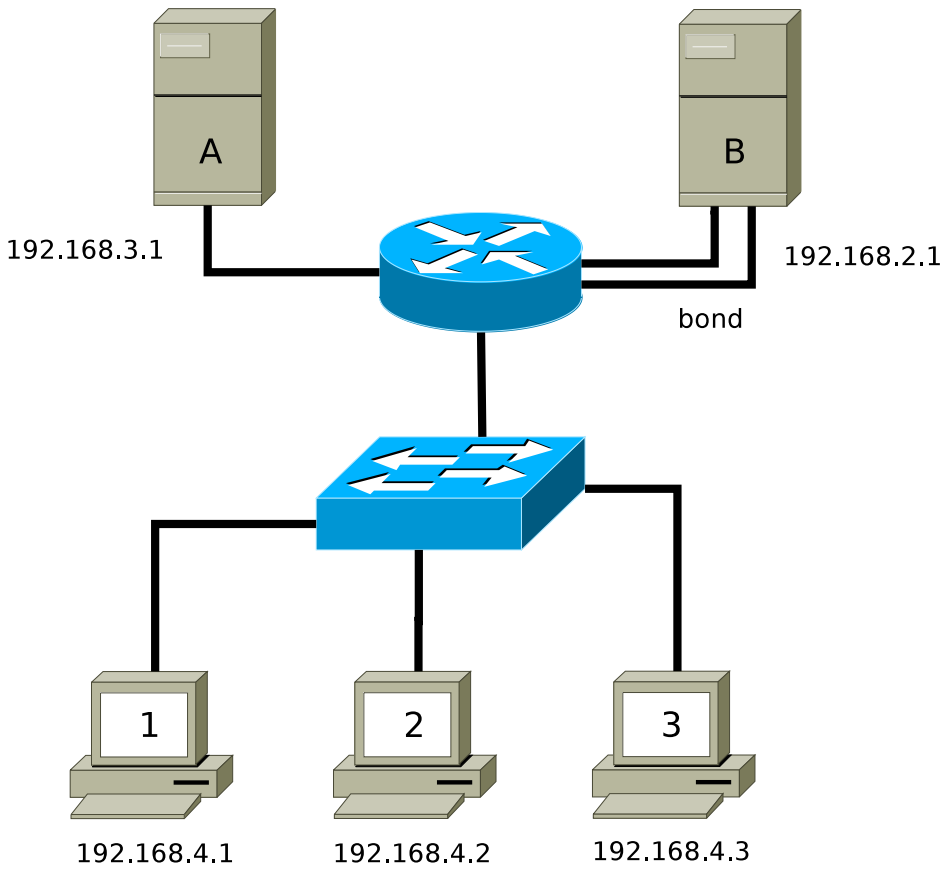
Network Tests



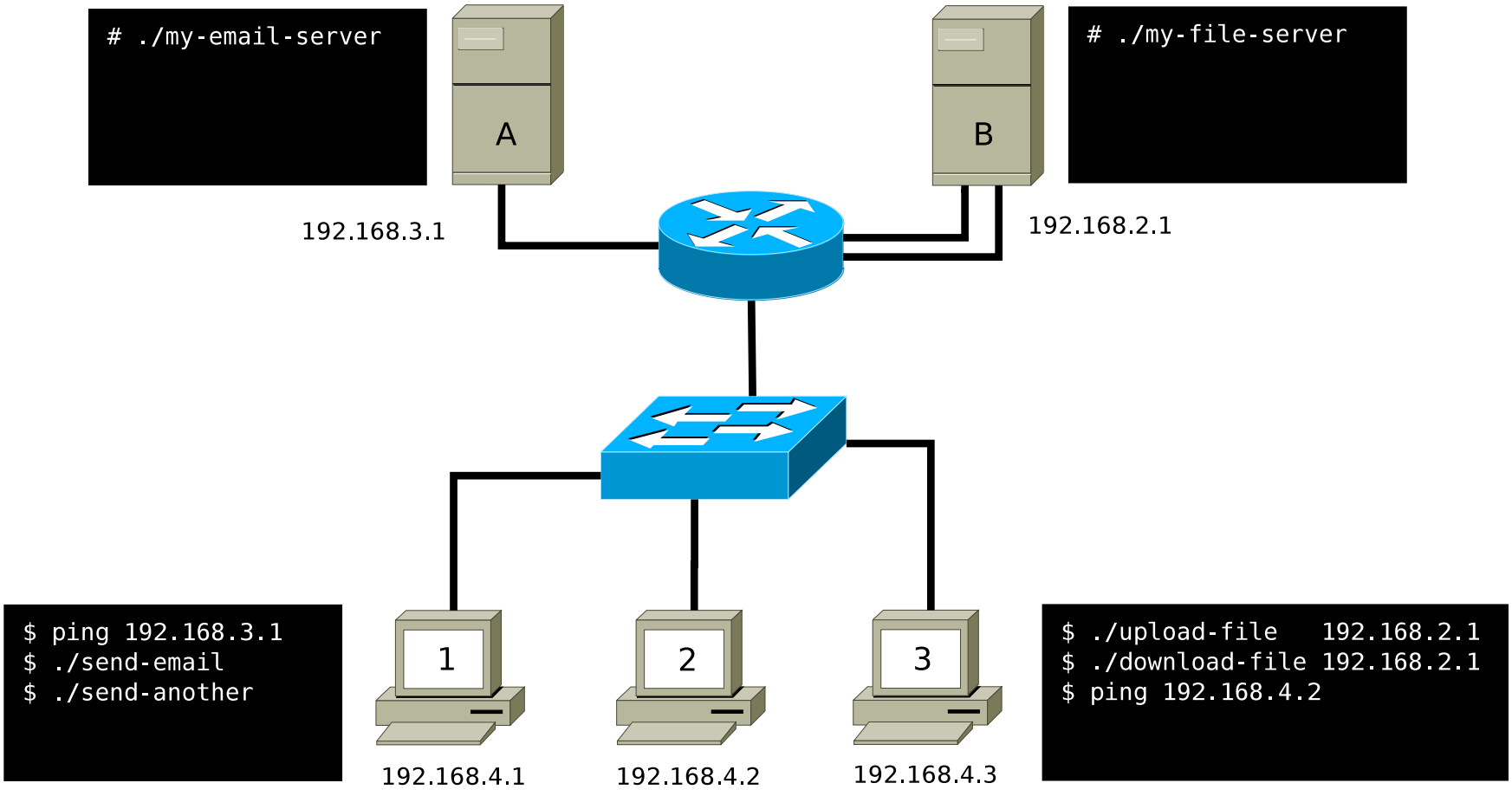
Infrastructure



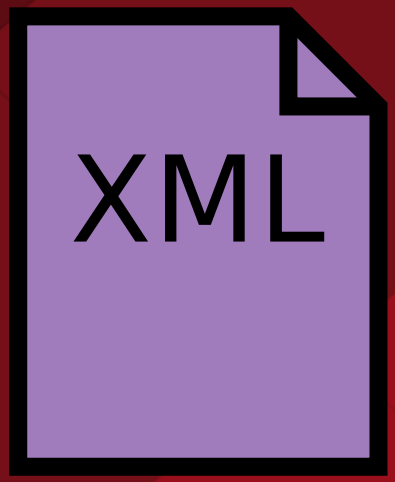
Configuration



Node Behaviour



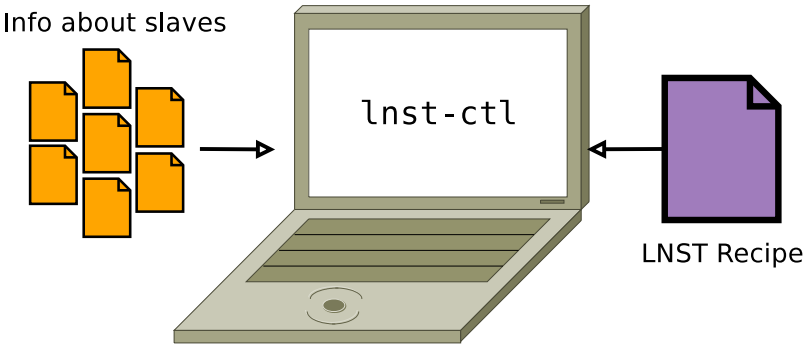
redhat.

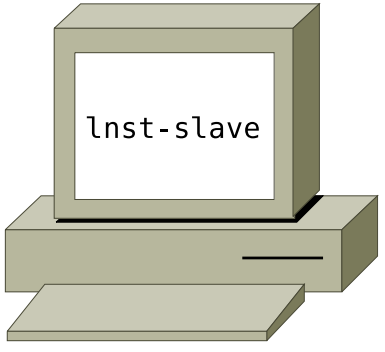


LNST Recipe

All three within a single description

LNST Architecture





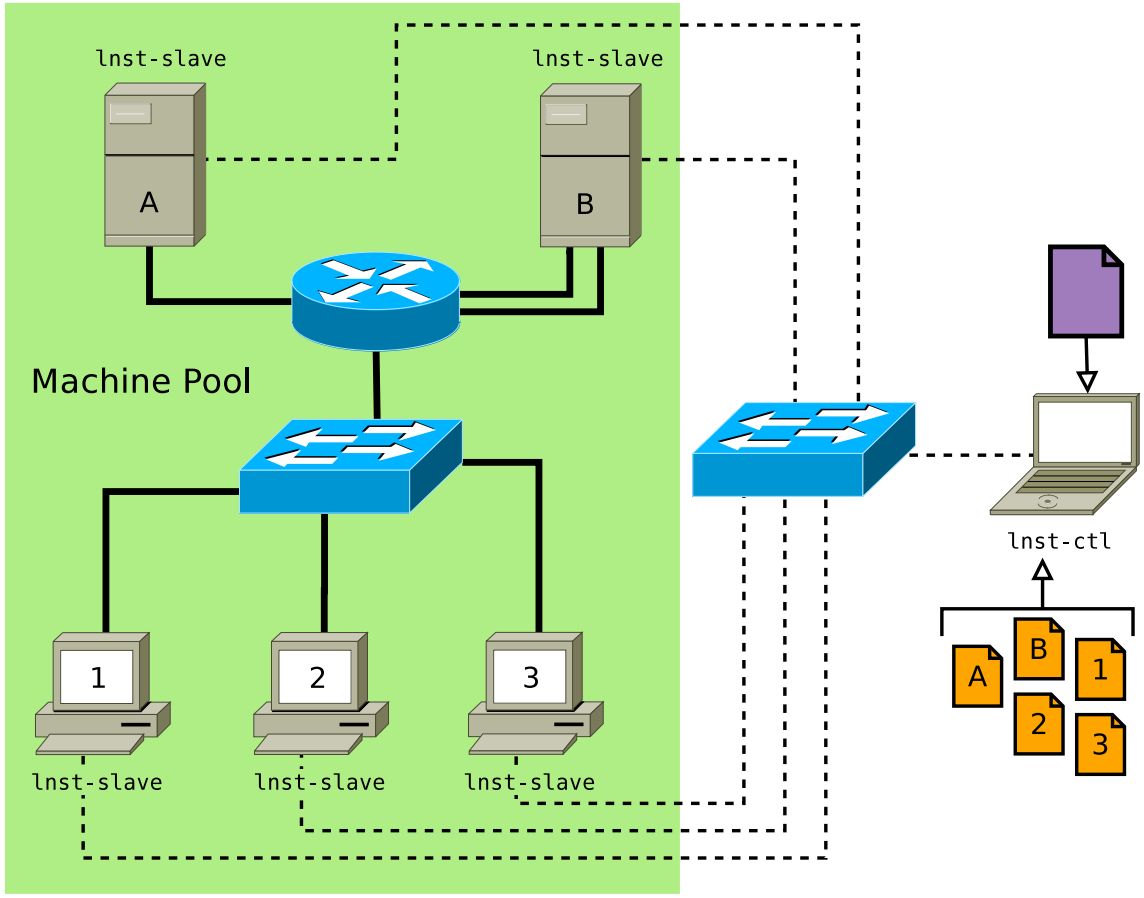
LNST Controller

To manage slaves

LNST Slave

Dedicated test machine

Controller Network

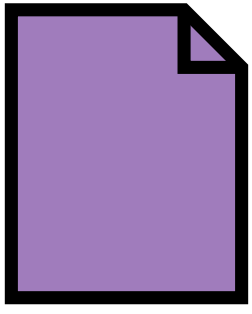


Each slave must have a dedicated interface for the controller

redhat.

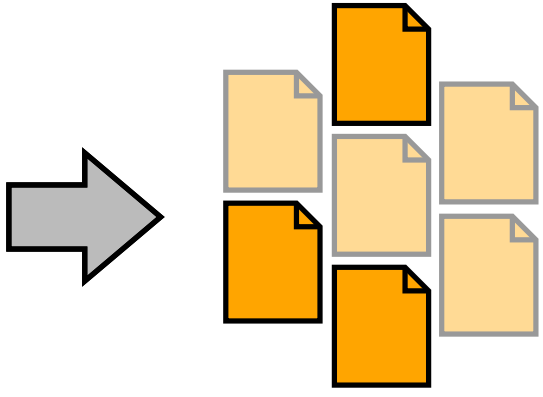
Test Execution

LNST Recipe



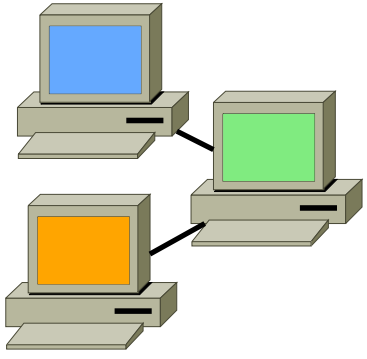
Identify the machines required for the test

Machine Pool



Select suitable machines from the network available to the controller

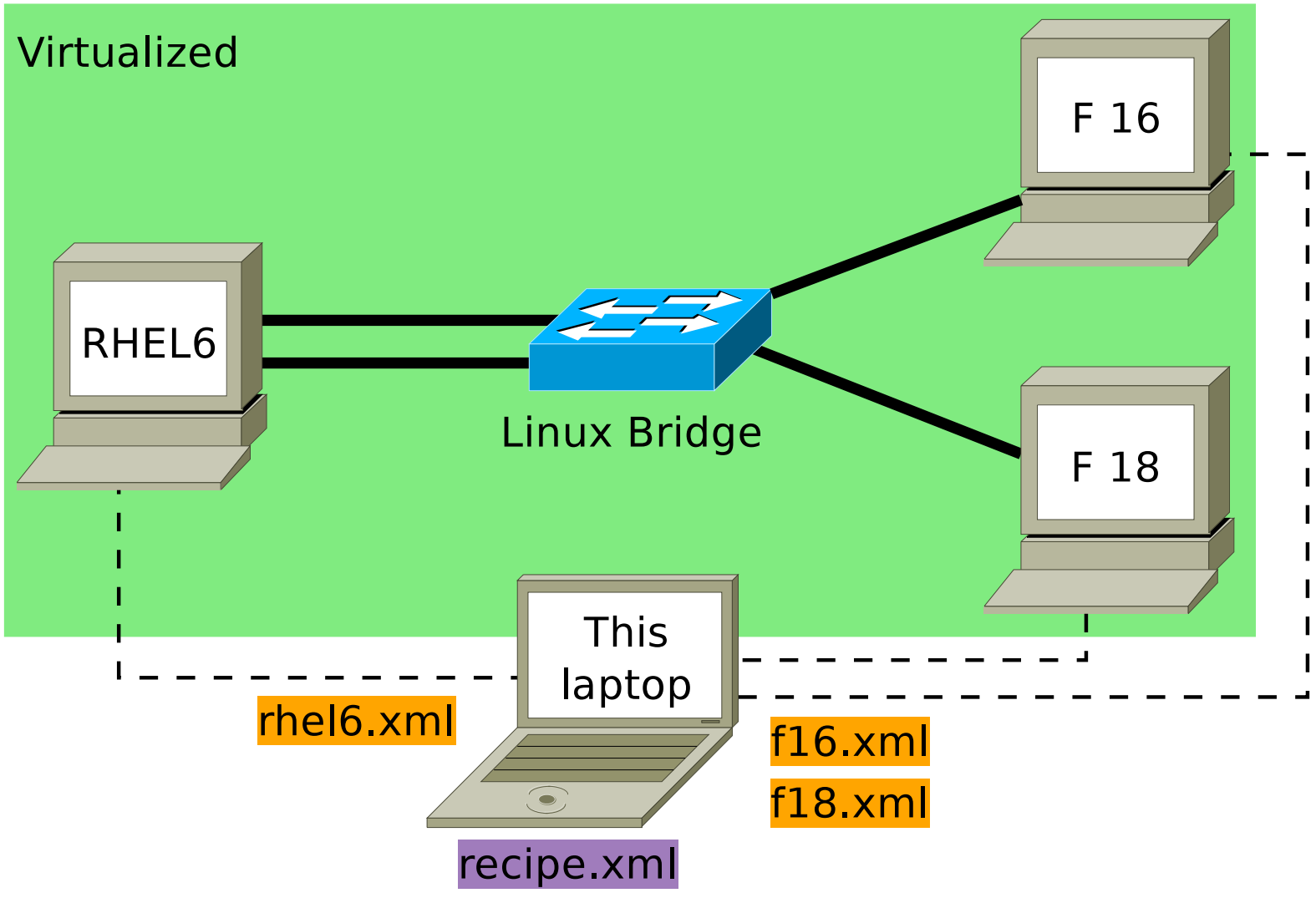
Test Network



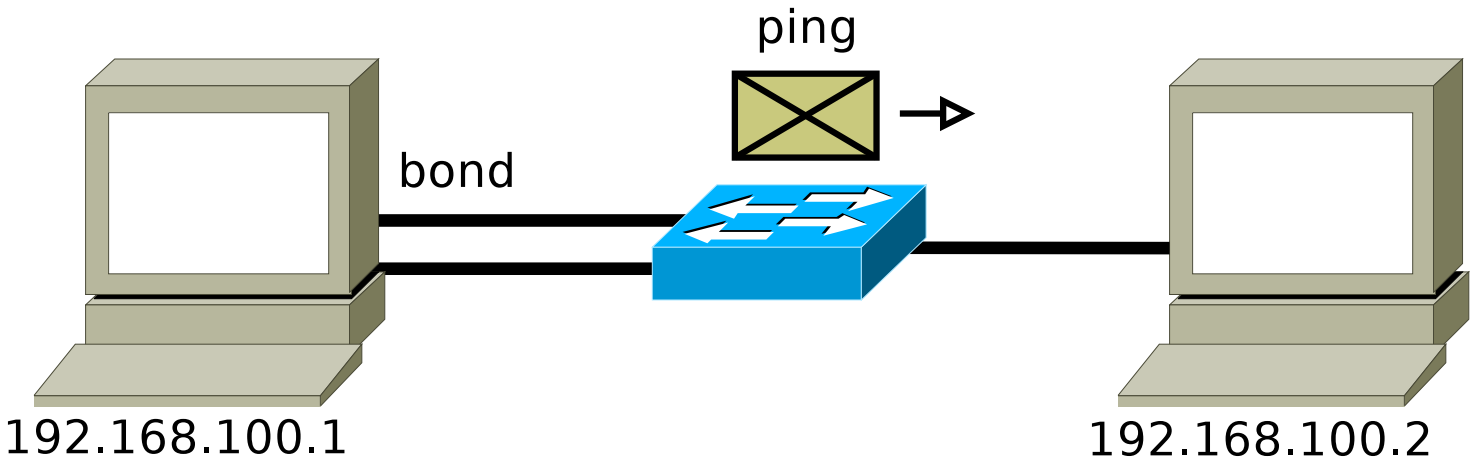
Configure them and run the test

redhat.

Demonstration



Demonstration



Using the built-in **TestIcmpPing** module

Future Features

- Close integration with **libvirt**
  - LNST can change the infrastructure if used with virtualization
  - Adding and removing interfaces from virtual machines
- Controlling routers/switches
- **GUI** for interactive editing of XML recipes

redhat.

Project Information

- **Website:**
  `http://fedorahosted.org/lnst`
- **Mailing list:**
  `<lnst-developers@lists.fedorahosted.org>`
- **IRC:**
  `#lnst @freenode`

Please feel free to contact us!

redhat.

The end.

Thanks for listening

@radekpazdera

http://linuxwell.com

rpazdera@redhat.com