



Linux Network Stack Test

Automated and Portable Network Tests

Red Hat

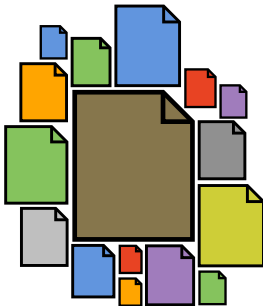
Radek Pazdera

February 23, 2013

Abstract

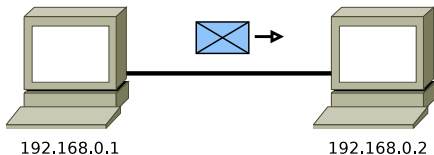
Introduction of our approach towards effective network testing.

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

And Too Much Configuration

Simple Bonding Configuration

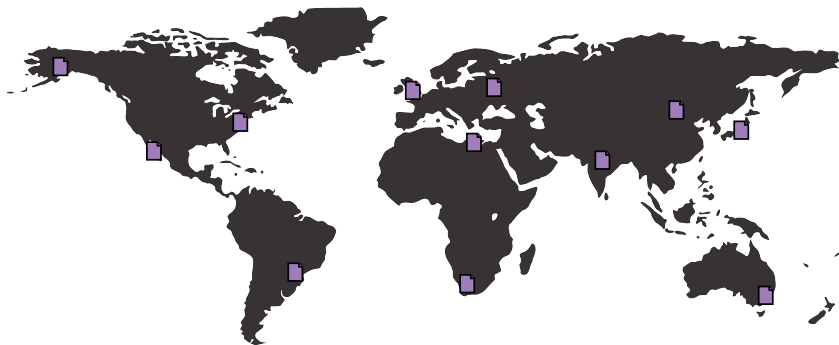
```
ip addr flush eth4
ip addr flush eth1
modprobe bonding max_bonds=0
echo "+bond0" > /sys/class/net/bonding_masters
ip link set eth4 down
echo "+eth4" > /sys/class/net/bond0/bonding/slaves
ip link set eth1 down
echo "+eth1" > /sys/class/net/bond0/bonding/slaves
ip addr add 192.168.100.240/24 dev bond0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

Network Testing Tool/Framework

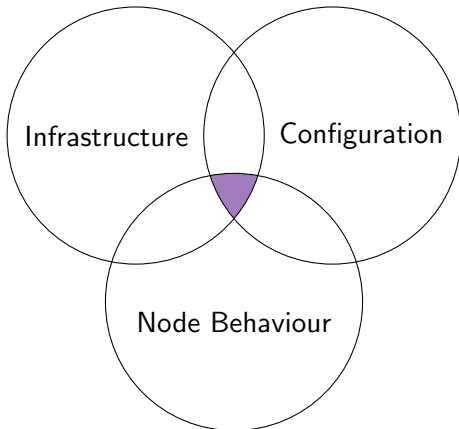


And to make the tests independent of the
underlying infrastructure

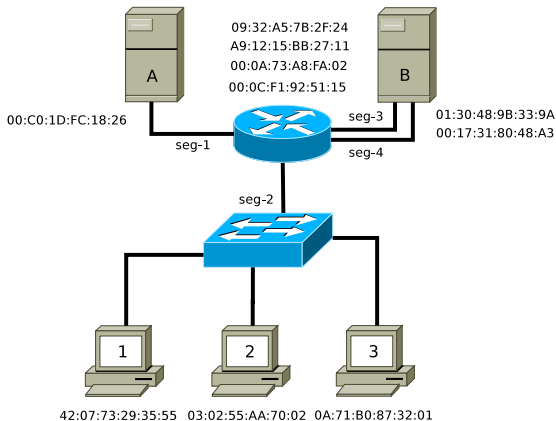


Linux Network Stack Test

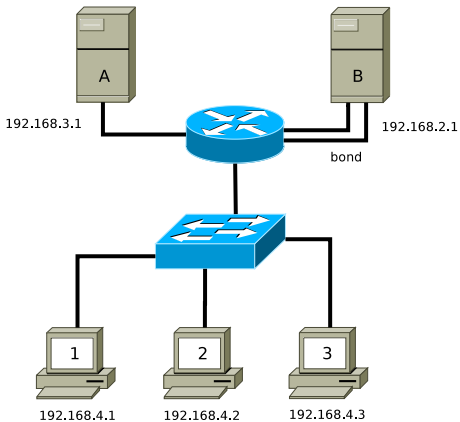
Network Tests



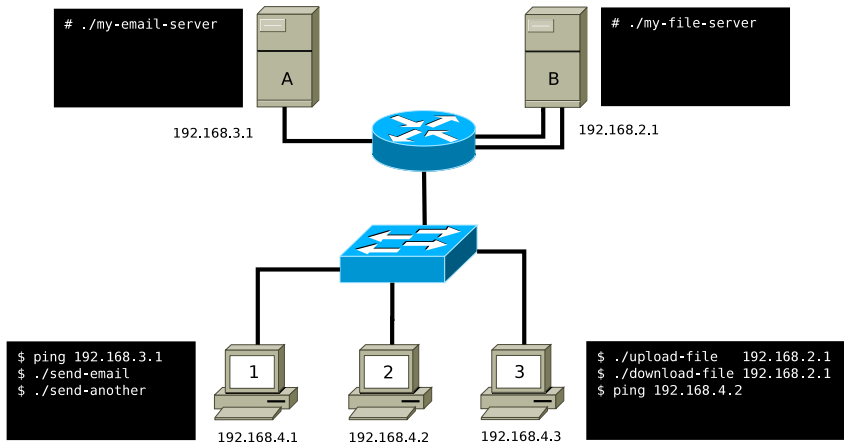
Infrastructure

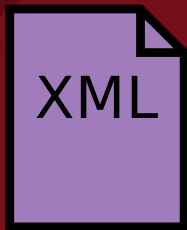


Configuration



Node Behaviour

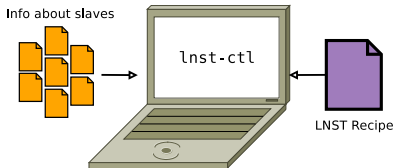




LNST Recipe

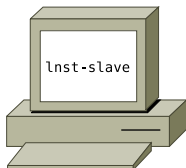
All three within a single description

LNST Architecture



LNST Controller

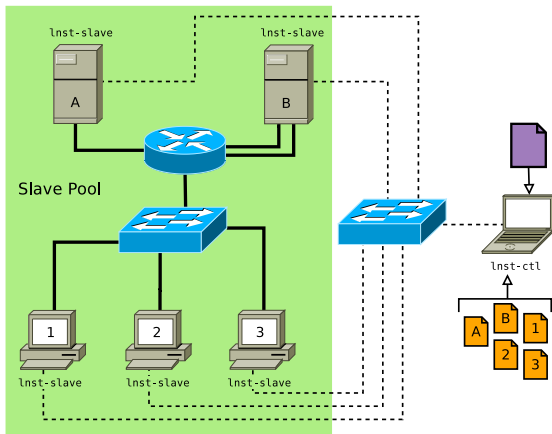
To manage slaves



LNST Slave

Dedicated test machine

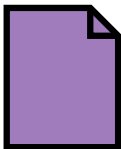
Controller Network



Each slave must have a dedicated interface for the controller

Test Execution

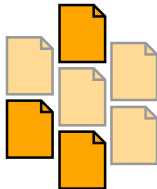
LNST Recipe



Identify the machines
required for the test



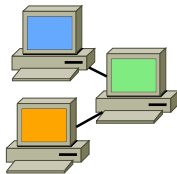
Slave Pool



Select suitable machines
from the network
available to the controller

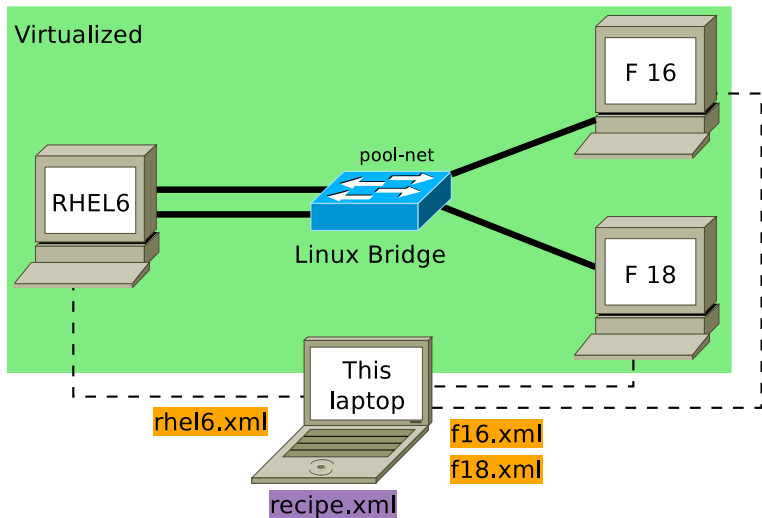


Test Network

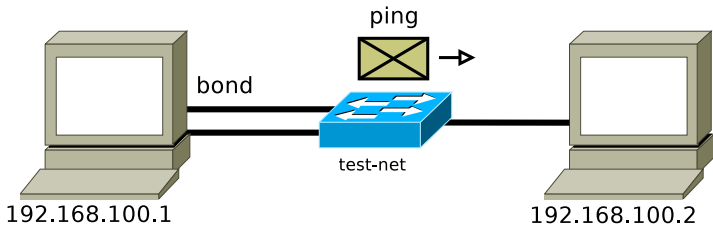


Configure them and
run the test

Demonstration

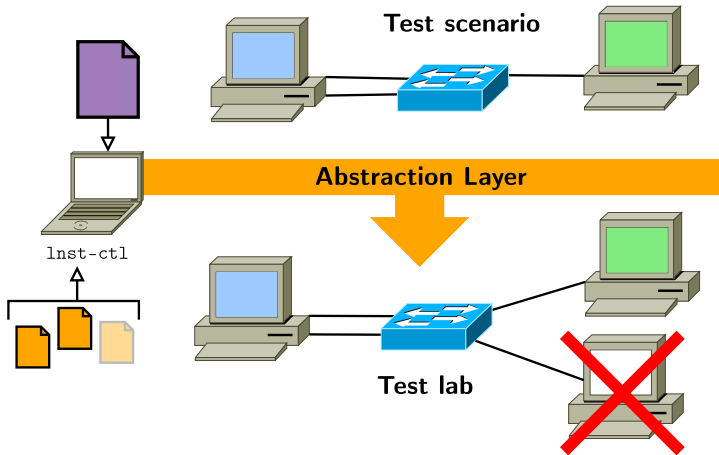


Demonstration



Using the built-in **TestIcmpPing** module

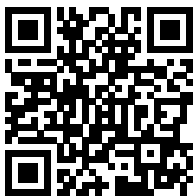
Demonstration



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

Project Information



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

Please feel free to contact us!



The end.

Thanks for listening



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