

Usage case for Libvirt networking in support of consultants lab ( and thoughts beyond).

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## First Cut

Scope: This is prepared to provide a safe lab environment for a consultant who needs a group of systems that can be setup, configured, destroyed without affecting a laptops local OS, or endangering a customers servers/services by IP conflicts, or undesired

NAT – connection to any and all “Lab” servers from the Host OS. currently, Port Forwarding is needed on Virtualbox to get from Host OS to the virtual machines.

### Connectivity:

Current solution to connect to the default route on Lab Subnet, leading to IPTables Rules is fine for customizing levels of access. Perhaps something like:

- 1) Full NAT (any Lab virtual can get to the Host OS and from there be routed anywhere.
- 2) Internet Only (route to Internet is only to Host OS default route (would this work?))
- 3) Some outbound – Lab virtual can get to specific ip/port mapping.
- 4) Some inbound – Some ports on Host OS are forwarded to some Vms on the Lab network (is this too dangerous?)

DHCP – Provided to the Lab Subnet by service on Host OS including DHCP scope  
Static DHCP mapping

Default route for Virtual servers to point to the HostOS interface for DHCP

Virtuals can be configured outside DHCP scope as “static/none”.

NetworkManager to control “/etc/resolv.conf” or not.

Multiple Software defined networks to be provided to simulate Multi Homed hosts.

### Configuration setup CLI:

```
labnet -setup 192.168.2.0/24 -dhcp=yes -nat=yes
```

GUI - Via localhost:9090 (aka cockpit).

Select IP range, DHCP setup, Routing options, static DHCP assignments for visible hosts.

### Review – CLI :

```
labnet - simple CLI utility to review state of labnet
```

```
labnet -network  
192.168.22.0/24
```

192.168.22.2 box1  
192.168.22.3 box2  
192.168.22.4 tower  
192.168.22.5 webserver

labnet -dhcp

Network: 192.168.22.0/24

DHCP scope: 192.168.22.2 to 192.168.22.174

labnet -list

192.168.22.23/24 box1  
192.168.22.24/24 box2  
...  
192.168.22.199/24