

# NinuxDay

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## Routing Architecture: Migration from OLSRv1 to OLSRv2 @Rome

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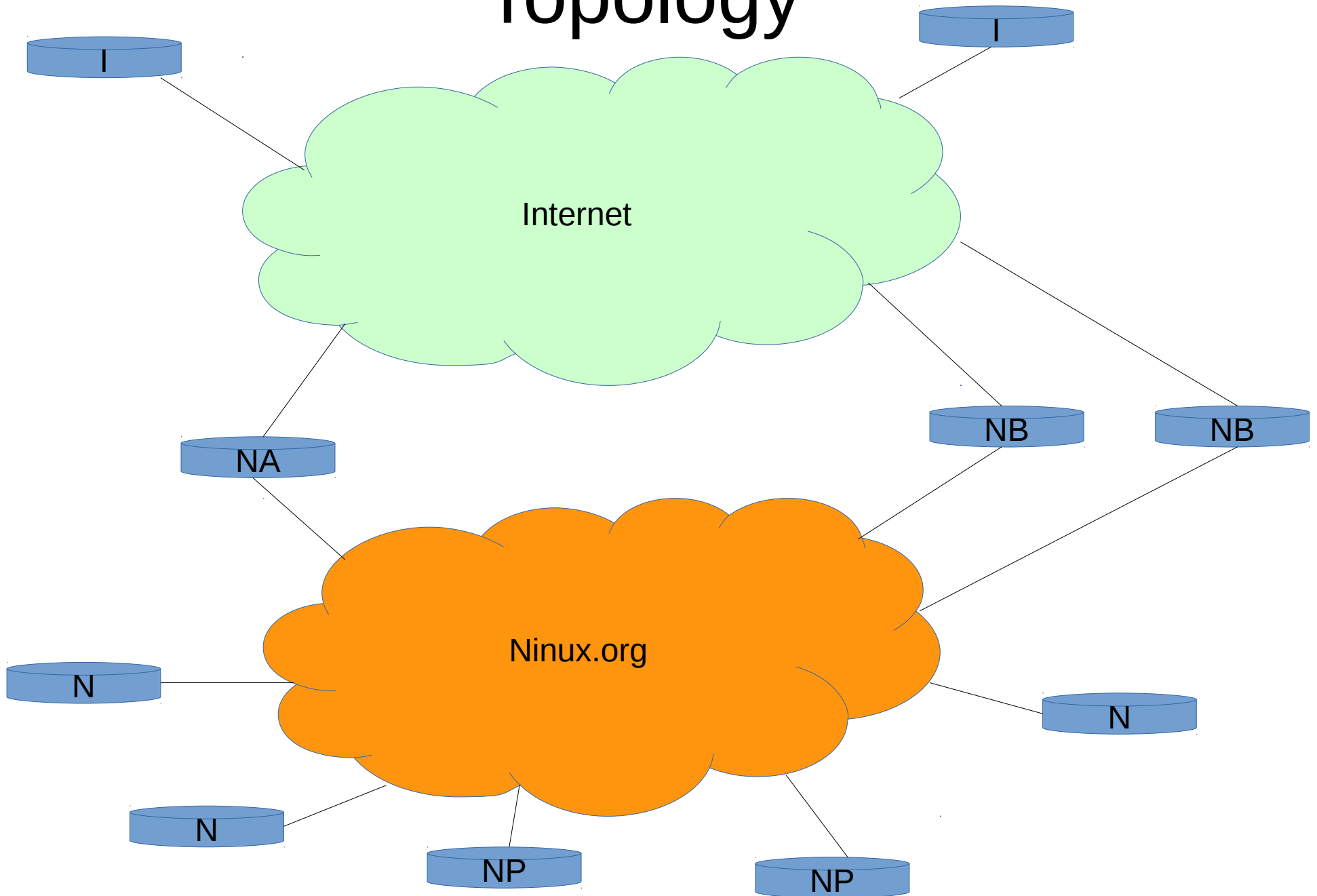
# Starting from

The idea starts from this document.

**[wiki.ninux.org](http://wiki.ninux.org)->Guide->Livello 4**

Documento Architettura della rete di Roma  
(English)

# Topology



# Node Types

**A**: Node Internet uplink natted (e.g. xDSL)

**B**: Node Internet uplink routed (BGP peering)

**N**: Node with RFC1918 vs Ninux

**P**: Node with Ninux Public vs Ninux

**I**: An host on internet

# Routing Requirement

- N nodes can connect N and P nodes
- N nodes can connect I nodes via A
- P nodes can connect I via B node (right one)
- I nodes can connect P nodes

# Previous Implementation problems

- With OLSRv1 we can't discriminate A or B default route
  - Tunnel ipip from P to B nodes
    - MTU decrease, IPv4 fragmentation
    - More conf
- New Public subnet → reconfigure all nodes

# Solution: OLSR V2 Domain

The “domain” is a tag (uint8) on olsrV2 packet.

The same route with different tag can be managed in different way

LIKE

0.0.0.0/0 Tag 150

0.0.0.0/0 Tag 151

# Node N olsrd2.conf

[domain=0]  
table 111  
[domain=1]  
table 112  
[domain=150]  
table 150  
[domain=151]  
table 151  
[domain=152]  
table 152  
[domain=153]  
table 153  
[domain=154]  
table 154

Rx Announces Management

[olsrv2]  
lan 10.100.5.0/24 domain=0

TX Announces

[interface=eth0]  
[interface=eth1]



# Node NB olsrd2.conf

```
[domain=0]
table 111
[domain=1]
table 112
[domain=150]
table 150
[domain=151]
table 151
[domain=152]
table 152
[domain=153]
table 153
[domain=154]
table 154
[olsrv2]
lan 10.100.6.0/24 domain=0
lan 0.0.0.0/0 domain=150
lan 176.62.53.0/24 domain=150
[interface=eth0]
```

Rx Announces Management

TX Announces

# Node N Policy routing

```
#Copy local routes only from table main 254 to table 110
ip route show table 254 | grep -Ev ^default | grep -Ev ^blackhole |
while read ROUTE ; do
MASK=`echo "${ROUTE}" | awk '{print $1}' | awk -F/ '{print $2}`
if [ "$MASK" -ne 16 ] ; then
ip route add table 110 $ROUTE
fi
done
#Sposto la rotta di default
DEF_ROUTE=`ip route show table 254 | grep ^default`
if [ -n "$DEF_ROUTE" ] ; then
ip route add table 224 $DEF_ROUTE
ip route del table 254 $DEF_ROUTE
fi
#First evaluate local routes
ip rule add from all lookup 110 pref 30
#Private routes to OLSRv2 table
ip rule add to 10.100.0.0/14 table 111 pref 35
#Private routes to OLSRv1 table
ip rule add to 10.0.0.0/8 table 222 pref 40
ip rule add to 172.16.0.0/12 table 222 pref 40
ip rule add to 192.168.0.0/16 table 222 pref 40
```

```
#Ninux IP Addresses to OLSRv2 table
ip rule add to 176.62.53.0/24 table 111 pref 41
ip rule add from 176.62.53.0/24 table 111 pref 41
#Ninux IP Address yo OLSR v1
ip rule add to 176.62.53.0/24 table 222 pref 42
ip rule add from 176.62.53.0/24 table 222 pref 42
#main and blackholes
ip rule add from all lookup 254 pref 60
#Lookup default route first from user and then from OLSR

#default annunciata su olsrV2 (chi ha V1 ha anche v2)
ip rule add from 10.100.0.0/14 lookup 112 pref 85
#Percorso verso i BGP dei pubblici
ip rule add from 176.62.53.0/24 lookup 150 pref 90
#default annunciata su olsrV1
ip rule add from all lookup 223 pref 100
#Blackhole private aggregates
ip route add blackhole 10.0.0.0/8 table 254
ip route add blackhole 172.16.0.0/12 table 254
ip route add blackhole 192.168.0.0/16 table 254

#Blackhole Ninux aggregate
ip route add blackhole 176.62.53.0/24 table 254
```

The RED will be added automatically by script (crond) as shown below

# How it works

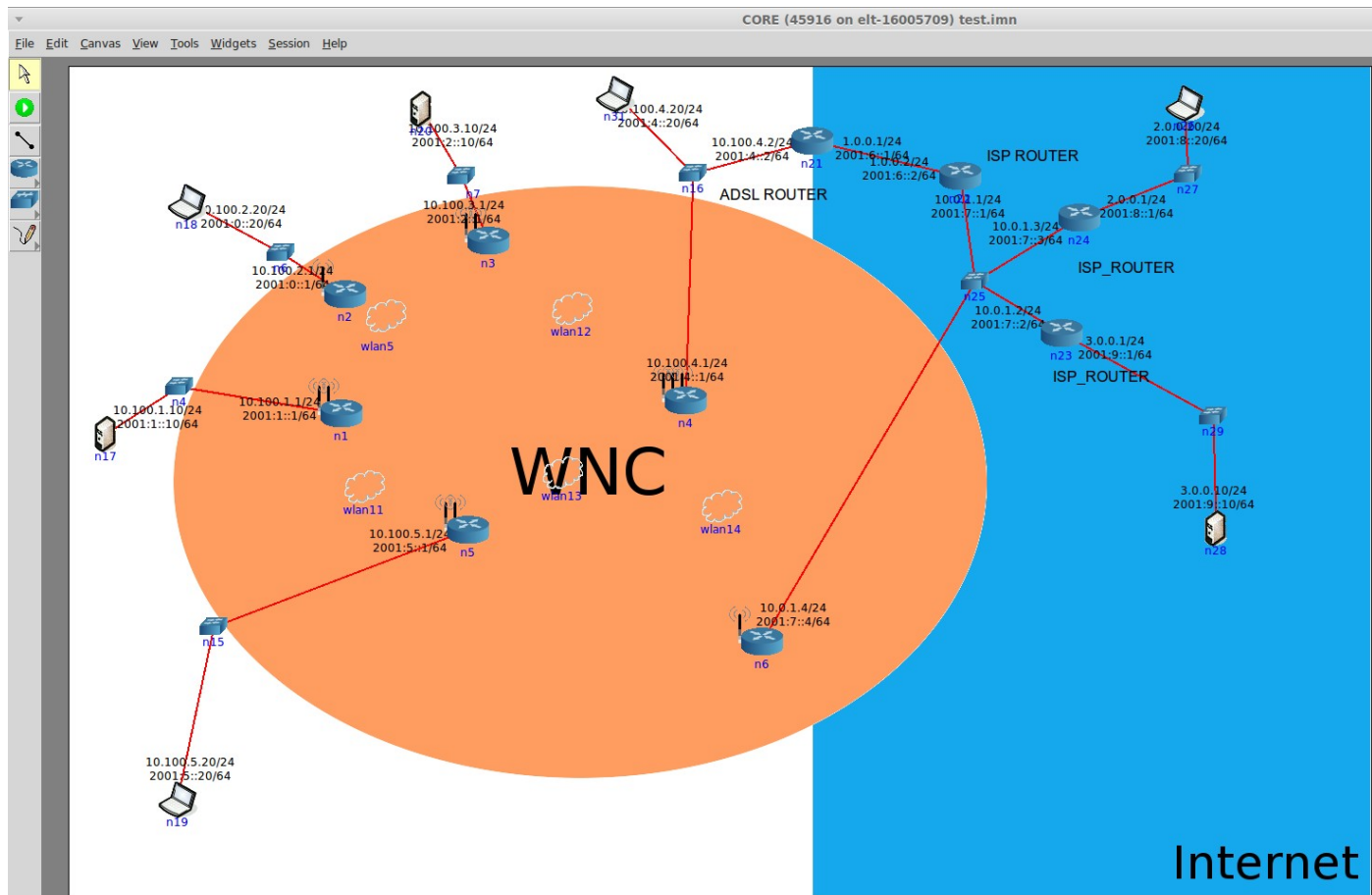
- $B_i$  node announce on 150+i domain
  - Default route (DR)
  - The Public subnet announced on BGP (PS)
- All nodes N know that in tables 150....<150+X> are B nodes defaults then
  - For TAB in these routing table
    - If there are routes, add policy routing:  
#P via BGP to I nodes (default)  
ip rule add from \$PS lookup \$TABLE pref 90  
#from/to N P nodes  
ip rule add from \$PS lookup 111 pref 4  
ip rule add to \$PS lookup 111 pref 42

# Node (N) Concept Script

```
#!/bin/bash
cat /etc/olsrd2/olsrd2.conf | grep '^\[domain=[0-9]\{3\}\]' | cut -f 2 -d = | cut -f 1 -d ] |
while read TABLE; do
    ip route show table $TABLE | grep -Ev ^default | grep -Ev ^blackhole | awk '{print $1}' |
    while read ROUTE ; do
        if [ "$TABLE" -gt 150 ] ; then
            ip rule add from $ROUTE lookup $TABLE pref 90
            ip rule add from $ROUTE lookup 111 pref 40
            ip rule add to $ROUTE lookup 111 pref 42
        fi
    done
done
```

# Let's Simulate it Live!

Using “CORE NETWORK SIMULATOR”



# Test Bed Description

- 176.62.53.0/24 static configuration on all node
- 44.134.39.0/23 BGP and n1 configurated

Then run script autopr.sh on all node