



NAT64, DNS64

Jool

APNIC46

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Jool

- <http://jool.mx/>
- Open Source SIIT and NAT64 for Linux
- SIIT (RFC7915): Stateless IP/ICMP Translation Algorithm
 - Just “translates 1:1” between IPv4 and IPv6 and back
 - SIIT with EAM (Explicit Address Mapping) allows “rules”
- Stateful NAT64, is a NAT between both
 - So helps with IPv4 address exhaustion

Jool Defined Architectures

- SIIT-DC
- 464XLAT
- SIIT-DC DTM (Dual Translation Mode)

Jool Features

- Runs in Single Interface
 - if needed
- “Node-Based Translation”
 - Using “namespaces” to “wrap” Jool
- High-Availability
 - Daemon that allows constant synchronization of sessions across Jool instances

EAMT

- Some examples:

IPv4 Prefix

192.0.2.1/32

198.51.100.0/24

203.0.113.8/29

IPv6 Prefix

2001:db8:aaaa::5/128

2001:db8:bbbb::/120

2001:db8:cccc::/125

NAT64 Setup

```
sudo service network-manager stop
```

```
sudo service radvd stop
```

```
sudo service isc-dhcp-server stop
```

```
sudo service isc-dhcp-server6 stop
```

```
sysctl -w net.ipv4.conf.all.forwarding=1
```

```
sysctl -w net.ipv6.conf.all.forwarding=1
```

```
ethtool --offload br-lan gro off lro off
```

```
ethtool --offload eth0 gro off lro off
```

```
ethtool --offload eth3 gro off lro off
```

```
ip -6 route replace 2404:2200:16:ea40::/60 via fe80::a00:27ff:fea8:cde6  
dev eth3
```

```
ip -6 route replace 2404:2200:16:5100::/56 via 2404:2200:16::5001
```

```
ip -6 route replace 2404:2200:16:5f00::/56 via 2404:2200:16::500f
```

```
modprobe jool pool6=64:ff9b::/96 pool4=202.87.128.18
```

DNS64 Setup

/etc/bind/named.conf.options

...

forwarders {

8.8.8.8;

8.8.4.4;

};

dns64 64:ff9b::/96 {

clients { any; };

mapped { any; };

exclude { 0::/3; 4000::/2; 8000::/1; 2001:db8::/32; };

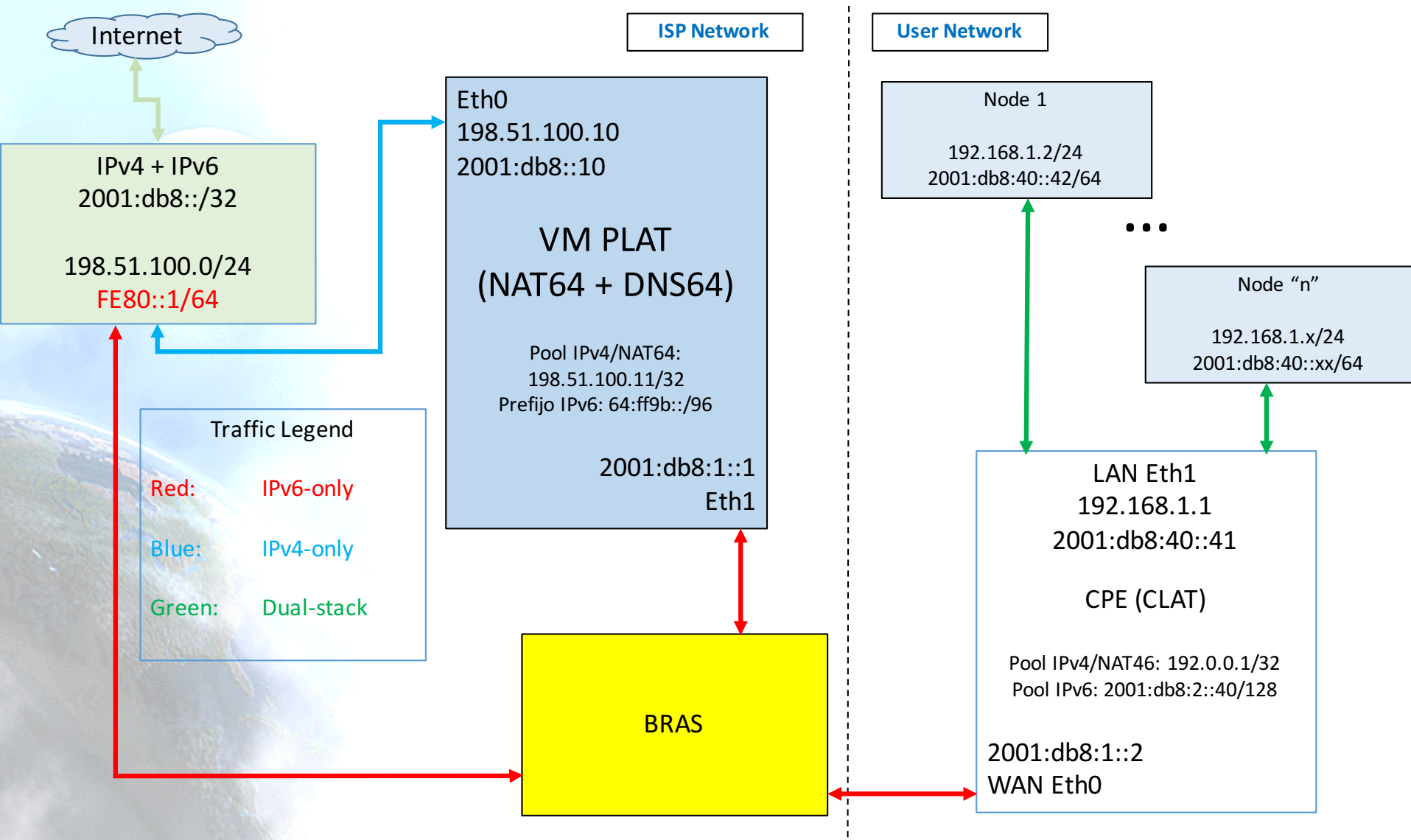
break-dnssec no;

};

CLAT Setup

```
sudo stop network-manager  
sysctl -w net.ipv4.conf.all.forwarding=1  
sysctl -w net.ipv6.conf.all.forwarding=1  
sysctl -w net.ipv4.ip_forward=1  
ethtool --offload eth0 gro off lro off  
ethtool --offload eth1 gro off lro off  
modprobe jool_siit pool6=64:ff9b::/96  
jool_siit --eamt --add 100.64.0.0/10  
2001:470:68ee:3e81::/106
```

Example Residential Customer





Thanks !!

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