Use openSUSE 11.1 as ROUTER using static NAT or DHCP

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You need

- OpenSUSE 11.1 32 bit DVD (tested configuration). Install of KDE 3.5 as GUI recommended.
- One computer with 2 NICS (one could be wireless network, but that is untested yet).
- One computer as client with 1 NIC. I assume openSUSE 11.1 as well and later for DHCP we assume Windows (i.e. XP).
- It is assumed on the server, eth0 (the first NIC) is set to DHCP and connected to ADSL router. Make sure Internet works via browser.
- It is assumed on the server, eth1 (the second NIC) is set to static IP 192.168.0.1*** subnet 255.255.255.0
- You do NOT need to enable IP-Forwarding.
- ***Note:Of course you can use another private-range IP address here. What about 192.168.101.50? But then change accordingly!

Note

- Do not use NetworkManager or KNetworkManager, use configuration via Yast (traditional method, ifup) instead.

Connect…

- Network card eth0 must be connected to Internet, eth1 will be connected to an Ethernet switch or hub to which the client(s) are being connected.

1. Install OS, 2. Prepare Firewall

- Install openSUSE 11.1 on the server, avoid SELinux and Application Armor not to cause difficulties.
- Open Yast and select the firewall settings via “Security and Users” on the left hand side and “Firewall” on the right hand side.
- Click on the Firewall icon and wait until settings have been read.
- Make sure “Enable Firewall Automatic Starting” is selected.
- If Firewall is running, click on “Stop Firewall Now” and wait until it is stopped.

3. Configure Firewall

- Click on Interfaces and make sure eth0 is assigned to “External Zone” while eth1 is assigned to “Internal Zone”.
- Click on Masquerading and select “Masquerade Networks”
- Start the Firewall.
- Click Next and let configuration be written.

4. Configure Client

- Via Yast, configure the NIC of the client to a static IP in the same subnet as the Gateway 192.168.0.1, for example give it the IP-address 192.168.0.5. Subnet 255.255.255.0.

- Under Routing, assign the IP of the Gateway under “Default Gateway”, so this will be 192.168.0.1 here.

- Under Hostname/DNS, give the following IPs as Name Server 1 and 2 (Use Default Policy is selected):

- 208.67.222.222 and 208.67.220.220.

Those are the openDNS IPs, feel free to use any other name service.

Finally…

- Finally the client should be able to access internet. In case of failure, test the follwing:

- Does “ping 192.168.0.1” issued from the client reach the server?
- Does “ping 192.168.0.5” issued from the server reach the client?
- Can the server access the Internet?
- Can the client reach the internet via IP-addresses directly? Try on the server “ping google.com” and write down the IP-address shown. Then try that on the client. If it works, the name server on the client are missing or not correct or do not work.

Client Firewall

- Client Firewall can be enabled, you can set eth0 to “external zone” for additional protection.

More clients

- You can connect more than one client to the switch or hub. Use IP addresses on the same subnet for them.

Optional: Use DHCP

- On the server: Now go to Yast and install the following software packages: yast2-dhcp-server and dhcp-server.
- Close Yast and re-open it.
- Now you will see under “Network Services” a new icon for DHCP Server.
- Click on it and select under Start-Up “Service start… when Booting”.
- Under “Card Selection” select eth1, the card which acts as a gateway for the clients.
- Make sure “Open Firewall for Selected Interfaces” is tagged.
- Under “Global Settings” select a Domain name like your linux server box name or whatever you want.
- Give the Primary and Secondary Name Server IPs, i.e. from open DNS as specified before in this small manual.

…DHPC cont.

- As Default Gateway (Router), give the IP eth1 has (which is gateway for the clients), so 192.168.0.1
- Under “Dynamic DHCP”, choose an IP address range for your clients, i.e. “First IP Address” as 192.168.0.11 and “Last IP Address” as 192.168.0.50
- Leave with “finish”.

- Now reconfigure your client’s (!) eth0 card with Yast to use DHCP and erase the “Default Gateway” entry under “Routing”.
- Make sure your client gets the correct IP with “ifconfig” being root (it should get 192.168.0.11 now being the first connected client).
- Type “ping google.com” to make sure Internet access and try browser.

Windows clients

- Of course you can connect all kinds of client OS. If you have Windows, just make sure you set the system to dynamic IP.
- You can check the IP via “ipconfig” from a DOS box.

So what we did is…

- We are simply using the firewall of the server to do NATing (network address translation) between external network and internal network (called Masquerading in Linux language).
- Means, all the clients are hiding behind the server.
- The server acts as a pretty good firewall to protect your clients.
- However, it only closes not needed ports and thus rejects unnecessary communication. The openSuse Linux firewall should be an iptables-firewall, nothing “statefull” like a Checkpoint firewall.