

## Setting up Virtual Server – port forwarding using LB Router

After reading <http://venkatarangan.com/blog/2014/03/configuring-multiple-wifi-access-points-with-load-balancer-in-my-home>, I thought of implementing the same to solve the manual switch from one broadband to the other. I know this is going to save a lot of time and effort as I face frequent disconnection. I have 2 broadband (Airtel as main line and BSNL as backup, rarely used) and a Vodafone data card connection.

I use data card because of frequent cable cut in my location. Both my wired lines will be gone if they dig the road. You can understand Chennai – Madipakkam area, every alternate day, some department will come up with their plans. To serve more than few machines, I use TP-LINK TL-MR3020 Portable 3G/3.75G/4G Wireless N Router (Around Rs.1500) with my Vodafone data card which gives me amazing speed of more than 10 to 12 mbps anytime. This is my best connection out of all 3, only for the cost reason I am forced to use wired broadband.

Back to the configuration, here is what I did.

| Device                                  | Device IP   | DHCP Config. | WAN -> Static IP in<br>the LB Router | Gateway     |
|---|-------------|--------------|--------------------------------------|-------------|
| <b>Load Balancing Router</b>            | 192.168.0.1 | Enabled      | N/A                                  |             |
| <b>Airtel Modem router</b>              | 192.168.1.1 | Disabled     | 192.168.1.2                          | 192.168.1.1 |
| <b>BSNL Modem router</b>                | 192.168.2.1 | Disabled     | 192.168.2.2                          | 192.168.2.1 |
| <b>3G Router Vodafone<br/>Data card</b> | 192.168.3.1 | Disabled     | 192.168.3.2                          | 192.168.3.1 |

All DNS pointing to Google's 8.8.8.8 and 8.8.4.4.

Everything worked fine!!! When all working, if I switch of Airtel router, with only 2 ping failures LB router switches to BSNL. I liked it and thanked Venkat.

Here comes my next challenge. I have an internal site running on one of my machines which needs to be exposed to internet (Port: 1111). Also I used to logon to my server from home to monitor few things. I have static IP for this purpose from Airtel. I set up this with Virtual server configuration previously. It would be easier to setup in any router. All you have to do is, type the internal IP and port to which the requests has to be forwarded to.

Now it has to be done with 2 steps as we have internet router -> LB Router -> Network Switch -> Machine.

Step 1 – I have to configure the Airtel router to pass on the request to LB Router.

Step 2 – LB router should pass onto the particular machine and return the data back.

I got the concept, but not sure whether it would work or not. I did the below configuration.

Airtel router config.:

The screenshot shows the Airtel router configuration interface. The top navigation bar includes 'Advanced', 'Interface Setup', 'Advanced Setup', 'Access Management', 'Maintenance', and 'Status'. Under 'Advanced Setup', there are sub-menus for 'Firewall', 'Routing', 'NAT', 'QoS', and 'ADSL'. The 'Virtual Server' configuration page is displayed, showing settings for a 'Single IP Account'. The configuration includes a 'Rule Index' of 1, an 'Application' of 'pcAnywhere', a 'Protocol' of 'ALL', and 'Start Port Number' and 'End Port Number' both set to 3389. The 'Local IP Address' is set to 192.168.1.2. Below the configuration fields is a 'Virtual Server Listing' table.

| Rule | Application | Protocol | Start Port | End Port | Local IP Address | Start Port Local | End Port Local |
|------|-------------|----------|------------|----------|------------------|------------------|----------------|
| 1    | pcAnywhere  | ALL      | 3389       | 3389     | 192.168.1.2      | 3389             | 3389           |
| 2    | HTTP_Server | ALL      | 1111       | 1111     | 192.168.1.2      | 1111             | 1111           |
| 3    | -           | -        | 0          | 0        | 0.0.0.0          | 0                | 0              |
| 4    | -           | -        | 0          | 0        | 0.0.0.0          | 0                | 0              |

You can see the 2 configurations, one for my site and one for my Microsoft Remote Desktop (Port: 3389).

If you notice, I have given the end point as LB Router's contact point for my Airtel.

In the LB Router,

LAN DHCP DHCP Client DHCP Reservation

**DHCP Reservation**

MAC Address:  (XX-XX-XX-XX-XX-XX)

IP Address:

Description:  (Optional)

Status:  Activate  Inactivate

Add  
Clear  
Help

**List of Reserved Address**

| No.                        | MAC Address           | IP Address    | Status | Description       | Action |
|----------------------------|-----------------------|---------------|--------|-------------------|--------|
| <input type="checkbox"/> 1 | <del>XXXXXXXXXX</del> | 192.168.0.100 | Active | <del>Server</del> |        |
| <input type="checkbox"/> 2 | <del>XXXXXXXXXX</del> | 192.168.0.50  | Active | <del>Server</del> |        |

Select All Activate Inactivate Delete Import Search

**Note:**

- The <Import> button is used to import the static address entries from the IP-MAC binding table.
- It's recommended that users first configure entries in IP-MAC binding and to import them to the List of Reserved Address, then continue with other actions.

Even though I have DHCP enabled in LB router, I want these 2 machines to be assigned with specific IP so that it can always point the 2 machines I want. 192.168.0.100 is my server – I need remote desktop and 192.168.0.50 is where I have a site running on IIS under port 1111.

Here is the configuration on the L Server -> Virtual Server.

NAT Setup Virtual Server Port Triggering ALG

**Virtual Server**

Name:

External Port:  -

Internal Port:  -

Protocol: TCP/UDP

Internal Server IP:

Status:  Activate  Inactivate

Add  
Clear  
Help

**List of Rules**

| No.                        | Name              | Protocol | External Port | Internal Port | Internal Server IP | Status | Action |
|----------------------------|-------------------|----------|---------------|---------------|--------------------|--------|--------|
| <input type="checkbox"/> 1 | Server RDP        | TCP/UDP  | 3389          | 3389          | 192.168.0.100      | Active |        |
| <input type="checkbox"/> 2 | <del>Server</del> | TCP/UDP  | 1111          | 1111          | 192.168.0.50       | Active |        |

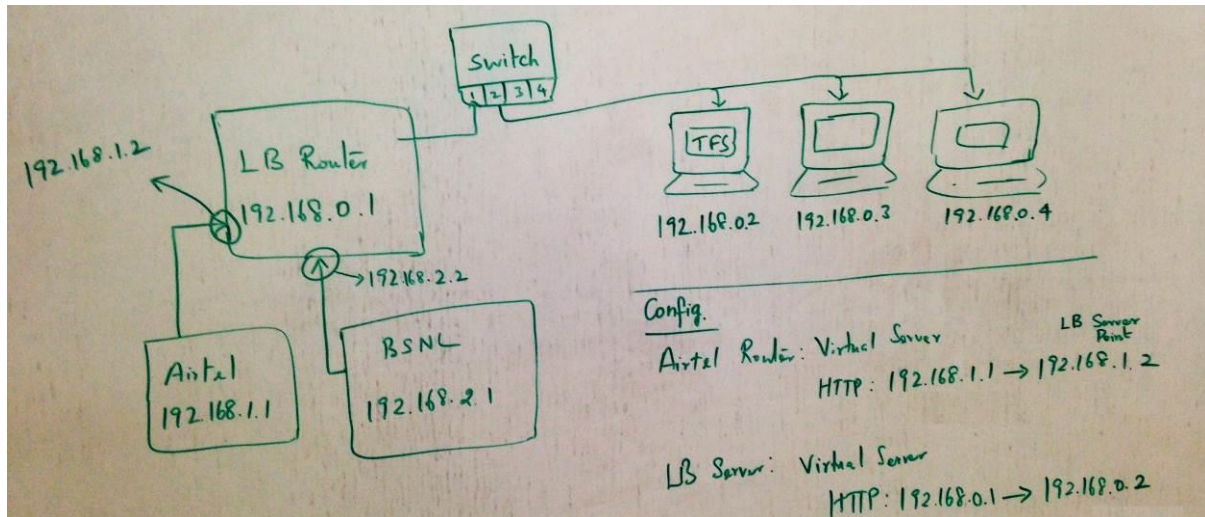
Select All Activate Inactivate Delete Search

**Note:**

"Internal Server IP" must be within the LAN IP address range and the IP pool range of the PPPoE Server.

From the LB Router, I connected a cable to my network switch and inserted in LAN 1 port. I connected other machines from the remaining LAN ports.

Pictorial representation:



**With my static IP, both works from outside world!!!**

A BIG thanks to Venkat again!