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# Setting Up An IPv6 Tunnel

Using Hurricane Electric's tunnel broker service  
on a single Ubuntu computer

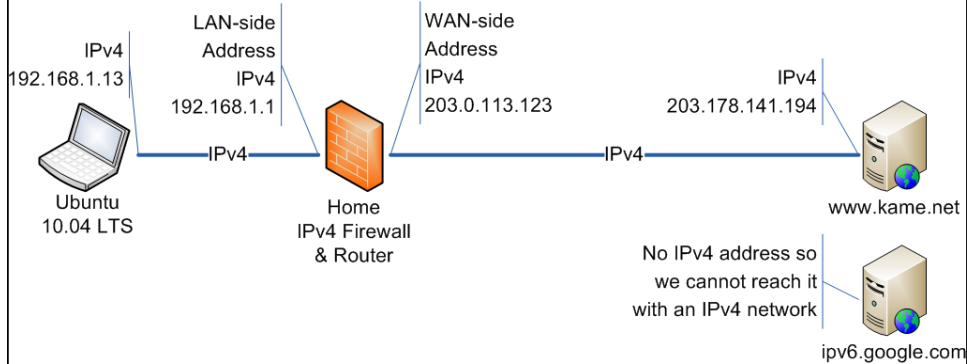
Gareth Digby  
for the  
Columbia Area Linux User Group  
June 8, 2011 meeting

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## Why Use A Tunnel?

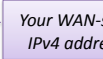
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- To reach IPv6 hosts on the other side of an ISP's IPv4 network



## Step 1: Hurricane Electric Tunnel Broker Account

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- Sign up with Hurricane Electric, [tunnelbroker.net](http://tunnelbroker.net), to get an IPv6 tunnel using their tunnel broker service
- This will give you:
  - Server IPv4 address – 216.66.22.2
  - Server IPv6 address – 2001:db8:7:aa7::1
  - *Client IPv4 address* – 203.0.113.123 
  - Client IPv6 address – 2001:db8:7:aa7::2
  - Routed IPv6 prefixes – 2001:db8:8:aa7::/64

## Step 2: edit /etc/network/interfaces

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*Edit interfaces. At the command line:*

**\$ sudo nano /etc/network/interfaces**

*And add...*

```
auto he-ipv6iface he-ipv6 inet6 v4tunnel
  endpoint 216.66.22.2
  address 2001:db8:7:aa7::2
  netmask 64
  up ip -6 route add default dev he-ipv6
  down ip -6 route del default dev he-ipv6
```




## Step 3: edit Network Manager settings

The screenshot shows the Network Manager interface with three windows open:

- Network Connections:** Shows 'Auto eth1' selected. Callout 1: 'right click & edit connections' points to the 'Edit...' button.
- Editing Auto eth1:** Shows the 'IPv6 Settings' tab. Callout 2: 'edit' points to the 'Edit...' button. Callout 3: 'manual' points to the 'Method' dropdown set to 'Manual'. Callout 4: 'add' points to the 'Add' button in the 'Addresses' table.
- Editing IPv6 routes for Auto eth1:** Shows a table of routes. Callout 5: 'routes' points to the 'Routes...' button. Callout 6: 'add' points to the 'Add' button in the table.

Additional callouts in the 'Editing Auto eth1' window:

- 'Routable address' points to the 'Address' field.
- 'Server IPv6 address' points to the 'Address' field in the 'Routes' dialog.
- 'Client IPv6 address' points to the 'Prefix' field in the 'Routes' dialog.

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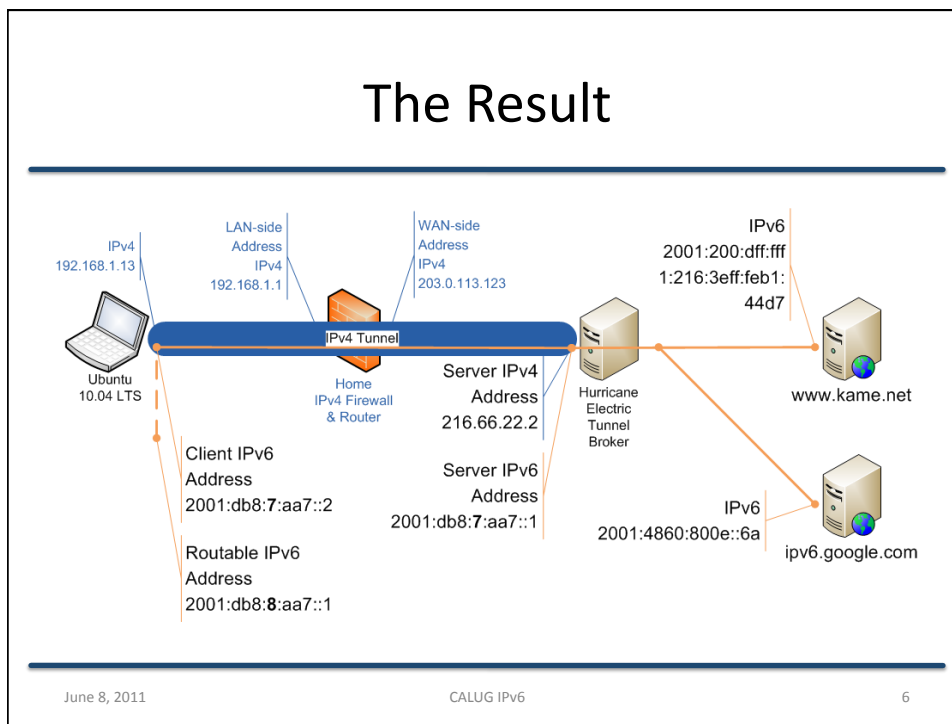
## Step 4: Bring Up The Interface

*At the command line:*

```
$ sudo ifup he-ipv6
```

- **But caution – you now need to set up an IPv6 firewall on your computer**
  - *ufw* can be used
- But we'll leave that as an exercise for the reader!

## The Result



## References

- Ubuntu wiki on IPv6
  - <https://wiki.ubuntu.com/IPv6>
- Setting up a IPv6 Gateway on Hurricane Electric using Ubuntu 10.04.2
  - <http://www.dickson.me.uk/2011/03/08/setting-up-a-ipv6-gateway-on-hurricane-electric-using-ubuntu-lucid-lynx-10-04-2/>
- Hurricane Electric
  - <http://he.net>