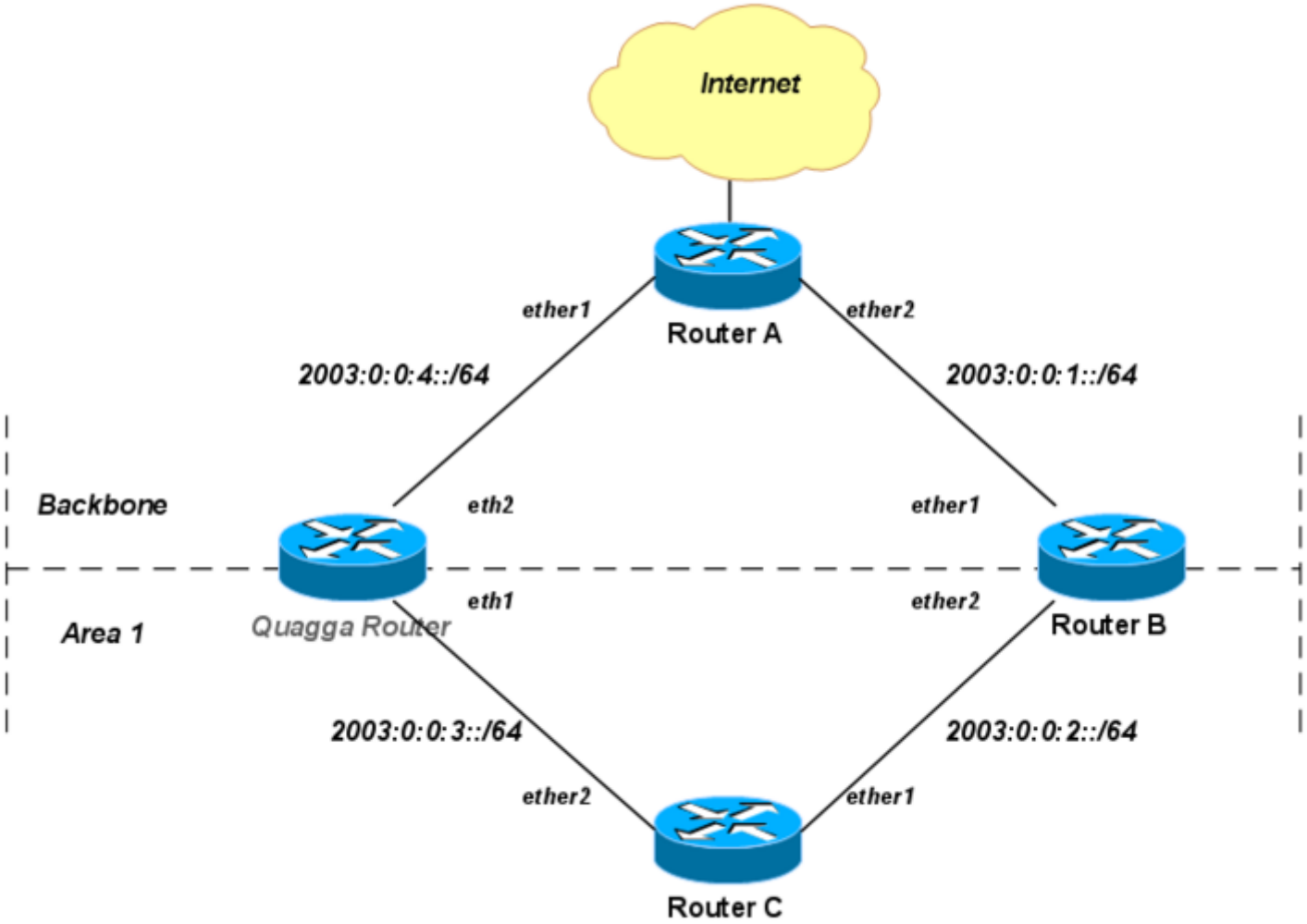
Manual:OSPFv3 with Quagga

From MikroTik Wiki

In this example we demonstrate interoperability of MikroTik 3.x with Quagga in multi-area OSPF setup with load balancing.

RouterOS version 3.16 and Quagga 0.99.11 are used respectively.



Contents

Router A

```
/ipv6 address
 add address=2003::1:0:0:0:1/64 advertise=no interface=ether2
 add address=2003::4:0:0:0:1/64 advertise=no interface=ether1
 add address=2003::1/64 advertise=no interface=ToInternet

/routing ospf-v3
 set router-id=0.0.0.1 distribute-default=always-as-type-1

/routing ospf-v3 interface
 add interface=ether1 area=backbone
 add interface=ether2 area=backbone
```

Router B

```
/ipv6 address
 add address=2003::1:0:0:0:2/64 advertise=no interface=ether1
 add address=2003::2:0:0:0:2/64 advertise=no interface=ether2

/routing ospf-v3
 set router-id=0.0.0.2
/routing ospf-v3 area
 add area-id=0.0.0.1 name=area1
/routing ospf-v3 interface
 add interface=ether1 area=backbone
 add interface=ether2 area=area1
```

Quagga Router

```
debian:~# ip -6 addr add 2003:0:0:3::4/64 dev eth1
debian:~# ip -6 addr add 2003:0:0:4::4/64 dev eth2
debian:~#
debian:~# cat /etc/quagga/ospf6d.conf
...
interface eth1
 ipv6 ospf6 cost 10

interface eth2
 ipv6 ospf6 cost 10

router ospf6
 router-id 0.0.0.4
 interface eth1 area 0.0.0.1
 interface eth2 area 0.0.0.0

debian:~# telnet ::1 2606
Hello, this is Quagga (version 0.99.11).
Copyright 1996-2005 Kunihiro Ishiguro, et al.

...

quagga# show ipv6 ospf6 route
*N E1 ::/0                          fe80::1200:ff:fe00:100      eth2 00:33:50
*N IA 2003:0:0:1::/64               fe80::1200:ff:fe00:100      eth2 00:32:55
*N IE 2003:0:0:2::/64               fe80::1200:ff:fe00:100      eth2 00:02:44
*N IA 2003:0:0:2::/64               fe80::1200:ff:fe00:301      eth1 00:02:37
*N IE 2003:0:0:3::/64               fe80::1200:ff:fe00:100      eth2 00:02:39
 N IA 2003:0:0:3::/64               ::                          eth1 00:02:46
*N IA 2003:0:0:4::/64               ::                          eth2 00:33:50
```

Router C

```
/ipv6 address
 add address=2003::2:0:0:0:3/64 advertise=no interface=ether1
 add address=2003::3:0:0:0:3/64 advertise=no interface=ether2

/routing ospf-v3
 set router-id=0.0.0.3
/routing ospf-v3 area
 add area-id=0.0.0.1 name=area1
/routing ospf-v3 interface
 add interface=ether1 area=area1
 add interface=ether2 area=area1

[admin@C] /routing ospf-v3> route print
 # DESTINATION                                 STATE      COST
 0 ::/0                                        ext-1      21
 1 2003::1:0:0:0:0/64                          inter-area 20
```

```
 2 2003::2:0:0:0:0/64                        intra-area 10
 3 2003::3:0:0:0:0/64                        intra-area 10
 4 2003::4:0:0:0:0/64                        inter-area 20

[admin@C] /routing ospf-v3> route print detail
 0 destination=::/0 state=ext-1 gateway=fe80::1200:ff:fe00:201,fe80::1200:ff:fe00:ff00
   interface=ether1,ether2 cost=21 area=external

 1 destination=2003::1:0:0:0:0/64 state=inter-area gateway=fe80::1200:ff:fe00:201
   interface=ether1 cost=20 area=area1

 2 destination=2003::2:0:0:0:0/64 state=intra-area gateway=:: interface=ether1 cost=10
   area=area1

 3 destination=2003::3:0:0:0:0/64 state=intra-area gateway=:: interface=ether2 cost=10
   area=area1

 4 destination=2003::4:0:0:0:0/64 state=inter-area gateway=fe80::1200:ff:fe00:ff00
   interface=ether2 cost=20 area=area1
```

Ping an "Internet" address from Router C (traffic will go through ECMP route):

```
[admin@C] > /ping 2003::1
2003::1 64 byte ping: ttl=63 time=20 ms
2003::1 64 byte ping: ttl=63 time=12 ms
2003::1 64 byte ping: ttl=63 time=9 ms
2003::1 64 byte ping: ttl=63 time=12 ms
4 packets transmitted, 4 packets received, 0% packet loss
round-trip min/avg/max = 9/13.2/20 ms

[admin@C] > /tool traceroute 2003::1
     ADDRESS                                  STATUS
   1 2003::2:0:0:0:2 19ms 7ms 15ms
   2         2003::1 13ms 13ms 12ms
```

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- This page was last edited on 31 May 2010, at 13:26.