The configuration of MPLS TE with Static CR-LSP In MSR Series

张瑞　2008-10-17 发表

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Keywords: MSR; MPLS TE;CR-LSP

I　　　Requirement

Using static CR-LSP set up a TE tunnel from RTA to RTC.
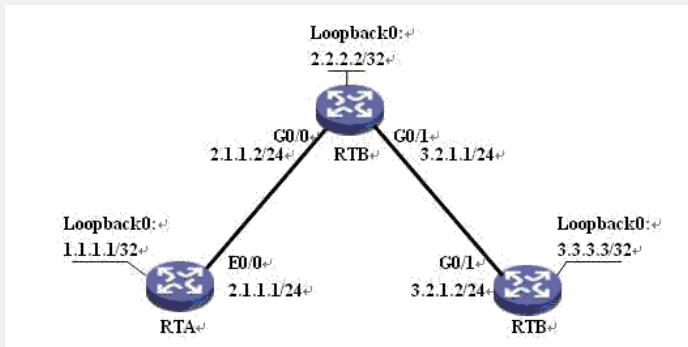
Device List: 3 MSR

II　　　Network topology

Figure 1 MPLS TE with Static CR-LSP

III　　　Steps of configuration

RTA

#
//enable MPLS TE
mpls lsr-id 1.1.1.1
#
mpls
　mpls te
#
isis 1
　network-entity 00.0005.0000.0000.0001.00
#
interface Ethernet0/0
　port link-mode route
　ip address 2.1.1.1 255.255.255.0
　isis enable 1
　//enable MPLS TE of this interface
　mpls
　mpls te
 	
#
 	
interface LoopBack0
　ip address 1.1.1.1 255.255.255.255
　isis enable 1
#
interface Tunnel0
　ip address 6.1.1.1 255.255.255.0
　tunnel-protocol mpls te
　destination 3.3.3.3
　mpls te signal-protocol static
　mpls te commit
#
//set the routing, pointing to tunnel entrance
　ip route-static 3.3.3.3 255.255.255.255 Tunnel0 preference 1
#
　//set RouterA as a ingress node of CR-LSP
　static-cr-lsp ingress Tunnel0 destination 3.3.3.3 nexthop 2.1.1.2 out-label 20
 	
bandwidth bc0 0

RTB配置

```
#
mpls lsr-id 2.2.2.2
#
mpls
 mpls te
#
isis 1
 network-entity 00.0005.0000.0000.0002.00
#
interface LoopBack0
 ip address 2.2.2.2 255.255.255.255
 isis enable 1
#
interface GigabitEthernet0/0
 port link-mode route
 ip address 2.1.1.2 255.255.255.0
 isis enable 1
 mpls
 mpls te
#
interface GigabitEthernet0/1
 port link-mode route
 ip address 3.2.1.1 255.255.255.0
 isis enable 1
 mpls
 mpls te
#
 //set RouterB as a transit node of CR-LSP
 static-cr-lsp transit tunnel0 incoming-interface GigabitEthernet0/0 in-label 20 nexth
op 3.2.1.2 out-label 30
```

RTC

```
#
mpls lsr-id 3.3.3.3
#
mpls
 mpls te
#
isis 1
 network-entity 00.0005.0000.0000.0003.00
#
interface LoopBack0
 ip address 3.3.3.3 255.255.255.255
 isis enable 1
#
interface GigabitEthernet0/1
 port link-mode route
 ip address 3.2.1.2 255.255.255.0
 isis enable 1
 mpls
 mpls te
#
 //set RouterC as static CR-LSP start point
 static-cr-lsp egress tunnel0 incoming-interface GigabitEthernet0/1 in-label 30
```

IV   Key notes in the configuration

1) Using ISIS as the routing protocol, and make sure routing information can be updated dynamically;

2) Enable MPLS TE globally;

3) Configuration static CR-LSP;

V   Key notes in the configuration

1)   Check MPLS TE tunnel;

[rta]display mpls te tunnel

LSP-Id	Destination	In/Out-If	Name
1.1.1.1:0	3.3.3.3	-/Eth0/0	Tunnel0

<rtb>display mpls te tunnel

LSP-Id	Destination	In/Out-If	Name
-	-	GE0/0/GE0/1	tunnel0

<RTC>display mpls te tunnel

LSP-Id	Destination	In/Out-If	Name
-	-	GE0/1/-	tunnel0

<RTC>

2) Check the state of tunnel interface:

[rta]display interface Tunnel 0

Tunnel0 current state: UP

Line protocol current state: UP

Description: Tunnel0 Interface

The Maximum Transmit Unit is 64000

Internet Address is 6.1.1.1/24 Primary

Encapsulation is TUNNEL, aggregation ID not set

Tunnel source unknown, destination 3.3.3.3

Tunnel protocol/transport CR_LSP

   Last 300 seconds input: 0 bytes/sec, 0 packets/sec

   Last 300 seconds output: 0 bytes/sec, 0 packets/sec

   0 packets input, 0 bytes

   0 input error

   34 packets output, 2504 bytes

   0 output error

3) Check routing table of RTA:

   [rta]dis ip rou

       Routing Tables: Public

     Destinations : 10   Routes : 10

Destination/Mask	Proto	Pre	Cost	NextHop	Interface
1.1.1.1/32	Direct	0	0	127.0.0.1	InLoop0
2.1.1.0/24	Direct	0	0	2.1.1.1	Eth0/0
2.1.1.1/32	Direct	0	0	127.0.0.1	InLoop0
2.2.2.2/32	ISIS	15	10	2.1.1.2	Eth0/0
3.2.1.0/24	ISIS	15	20	2.1.1.2	Eth0/0
3.3.3.3/32	**Static**	**1**	**0**	**6.1.1.1**	**Tun0**
6.1.1.0/24	**Direct**	**0**	**0**	**6.1.1.1**	**Tun0**
6.1.1.1/32	Direct	0	0	127.0.0.1	InLoop0
127.0.0.0/8	Direct	0	0	127.0.0.1	InLoop0
127.0.0.1/32	Direct	0	0	127.0.0.1	InLoop0