

华为路由交换由浅入深系列（三） RIP 简单配置、路由汇总、 认证、重分布静态

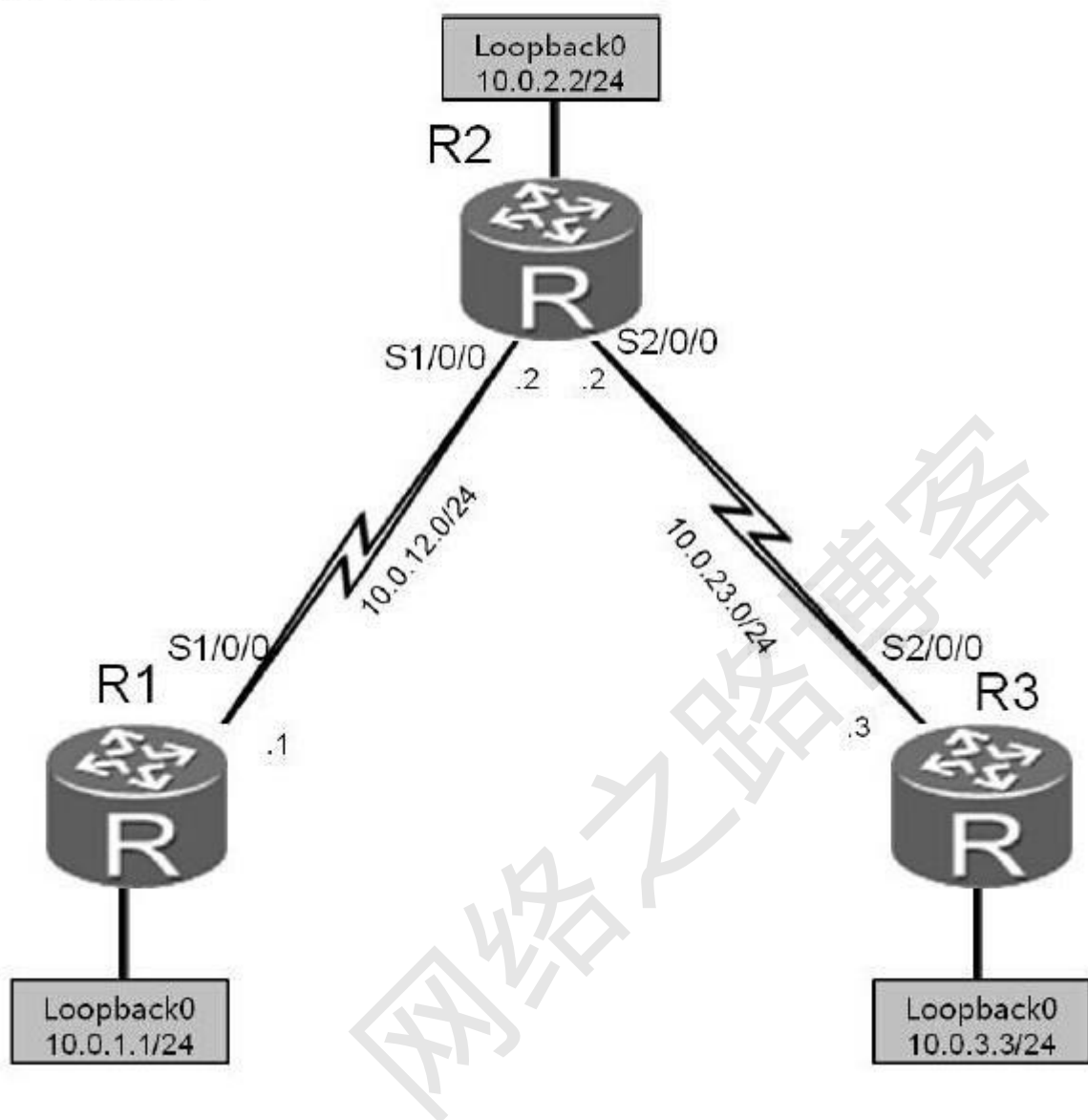
掌握目标

- 一、基本 IP 地址配置
- 二、配置 RIPV1
- 三、配置 RIPV2
- 四、重分布静态路由
- 五、手工汇总路由
- 六、明文与 MD5 认证

网络之路博客

RIP的配置

实验一、拓扑如下：



实验配置如下：

一、基本配置：

R1:

```
interface Serial1/0/0
```

```
ip address 10.0.12.1 255.255.255.0
```

```
interface LoopBack0
```

```
ip address 10.0.1.1 255.255.255.0
```

R2:

```
interface Serial1/0/0
```

```
ip address 10.0.12.2 255.255.255.0
```

```
interface Serial2/0/0
```

```
ip address 10.0.23.2 255.255.255.0
```

```
interface LoopBack0
```

```
ip address 10.0.2.2 255.255.255.0
```

R3:

```
interface Serial2/0/0
```

```
ip address 10.0.23.3 255.255.255.0
```

```
interface LoopBack0
```

```
ip address 10.0.3.3 255.255.255.0
```

测试：

```
[R2]ping 10.0.12.1
```

```
PING 10.0.12.1: 56 data bytes, press CTRL_C to break
```

```
Reply from 10.0.12.1: bytes=56 Sequence=1 ttl=255 time=20 ms
```

```
Reply from 10.0.12.1: bytes=56 Sequence=2 ttl=255 time=10 ms
```

```
Reply from 10.0.12.1: bytes=56 Sequence=3 ttl=255 time=10 ms
```

[R2]ping 10.0.23.3

PING 10.0.23.3: 56 data bytes, press CTRL_C to break

Reply from 10.0.23.3: bytes=56 Sequence=1 ttl=255 time=20 ms

Reply from 10.0.23.3: bytes=56 Sequence=2 ttl=255 time=20 ms

Reply from 10.0.23.3: bytes=56 Sequence=3 ttl=255 time=10 ms

二、配置 RIPv1 协议

R1 :

[R1]rip 1 ===启用 RIP 进程

[R1-rip-1]network 10.0.0.0 ===宣告网络到 RIP 进程

R2 :

[R2]rip

[R2-rip-1]network 10.0.0.0

R3 :

[R3]rip

[R3-rip-1]network 10.0.0.0

[R1]display ip routing-table protocol rip ===查看路由表中 RIP 路由

Route Flags: R - relay, D - download to fib

Public routing table : RIP

Destinations : 3 Routes : 3

RIP routing table status : <Active>

Destinations : 3 Routes : 3

Destination/Mask	Proto	Pre	Cost	Flags	NextHop	Interface
10.0.2.0/24	RIP	100	1	D	10.0.12.2	Serial1/0/0
10.0.3.0/24	RIP	100	2	D	10.0.12.2	Serial1/0/0
10.0.23.0/24	RIP	100	1	D	10.0.12.2	Serial1/0/0

测试 :

[R1]ping 10.0.23.3

PING 10.0.23.3: 56 data bytes, press CTRL_C to break

Reply from 10.0.23.3: bytes=56 Sequence=1 ttl=254 time=30 ms

Reply from 10.0.23.3: bytes=56 Sequence=2 ttl=254 time=20 ms

[R1]ping 10.0.3.3

PING 10.0.3.3: 56 data bytes, press CTRL_C to break

Reply from 10.0.3.3: bytes=56 Sequence=1 ttl=254 time=10 ms

Reply from 10.0.3.3: bytes=56 Sequence=2 ttl=254 time=10 ms

Reply from 10.0.3.3: bytes=56 Sequence=3 ttl=254 time=10 ms

<R1>debugging rip 1 ===开启 RIP 调试信息，必须在用户视图开启

<R1>terminal debugging

<R1>terminal monitor

<R1>display debugging rip ===查看开启 debug 功能

RIP Process id: 1

Debugs ON: SEND, RECEIVE, PACKET, TIMER, EVENT, BRIEF,

JOB, ROUTE-PROCESSING, ERROR,

REPLAY-PROTECT, GR

May 14 2014 13:15:09.866.1-05:13 R1 RIP/7/DBG: 6: 13414: RIP 1: Receiving v1 response on Serial1/0/0 from 10.0.12.2 with 3 RTEs

<R1>May 14 2014 13:15:09.866.2-05:13 R1 RIP/7/DBG: 6: 13465: RIP 1: Receive response from 10.0.12.2 on Serial1/0/0

<R1>May 14 2014 13:15:09.866.3-05:13 R1 RIP/7/DBG: 6: 13476: Packet: Version 1, Cmd response, Length 64

<R1>May 14 2014 13:15:09.866.4-05:13 R1 RIP/7/DBG: 6: 13527: Dest 10.0.2.0, Cost 1

<R1>undo debug rip 1 ===关闭 RIP debug 功能

<R1>undo debug all ===关闭所有 debug 功能

三、配置 RIPv2 协议

[R1]rip 1

[R1-rip-1]version 2

[R2]rip 1

[R2-rip-1]version 2

[R3]rip 1

[R3-rip-1]version 2

[R1]display ip routing-table protocol rip

Route Flags: R - relay, D - download to fib

Public routing table : RIP

Destinations : 3 Routes : 3

RIP routing table status : <Active>

Destinations : 3 Routes : 3

Destination/Mask	Proto	Pre	Cost	Flags	NextHop	Interface
10.0.2.0/24	RIP	100	1	D	10.0.12.2	Serial1/0/0
10.0.3.0/24	RIP	100	2	D	10.0.12.2	Serial1/0/0
10.0.23.0/24	RIP	100	1	D	10.0.12.2	Serial1/0/0

RIP routing table status : <Inactive>

Destinations : 0 Routes : 0

测试 :

<R1>debugging rip 1 event

<R1>debugging rip 1 packet

<R1>undo debugging all

<R1>

May 14 2014 13:31:30.266.2-05:13 R1 RIP/7/DBG: 6: 13476: Packet: Version 2, Cmd response, Length 24

<R1>May 14 2014 13:31:30.266.3-05:13 R1 RIP/7/DBG: 6: 13546: Dest 10.0.1.0/24, Nexthop 0.0.0.0, Cost 1, Tag 0

<R1>May 14 2014 13:31:42.106.1-05:13 R1 RIP/7/DBG: 6: 13465: RIP 1: Receive response from 10.0.12.2 on
Serial1/0/0

<R1>May 14 2014 13:31:42.106.2-05:13 R1 RIP/7/DBG: 6: 13476: Packet: Version 2, Cmd response, Length 64

四、RIP 中重分布静态路由

[R3]int lo 1

[R3-LoopBack1]ip add 172.16.3.3 24

<R1>ping -c 3 172.16.3.3

PING 172.16.3.3: 56 data bytes, press CTRL_C to break

Request time out

Request time out

Request time out

[R2]ip route-static 172.16.3.0 24 10.0.23.3

[R2]rip 1

[R2-rip-1]import-route static =====RIP 进程中重分布静态路由

R1>display ip routing-table protocol rip | in 172

Route Flags: R - relay, D - download to fib

Public routing table : RIP

Destinations : 4 Routes : 4

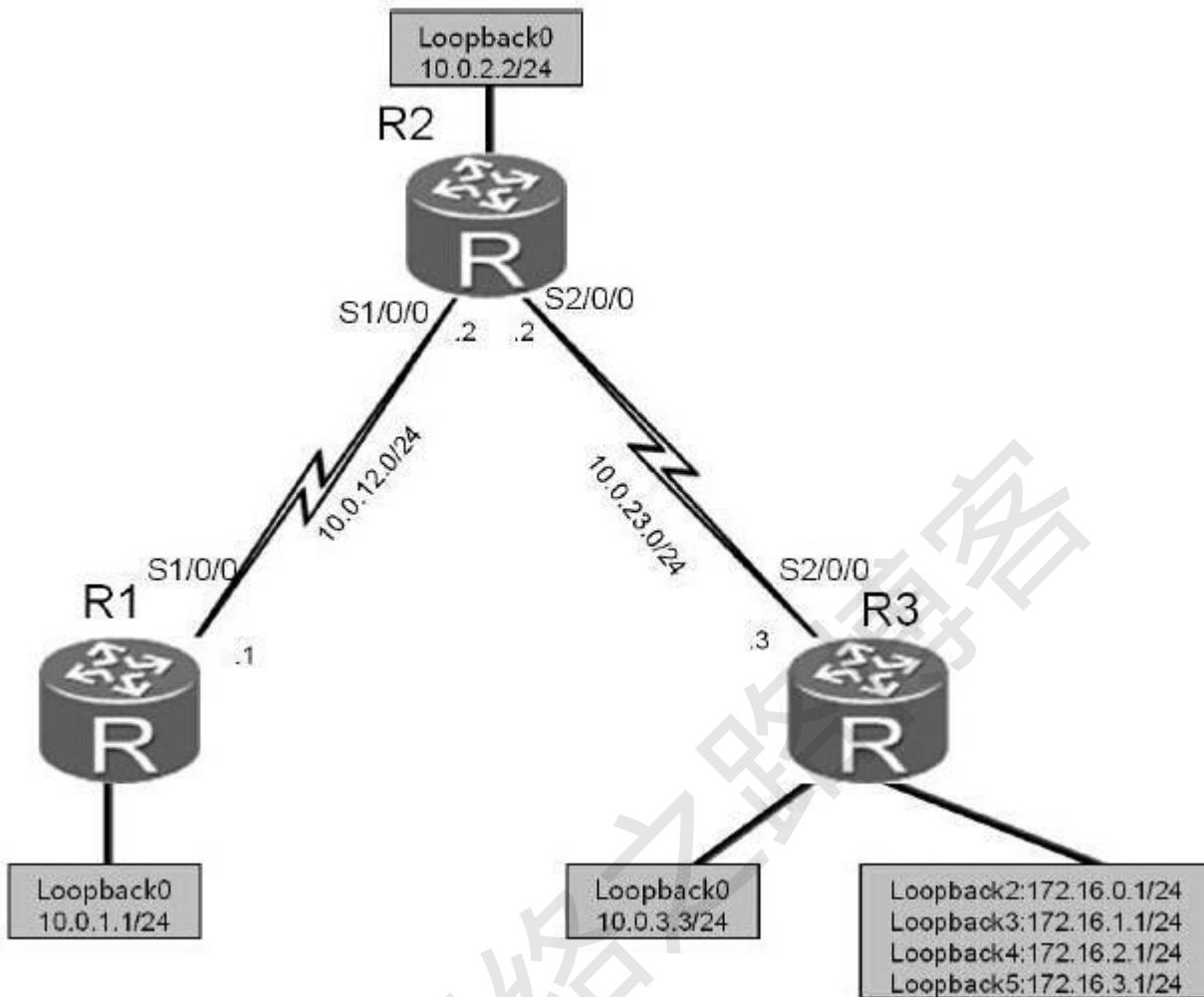
RIP routing table status : <Active>

Destinations : 4 Routes : 4

Destination/Mask	Proto	Pre	Cost	Flags	NextHop	Interface
172.16.3.0/24	RIP	100	1	D	10.0.12.2	Serial1/0/0

RIPv2路由汇总和认证

实验二、拓扑如下：



网络工程师

一、基本配置

R3:

```
interface LoopBack1
```

```
ip address 172.16.0.1 255.255.255.0
```

```
interface LoopBack2
```

```
ip address 172.16.1.1 255.255.255.0
```

```
interface LoopBack3
```

```
ip address 172.16.2.1 255.255.255.0
```

```
interface LoopBack4
```

```
ip address 172.16.3.1 255.255.255.0
```

二、配置 RIPv2

R1:

```
[R1]rip 1
```

```
[R1-rip-1]version 2
```

```
[R1-rip-1]network 10.0.0.0
```

R2:

```
[R2]rip 1
```

```
[R2-rip-1]version 2
```

```
[R2-rip-1]network 10.0.0.0
```

R3:

```
[R3]rip 1
```

```
[R3-rip-1]version 2
```

[R3-rip-1]net 10.0.0.0

[R3-rip-1]net 172.16.0.0

R1]display ip routing-table protocol rip

Route Flags: R - relay, D - download to fib

Public routing table : RIP

Destinations : 7 Routes : 7

RIP routing table status : <Active>

Destinations : 7 Routes : 7

Destination/Mask	Proto	Pre	Cost	Flags	NextHop	Interface
10.0.2.0/24	RIP	100	1	D	10.0.12.2	Serial1/0/0
10.0.3.0/24	RIP	100	2	D	10.0.12.2	Serial1/0/0
10.0.23.0/24	RIP	100	1	D	10.0.12.2	Serial1/0/0
172.16.0.0/24	RIP	100	2	D	10.0.12.2	Serial1/0/0
172.16.1.0/24	RIP	100	2	D	10.0.12.2	Serial1/0/0
172.16.2.0/24	RIP	100	2	D	10.0.12.2	Serial1/0/0
172.16.3.0/24	RIP	100	2	D	10.0.12.2	Serial1/0/0

RIP routing table status : <Inactive>

Destinations : 0 Routes : 0

三、配置手工路由汇总

```
[R2]int s1/0/0  
[R2-Serial1/0/0]rip summary-address 172.16.0.0 255.255.0.0
```

测试

```
<R1>display ip routing-table protocol rip | in 172
```

Route Flags: R - relay, D - download to fib

Public routing table : RIP

Destinations : 4 Routes : 4

RIP routing table status : <Active>

Destinations : 4 Routes : 4

Destination/Mask	Proto	Pre	Cost	Flags	NextHop	Interface
172.16.0.0/16	RIP	100	2	D	10.0.12.2	Serial1/0/0

四、配置明文与 MD5 认证

R1 与 R2 明文认证 :

```
interface Serial1/0/0  
  
rip authentication-mode simple cisco
```

```
interface Serial1/0/0
```

```
rip authentication-mode simple cisco
```

```
interface Serial2/0/0
```

```
rip authentication-mode md5 usual cisco
```

```
interface Serial2/0/0
```

```
rip authentication-mode md5 usual cisco
```

测试：

```
[R1]int s1/0/0
```

```
[R1-Serial1/0/0]rip authentication-mode simple huawei
```

```
<R1>debugging rip 1
```

```
<R1>terminal monitor
```

```
Info: Current terminal monitor is on.
```

```
<R1>terminal debugging
```

```
<R1>reset ip routing-table statistics protocol rip ===清除 RIP 路由表信息
```

博主也只是业余时间写写技术文档，请大家见谅，大家觉得不错的话，可以推荐给朋友哦，博主会努力推出更好的系列文档的。如果大家有任何疑问或者文中有错误跟疏忽的地方，欢迎大家留言指出，博主看到后会第一时间修改，谢谢大家的支持，更多技术文章尽在网络之路博客，<http://ccieh3c.com>。