# 🗩 单区域OSPF典型组网配置案例

OSPF H3C模拟器 **韦家宁** 2019-12-14 发表

### 组网及说明

在实际组网中,经常会遇到OSPF组网的案例,比如单区域OSPF、多区域OSPF、OSPF虚链路、OS PF NSSA、OSPF STUB等需求,以下是单区域OSPF典型组网的配置案例。 网络拓扑图:



互联地址、业务地址、looback0地址如上图所示,全网均采用OSPF进程1、区域0,实现全网互联互通。

### 配置步骤

- 1、配置loopback0地址
- 2、配置各互联地址
- 3、创建OSPF进程1,并将各地址在区域0中发布
- 4、查看OSPF邻居的状态
- 5、测试PC之间能互联互通

# 配置关键点

R1:

<H3C>system-view [H3C]sysname R1 [R1]int LoopBack 0 [R1-LoopBack0]ip add [R1-LoopBack0]ip address 1.1.1.1 32 [R1-LoopBack0]quit [R1]int gi 0/0 [R1-GigabitEthernet0/0]ip address 192.168.1.1 24 [R1-GigabitEthernet0/0]description <connect to PC> [R1-GigabitEthernet0/0]quit [R1]int gi 0/1 [R1-GigabitEthernet0/1]ip address 10.0.0.1 30 [R1-GigabitEthernet0/1]description <connect to R2> [R1-GigabitEthernet0/1]quit [R1]ospf 1 router-id 1.1.1.1 [R1-ospf-1]area 0.0.0.0 [R1-ospf-1-area-0.0.0.0]network 10.0.0.1 0.0.0.0 [R1-ospf-1-area-0.0.0.0]network 1.1.1.1 0.0.0.0 [R1-ospf-1-area-0.0.0.0]network 192.168.1.0 0.0.0.255 [R1-ospf-1-area-0.0.0.0]quit [R1-ospf-1]quit

R2: <H3C>system-view [H3C]sysname R2 [R2]int LoopBack 0 [R2-LoopBack0]ip address 2.2.2.2 32 [R2-LoopBack0]quit [R2]int gi 0/0
[R2-GigabitEthernet0/0]ip address 10.0.0.2 30
[R2-GigabitEthernet0/0]description <connect to R1>
[R2-GigabitEthernet0/0]quit
[R2-GigabitEthernet0/1]description <connect to R3>
[R2-GigabitEthernet0/1]ip address 10.0.0.5 30
[R2-GigabitEthernet0/1]quit
[R2]ospf 1 router-id 2.2.2.2
[R2-ospf-1]area 0.0.00
[R2-ospf-1-area-0.0.00]network 10.0.0.2 0.0.00
[R2-ospf-1-area-0.0.00]network 2.2.2.2 0.0.00
[R2-ospf-1-area-0.0.00]network 2.2.2.2 0.0.00
[R2-ospf-1-area-0.0.00]quit
[R2-ospf-1-area-0.0.00]quit

#### R3:

<H3C>system-view [H3C]sysname R3 [R3]int LoopBack 0 [R3-LoopBack0]ip address 3.3.3.3 32 [R3-LoopBack0]quit [R3]int gi 0/0 [R3-GigabitEthernet0/0]description <connect to PC> [R3-GigabitEthernet0/0]ip address 172.16.1.1 24 [R3-GigabitEthernet0/0]quit [R3]int gi 0/1 [R3-GigabitEthernet0/1]description <connect to R2> [R3-GigabitEthernet0/1]ip address 10.0.0.6 30 [R3-GigabitEthernet0/1]quit [R3]ospf 1 router-id 3.3.3.3 [R3-ospf-1]area 0.0.0.0 [R3-ospf-1-area-0.0.0.0]network 10.0.0.6 0.0.0.0 [R3-ospf-1-area-0.0.0.0]network 3.3.3.3 0.0.0.0 [R3-ospf-1-area-0.0.0.0]network 172.16.1.0 0.0.0.255 [R3-ospf-1-area-0.0.0.0]quit [R3-ospf-1]quit

## 测试: 查看各路由器的OSPF邻居建立情况: <R1>dis ospf peer

OSPF Process 1 with Router ID 1.1.1.1 Neighbor Brief Information

# Area: 0.0.0.0

Router IDAddressPri Dead-Time StateInterface2.2.2.210.0.0.2137Full/BDRGE0/1<R1>

### <R2>dis ospf peer

OSPF Process 1 with Router ID 2.2.2.2 Neighbor Brief Information

#### Area: 0.0.0.0

 Router ID
 Address
 Pri Dead-Time State
 Interface

 1.1.1.1
 10.0.0.1
 1
 39
 Full/DR
 GE0/0

 3.3.3.3
 10.0.0.6
 1
 34
 Full/BDR
 GE0/1

 <R2>

#### [R3]dis ospf peer

Neighbor Brief Information

Area: 0.0.0.0Router IDAddressPri Dead-Time StateInterface2.2.2.210.0.0.5137Full/DRGE0/1[R3]

PC之间能PING通:

▲ 配置PC\_5

配置PC	4			×
接口	状态	IPv4地址	IPv6地址	
G0/0/1	UP	192.168.1.2/24		
				刷新
接口管理				
◎ 禁用	◉ 启用			
IPv4配置:				
◎ DHCP				
◎ 静态				
IPv4地址:	192.168	.1.2		
掩码地址:	255.255	5.255.0		
IPv4网关,	102 169	11		启用

×

G0/0/1       UP       172 16 1 2/24         原       第         接口管理       ●         ● 禁用       ● 启用         IPv4配置:       ●         ● DHCP       ●         ● 静态       ●         IPv4配型:       172.16.12         推动地址:       255.255.255.0         IPv4网关:       172.16.1.1         Cl_V4C0       ●         ●       ●         >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	接口	状态	IPv4地址	IPv6地址	
廃け管理   ● 茶用 ● 启用   IPv4配置:   ● DHCP    ● 静态   IPv4地址: 172.16.12   指码地址: 255.255.255.0   IPv4网关: 172.16.1.1   Explose 14 08:46:36:745 2019 H3C SHELL/5/SHELL_LOGIN: Console logged in from con0.   >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	G0/0/1	UP	172.16.1.2/24		
第 接口管理 ● 茶用 ● 启用 IPv4配置: ● DHCP ● 静态 IPv4地址: 172.16.12 ////////////////////////////////					
接口管理 ④ 茶用 ④ 启用  IPv4配置: ① DHCP ④ 静态 IPv4吡证: 172.16.12 描码地址: 255.255.255.0 IPv4网关: 172.16.1.1 IPv4网关: 172.16.1.1 IPv4网关: 172.16.1.1 IPv4网关: 172.16.1.2 IPv4 IPv4 IPv4 IPv4 IPv4 IPv4 IPv4 IPv4				屏	财
<ul> <li>● 奈用 ● 启用</li> <li>■ PV4配置:</li> <li>● DHCP</li> <li>● 静态</li> <li>■ Pv4地址: 172.16.1.2</li> <li>         摘码地址: 255.255.255.0</li> <li>■ Pv4网关: 172.16.1.1</li> <li>■ Pv4网关: 172.16.1.1</li> <li>■ Pv4网关: 172.16.1.1</li> <li>■ Pv4DAccolor</li> <li>■ Pv4DAccolor</li></ul>	接口管理				
IPv4配置: ● DHCP ● 静态 IPv4地址: 172.16.1.2 摘码地址: 255.255.255.0 IPv4网关: 172.16.1.1 CL_V4Q关: 172.16.1.1 CL_V4Q关: 172.16.1.1 CL_V4Q关: 172.16.1.2 CL_V4Q关: 172.16.1.2 CL_V4QK CL CL CL CL CL CL CL CL CL CL CL CL CL C	◎ 禁用 《	)启用			
<ul> <li>● DHCP</li> <li>● 静态</li> <li>■ 静态</li> <li>■ Pv4地址: 172.16.1.2</li> <li>         摘码地址: 255.255.255.0</li> <li>■ IPv4网关: 172.16.1.1</li> <li>■ CL_vt2cto</li> <li>■ CL_vt2cto<td>IPv4配置:</td><td></td><td></td><td></td><td></td></li></ul>	IPv4配置:				
● 静态 IPv4地址: 172.16.1.2 摘码地址: 255.255.255.0 IPv4网关: 172.16.1.1 Compared and the state of t	DHCP				
IPv4地址: 172.16.1.2 摘码地址: 255.255.0 IPv4网关: 172.16.1.1	◎ 静态				
推码地址: 255.255.255.0 IPv4网关: 172.16.1.1 C_v4QCto	IPv4地址:	172.16.	1.2		
IPv4阅关: 172.16.1.1 ■ C_v4Qto  - C C C C C C C C C C C C C C C C C C	掩码地址:	255.255	.255.0		
<pre>cl_vi2cto</pre>	IPv4网关:	172.16.	1.1		Į
<pre>cl_M2cto</pre>					
<pre>&gt;</pre>	cl_vt2cto			-	-
<pre>&gt;&gt;Dec 14 08:46:36:745 2019 H3C SHELL/S/SHELL_LOGIN: Console logged in from con0. &gt;&gt; &gt;ping 172.16.1.2 j172.16.1.2 (172.16.1.2): 56 data bytes, press CTRL_C to break sytes from 172.16.1.2: icmp_seq=0 ttl=252 time=5.000 ms ytes from 172.16.1.2: icmp_seq=1 ttl=252 time=3.000 ms ytes from 172.16.1.2: icmp_seq=2 ttl=252 time=3.000 ms ytes from 172.16.1.2: icmp_seq=3 ttl=252 time=3.000 ms ytes from 172.16.1.2: icmp_seq=3 ttl=252 time=3.000 ms</pre>					
<pre>&gt;&gt; &gt;ping 172.16.1.2</pre>	>%Dec 14 08:	46:36:74	15 2019 H3C SHEL	L/5/SHELL_LOGIN: Console logged in from con0.	
<pre>j172.16.1.2 (172.16.1.2): 56 data bytes, press CTRL C to break yptes from 172.16.1.2: icmp_seq=0 ttl=252 time=5.000 ms yptes from 172.16.1.2: icmp_seq=1 ttl=252 time=3.000 ms yptes from 172.16.1.2: icmp_seq=2 ttl=252 time=4.000 ms yptes from 172.16.1.2: icmp_seq=3 ttl=252 time=4.000 ms</pre>	> >ning 172.16				
yytes from 172.16.1.2: icmp_seq=0 ttl=252 time=5.000 ms yytes from 172.16.1.2: icmp_seq=1 ttl=252 time=3.000 ms yytes from 172.16.1.2: icmp_seq=2 ttl=252 time=3.000 ms yytes from 172.16.1.2: icmp_seq=3 ttl=252 time=4.000 ms wrses from 172.16.1.2: icmp_seq=4 ttl=252 time=4.000 ms	172.16.1.2	(172.16.	1.2): 56 data b	ytes, press CTRL_C to break	
ytes from 172.16.1.2: icmp_seq=2 ttl=252 time=3.000 ms ytes from 172.16.1.2: icmp_seq=3 ttl=252 time=4.000 ms	ytes from 17	2.16.1.2	: icmp_seg=0 tt: : icmp_seg=1 tt:	1=252 time=3.000 ms	
pytes from 172.16.1.2: icmp_seq=3 ttl=252 time=4.000 ms	ytes from 17	2.16.1.2	: icmp_seq=2 tt	1=252 time=3.000 ms	
	ytes from 17	2.16.1.2	: icmp_seq=3 tt	1=252 time=4.000 ms	

s packet(s) claimmitted, 5 packet(s) reperved, 0.00 packet loss cound-trip min/avg/max/std-dev = 3.000/3.800/0.500/0.748 ms cH3C>bDec 14 08:46:42:908 2019 H3C FING/6/FING\_STATISTICS: Ping statistics for 172.16.1.2: 5 packet(s) transmitted, 5 packet(s) received, 0.0% packet loss, round-trip min/avg/max/s td-dev = 3.000/3.800/5.000/0.748 ms.



至此单区域OSPF配置已完成!