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# NSD NETWORK DAY05

1. [案例：综合网络搭建](http://tts.tmooc.cn/ttsPage/LINUX/NSDTN201904/NETWORK/DAY05/CASE/01/index.html" \l "case1)

## 1 案例：综合网络搭建

### 1.1 问题

现有网络问题分析：

* 接入层交换机只与同一个三层交换机相连，存在单点故障而影响网络通信。
* 互联网连接单一服务商

现有网络需求：

* 随着企业发展，为了保证网络的高可用性，需要使用很多的冗余技术
* 保证局域网络不会因为线路故障而导致的网络故障
* 保证客户端机器不会因为使用单一网关而出现的单点失败
* 保证到互联网的高可用接入使用冗余互联网连接

### 1.2 方案

基于项目的需求，需要用到如下技术：

* OSPF路由协议：实现网络路径的自动学习
* VRRP：实现网关冗余

重新规划后的网络拓扑如图-1：

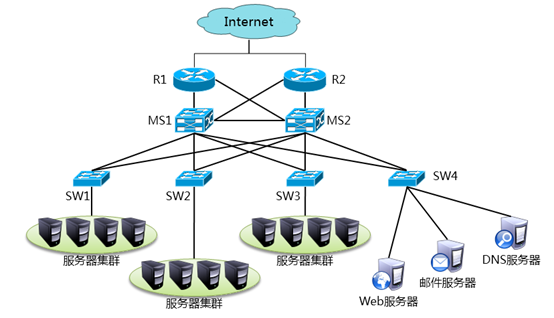


图-1

### 1.3 步骤

实现此案例需要按照如下步骤进行，为了配置过程中不被弹出信息干扰，可以关闭信息提示

步骤一：S3700交换机配置

1. SW1配置
2. <Huawei>system-view
3. [Huawei]vlan batch 10 20 30 40
4. [Huawei]port-group 1
5. [Huawei-port-group-1]group-member Ethernet 0/0/1 to Ethernet 0/0/2
6. [Huawei-port-group-1]port link-type trunk
7. [Huawei-port-group-1]port trunk allow-pass vlan all
8. [Huawei-port-group-1]quit
9. [Huawei]interface Ethernet 0/0/5
10. [Huawei-Ethernet0/0/5] port link-type access
11. [Huawei-Ethernet0/0/5] port default vlan 10
12. SW2配置
13. <Huawei>system-view
14. [Huawei]vlan batch 10 20 30 40
15. [Huawei]port-group 1
16. [Huawei-port-group-1]group-member Ethernet 0/0/1 to Ethernet 0/0/2
17. [Huawei-port-group-1]port link-type trunk
18. [Huawei-port-group-1]port trunk allow-pass vlan all
19. [Huawei-port-group-1]quit
20. [Huawei]interface Ethernet 0/0/5
21. [Huawei-Ethernet0/0/5] port link-type access
22. [Huawei-Ethernet0/0/5] port default vlan 20
23. SW3配置
24. <Huawei>system-view
25. [Huawei]vlan batch 10 20 30 40
26. [Huawei]port-group 1
27. [Huawei-port-group-1]group-member Ethernet 0/0/1 to Ethernet 0/0/2
28. [Huawei-port-group-1]port link-type trunk
29. [Huawei-port-group-1]port trunk allow-pass vlan all
30. [Huawei-port-group-1]quit
31. [Huawei]interface Ethernet 0/0/5
32. [Huawei-Ethernet0/0/5] port link-type access
33. [Huawei-Ethernet0/0/5] port default vlan 30
34. SW4配置
35. <Huawei>system-view
36. [Huawei]vlan batch 10 20 30 40
37. [Huawei]port-group 1
38. [Huawei-port-group-1]group-member Ethernet 0/0/1 to Ethernet 0/0/2
39. [Huawei-port-group-1]port link-type trunk
40. [Huawei-port-group-1]port trunk allow-pass vlan all
41. [Huawei-port-group-1]quit
42. [Huawei]interface Ethernet 0/0/5
43. [Huawei-Ethernet0/0/5] port link-type access
44. [Huawei-Ethernet0/0/5] port default vlan 40

步骤二：S5700交换机配置

1. MS1配置
2. <Huawei>system-view
3. [Huawei]vlan batch 10 20 30 40 50 60
4. [Huawei]port-group 1
5. [Huawei-port-group-1]group-member GigabitEthernet 0/0/1 to GigabitEthernet 0/0/5
6. [Huawei-port-group-1]port link-type trunk
7. [Huawei-port-group-1]port trunk allow-pass vlan all
8. [Huawei-port-group-1]quit
9. [Huawei]interface Vlanif 10
10. [Huawei-Vlanif10]ip address 192.168.10.252 24
11. [Huawei-Vlanif10]vrrp vrid 1 virtual-ip 192.168.10.254
12. [Huawei-Vlanif10]vrrp vrid 1 priority 110
13. [Huawei]interface Vlanif 20
14. [Huawei-Vlanif20]ip address 192.168.20.252 24
15. [Huawei-Vlanif20]vrrp vrid 2 virtual-ip 192.168.20.254
16. [Huawei-Vlanif20]vrrp vrid 2 priority 110
17. [Huawei]interface Vlanif 30
18. [Huawei-Vlanif30]ip address 192.168.30.252 24
19. [Huawei-Vlanif30]vrrp vrid 3 virtual-ip 192.168.30.254
20. [Huawei]interface Vlanif 40
21. [Huawei-Vlanif40]ip address 192.168.40.252 24
22. [Huawei-Vlanif40]vrrp vrid 4 virtual-ip 192.168.40.254
23. [Huawei]interface Vlanif 50
24. [Huawei-Vlanif50]ip address 192.168.50.2 24
25. [Huawei]interface GigabitEthernet 0/0/23
26. [Huawei-GigabitEthernet0/0/23]port link-type access
27. [Huawei-GigabitEthernet0/0/23]port default vlan 50
28. [Huawei]interface Vlanif 60
29. [Huawei-Vlanif60]ip address 192.168.60.2 24
30. [Huawei]interface GigabitEthernet 0/0/24
31. [Huawei-GigabitEthernet0/0/24]port link-type access
32. [Huawei-GigabitEthernet0/0/24]port default vlan 60
33. [Huawei]ospf
34. [Huawei-ospf-1]area 0
35. [Huawei-ospf-1-area-0.0.0.0]network 192.168.10.0 0.0.0.255
36. [Huawei-ospf-1-area-0.0.0.0]network 192.168.20.0 0.0.0.255
37. [Huawei-ospf-1-area-0.0.0.0]network 192.168.30.0 0.0.0.255
38. [Huawei-ospf-1-area-0.0.0.0]network 192.168.40.0 0.0.0.255
39. [Huawei-ospf-1-area-0.0.0.0]network 192.168.50.0 0.0.0.255
40. [Huawei-ospf-1-area-0.0.0.0]network 192.168.60.0 0.0.0.255
41. MS2配置
42. <Huawei>system-view
43. [Huawei]vlan batch 10 20 30 40 70 80
44. [Huawei]port-group 1
45. [Huawei-port-group-1]group-member GigabitEthernet 0/0/1 to GigabitEthernet 0/0/5
46. [Huawei-port-group-1]port link-type trunk
47. [Huawei-port-group-1]port trunk allow-pass vlan all
48. [Huawei-port-group-1]quit
49. [Huawei]interface Vlanif 10
50. [Huawei-Vlanif10]ip address 192.168.10.253 24
51. [Huawei-Vlanif10]vrrp vrid 1 virtual-ip 192.168.10.254
52. [Huawei]interface Vlanif 20
53. [Huawei-Vlanif20]ip address 192.168.20.253 24
54. [Huawei-Vlanif20]vrrp vrid 2 virtual-ip 192.168.20.254
55. [Huawei]interface Vlanif 30
56. [Huawei-Vlanif30]ip address 192.168.30.253 24
57. [Huawei-Vlanif30]vrrp vrid 3 virtual-ip 192.168.30.254
58. [Huawei-Vlanif20]vrrp vrid 3 priority 110
59. [Huawei]interface Vlanif 40
60. [Huawei-Vlanif40]ip address 192.168.40.253 24
61. [Huawei-Vlanif40]vrrp vrid 4 virtual-ip 192.168.40.254
62. [Huawei-Vlanif20]vrrp vrid 4 priority 110
63. [Huawei]interface Vlanif 70
64. [Huawei-Vlanif70]ip address 192.168.70.2 24
65. [Huawei]interface GigabitEthernet 0/0/23
66. [Huawei-GigabitEthernet0/0/23]port link-type access
67. [Huawei-GigabitEthernet0/0/23]port default vlan 70
68. [Huawei]interface Vlanif 80
69. [Huawei-Vlanif80]ip address 192.168.80.2 24
70. [Huawei]interface GigabitEthernet 0/0/24
71. [Huawei-GigabitEthernet0/0/24]port link-type access
72. [Huawei-GigabitEthernet0/0/24]port default vlan 80
73. [Huawei]ospf
74. [Huawei-ospf-1]area 0
75. [Huawei-ospf-1-area-0.0.0.0]network 192.168.10.0 0.0.0.255
76. [Huawei-ospf-1-area-0.0.0.0]network 192.168.20.0 0.0.0.255
77. [Huawei-ospf-1-area-0.0.0.0]network 192.168.30.0 0.0.0.255
78. [Huawei-ospf-1-area-0.0.0.0]network 192.168.40.0 0.0.0.255
79. [Huawei-ospf-1-area-0.0.0.0]network 192.168.70.0 0.0.0.255
80. [Huawei-ospf-1-area-0.0.0.0]network 192.168.80.0 0.0.0.255

然后测试目前网络是否可以达成全网互通

步骤三：路由器配置

按图-2为路由器与三层交换机相连的接口配置ip

注:50.1表示ip需要配置为192.168.50.1

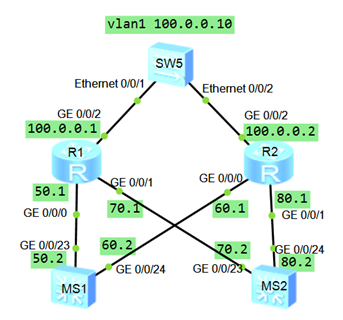


图-2

1. R1
2. <Huawei>system-view
3. [Huawei]acl 2000
4. [Huawei-acl-basic-2000]rule permit source any
5. [Huawei]interface GigabitEthernet 0/0/0
6. [Huawei-GigabitEthernet0/0/0]ip address 192.168.50.1 24
7. [Huawei]interface GigabitEthernet 0/0/1
8. [Huawei-GigabitEthernet0/0/1]ip address 192.168.70.1 24
9. [Huawei]interface GigabitEthernet 0/0/2
10. [Huawei-GigabitEthernet0/0/2]ip address 100.0.0.1 8
11. [Huawei-GigabitEthernet0/0/0]nat outbound 2000
12. [Huawei-GigabitEthernet0/0/2]quit
13. [Huawei]ip route-static 0.0.0.0 0 100.0.0.10
14. [Huawei]ospf
15. [Huawei-ospf-1]default-route-advertise
16. [Huawei-ospf-1]area 0
17. [Huawei-ospf-1-area-0.0.0.0]network 192.168.50.0 0.0.0.255
18. [Huawei-ospf-1-area-0.0.0.0]network 192.168.70.0 0.0.0.255
19. R2
20. <Huawei>system-view
21. [Huawei]acl 2000
22. [Huawei-acl-basic-2000]rule permit source any
23. [Huawei]interface GigabitEthernet 0/0/0
24. [Huawei-GigabitEthernet0/0/0]ip address 192.168.60.1 24
25. [Huawei]interface GigabitEthernet 0/0/1
26. [Huawei-GigabitEthernet0/0/1]ip address 192.168.80.1 24
27. [Huawei]interface GigabitEthernet 0/0/2
28. [Huawei-GigabitEthernet0/0/2]ip address 100.0.0.2 8
29. [Huawei-GigabitEthernet0/0/0]nat outbound 2000
30. [Huawei-GigabitEthernet0/0/2]quit
31. [Huawei]ip route-static 0.0.0.0 0 100.0.0.10
32. [Huawei]ospf
33. [Huawei-ospf-1]default-route-advertise
34. [Huawei-ospf-1]area 0
35. [Huawei-ospf-1-area-0.0.0.0]network 192.168.60.0 0.0.0.255
36. [Huawei-ospf-1-area-0.0.0.0]network 192.168.80.0 0.0.0.255

三层交换机如果看不到从路由器学习来的默认路由就去检查路由器G0/2地址是否配置，之后验证从内网可以访问外网设备，ping通证明项目升级成功