네트워크

GateWay 이중화

■ 게이트 이중화

VRRP

- 표준 프로토콜
- HSRP에서 ACTIVE가 VRRP에서는 MASTER
- Priority가 같을 때 IP가 높은 쪽이 마스터가 된다.
- 마스터 하나, 나머지는 모두 백업
- 멀티캐스트 주소 : 224.0.0.18
- 타이머가 달라지면 연결이 끊어진다. => 서로 마스터가 되어 버린다.

```
R2(config)#int f0/0
R2(config-if)#vrrp 10 ip 192.168.10.1
R2(config-if)#
*Mar  1 00:11:30.155: %VRRP-6-STATECHANGE: Fa0/0 Grp 10 state Init -> Backup
R2(config-if)#
*Mar  1 00:11:33.767: %VRRP-6-STATECHANGE: Fa0/0 Grp 10 state Backup -> Master

R3(config-if)#vrrp 10 ip 192.168.10.1
R3(config-if)#
*Mar  1 00:12:26.751: %VRRP-6-STATECHANGE: Fa0/1 Grp 10 state Init -> Backup
R3(config-if)#
*Mar  1 00:12:30.363: %VRRP-6-STATECHANGE: Fa0/1 Grp 10 state Backup -> Master

=> R2가 마스터에서 백업으로 변경
R2(config-if)#
*Mar  1 00:12:40.419: %VRRP-6-STATECHANGE: Fa0/0 Grp 10 state Master -> Backup

R3#show vrrp
FastEthernet0/1 - Group 10
  State is Master
  Virtual IP address is 192.168.10.1
  Virtual MAC address is 0000.5e00.010a              //5e00.01 : 고정 MAC / 0a : 그룹번
호
  Advertisement interval is 1.000 sec
  Preemption enabled                          //기본값 : 활성(HSRP의 기본값은 비활성화)
  Priority is 100
  Master Router is 192.168.10.200 (local), priority is 100
```

```
  Master Advertisement interval is 1.000 sec
  Master Down interval is 3.609 sec

R3#show vrrp b
Interface          Grp Pri Time  Own Pre State   Master addr     Group addr
Fa0/1               10  100 3609        Y  Master  192.168.10.200  192.168.10.1
```
=> standy 정보가 없다.

※ R2 Priority 값 변경
```
R2(config)#int f0/0
R2(config-if)#vrrp 10 priority 150
R2(config-if)#
*Mar  1 00:21:16.247: %VRRP-6-STATECHANGE: Fa0/0 Grp 10 state Backup -> Master
```

※ HSRP&VRRP Priority 값의 차이점은?
```
R2(config-if)#vrrp 10 priority ?
  <1-254>  Priority level          //0는 설정 불가 => 0은 vrrp가 동작하지 못하는 상태를 나타냄
                                   //255는 설정불가 => 255는 VIP랑 같은 IP를 사용할 때(오너 IP)
R3(config)#int f0/1
R3(config-if)#ip add 192.168.10.1 255.255.255.0
R3(config-if)#
*Mar  1 00:27:32.059: %VRRP-6-STATECHANGE: Fa0/1 Grp 10 state Backup -> Disable
*Mar  1 00:27:32.063: %VRRP-6-STATECHANGE: Fa0/1 Grp 10 state Init -> Master
*Mar  1 00:27:32.083: %VRRP-6-STATECHANGE: Fa0/1 Grp 10 state Master -> Disable
*Mar  1 00:27:32.083: %VRRP-6-STATECHANGE: Fa0/1 Grp 10 state Init -> Master
R3#show vrrp b
Interface          Grp Pri Time  Own Pre State   Master addr     Group addr
Fa0/1               10  255 3003    Y   Y  Master  192.168.10.1    192.168.10.1

R2(config-if)#standby 10 priority ?
  <0-255>  Priority value
```

※ 광고시간 변경
```
R3(config-if)#vrrp 10 timer advertise 3
R3(config-if)#
*Mar  1 00:31:28.807: %VRRP-6-STATECHANGE: Fa0/1 Grp 10 state Backup -> Master

R2(config-if)#
*Mar  1 00:30:42.595: %VRRP-6-STATECHANGE: Fa0/0 Grp 10 state Backup -> Master
```

R3(config-if)#vrrp 10 timers learn　　//나보다 Master(높은 priority값)의 타이머를 학습하겠다.
R3(config-if)#　　//동기화를 하겠다.
*Mar 1 00:33:36.543: %VRRP-6-STATECHANGE: Fa0/1 Grp 10 state Master -> Backup

※ 트랙
1. R2 s0/0 끊기
R2(config-if)#exit
R2(config)#int s0/0
R2(config-if)#sh
R2(config-if)#
*Mar 1 00:35:35.947: %OSPF-5-ADJCHG: Process 1, Nbr 1.1.1.1 on Serial0/0 from FULL to DOWN, Neighbor Down: Interface down or detached
R2(config-if)#
*Mar 1 00:35:37.943: %LINK-5-CHANGED: Interface Serial0/0, changed state to administratively down
*Mar 1 00:35:38.943: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0, changed state to down

2. PC1에서 ping 보내기
PC1> ip 192.168.10.10/24 192.168.10.1

PC1> ping 192.168.10.100
84 bytes from 192.168.10.100 icmp_seq=1 ttl=255 time=9.103 ms
PC1> ping 10.10.10.1
*192.168.10.100 icmp_seq=1 ttl=255 time=15.812 ms (ICMP type:3, code:1, Destination host unreachable)

R2(config)#int s0/0
R2(config-if)#no sh
R2(config-if)#
*Mar 1 00:49:10.327: %LINK-3-UPDOWN: Interface Serial0/0, changed state to up
R2(config-if)#
*Mar 1 00:49:11.331: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0, changed state to up
R2(config-if)#
*Mar 1 00:49:23.519: %OSPF-5-ADJCHG: Process 1, Nbr 1.1.1.1 on Serial0/0 from LOADING to FULL, Loading Done

R2(config)#track 10 interface s0/0 line-protocol　　/ / 1 0 (관 리 번 호) ,

line-protocol(up/down문제시)
R2(config)#track 20 ip route 10.10.10.0 255.255.255.0 reachability
R2(config)#int f0/0
R2(config-if)#vrrp 10 track 10 decrement 51
R2(config)#int s0/0
R2(config-if)#sh //R3이 master 됨

R2(config)#int f0/0
R2(config-if)#vrrp 10 track 10 shutdown //트랙이 작동하면 확실히 못 들어오게 하려면 f0/0을 꺼버리는 방법

※ 인증
R2(config)#int f0/0
R2(config-if)#vrrp 10 authentication md5 key-string cisco

R3(config)#int f0/1
R3(config-if)#vrrp 10 auth
R3(config-if)#vrrp 10 authentication md5 key-string cisco
R3(config-if)#
*Mar 1 01:03:29.251: %VRRP-6-STATECHANGE: Fa0/1 Grp 10 state Master -> Backup