# REPORT


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|---|---|---|
| 과 | 목 : | 인터넷이론및실습 |
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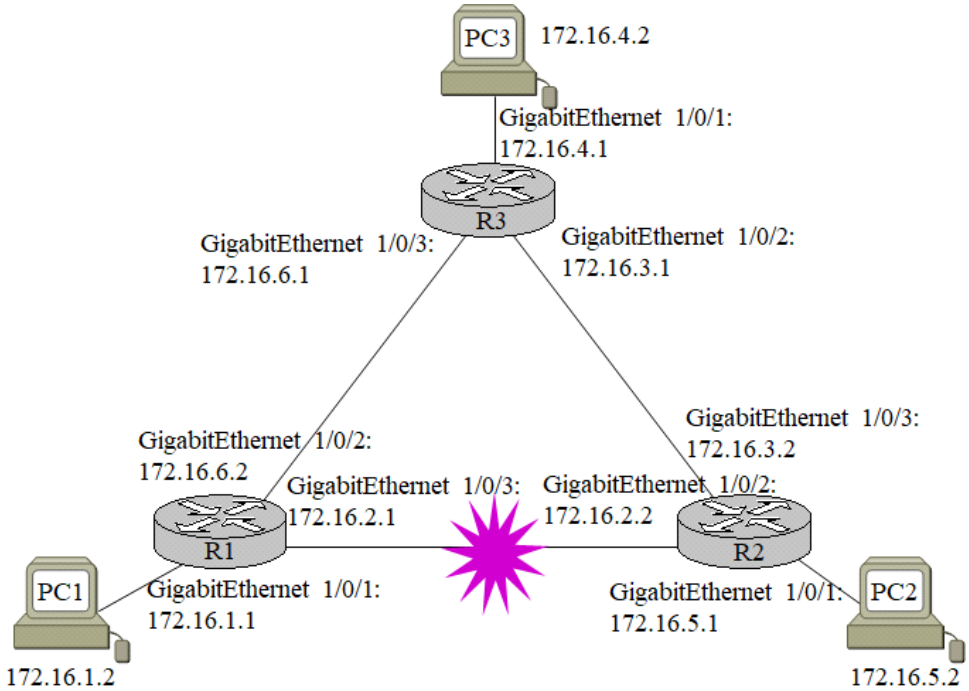
1. 제목: 유동적인 정적라우팅
2. 실습목적
3. 실습구성도
    a. 구성도



b. 정상 상태에서의 각 라우터의 라우팅 테이블

<R1>

```
R1#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     172.16.0.0/24 is subnetted, 6 subnets
C       172.16.1.0 is directly connected, GigabitEthernet1/0/1
C       172.16.2.0 is directly connected, GigabitEthernet1/0/3
S       172.16.3.0 [1/0] via 172.16.2.2
S       172.16.4.0 [1/0] via 172.16.2.2
S       172.16.5.0 [1/0] via 172.16.2.2
C       172.16.6.0 is directly connected, GigabitEthernet1/0/2
```

<R2>

```
R2#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     172.16.0.0/24 is subnetted, 6 subnets
S       172.16.1.0 [1/0] via 172.16.3.1
C       172.16.2.0 is directly connected, GigabitEthernet1/0/2
C       172.16.3.0 is directly connected, GigabitEthernet1/0/3
S       172.16.4.0 [1/0] via 172.16.3.1
C       172.16.5.0 is directly connected, GigabitEthernet1/0/1
S       172.16.6.0 [1/0] via 172.16.3.1
```

<R3>

```
R3#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     172.16.0.0/24 is subnetted, 6 subnets
S       172.16.1.0 [1/0] via 172.16.6.2
S       172.16.2.0 [1/0] via 172.16.6.2
C       172.16.3.0 is directly connected, GigabitEthernet1/0/2
C       172.16.4.0 is directly connected, GigabitEthernet1/0/1
S       172.16.5.0 [1/0] via 172.16.6.2
C       172.16.6.0 is directly connected, GigabitEthernet1/0/3
```

c. 장애 발생 상태에서의 각 라우터의 라우팅 테이블

<R1>

Case 1. R2 라우터와 연결된 링크가 끊어진 경우.

```
R1#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     172.16.0.0/24 is subnetted, 2 subnets
C       172.16.1.0 is directly connected, GigabitEthernet1/0/1
C       172.16.6.0 is directly connected, GigabitEthernet1/0/2
```

Case 2. 172.16.6.1(R3)로 Failover 된 경우.

```
show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     172.16.0.0/24 is subnetted, 3 subnets
C       172.16.1.0 is directly connected, GigabitEthernet1/0/1
S       172.16.4.0 [10/0] via 172.16.6.1
C       172.16.6.0 is directly connected, GigabitEthernet1/0/2
```

<R2>

```
R2#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     172.16.0.0/24 is subnetted, 5 subnets
S       172.16.1.0 [1/0] via 172.16.3.1
C       172.16.3.0 is directly connected, GigabitEthernet1/0/3
S       172.16.4.0 [1/0] via 172.16.3.1
C       172.16.5.0 is directly connected, GigabitEthernet1/0/1
S       172.16.6.0 [1/0] via 172.16.3.1
```

<R3>

```
R3>show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     172.16.0.0/24 is subnetted, 6 subnets
S       172.16.1.0 [1/0] via 172.16.6.2
S       172.16.2.0 [1/0] via 172.16.6.2
C       172.16.3.0 is directly connected, GigabitEthernet1/0/2
C       172.16.4.0 is directly connected, GigabitEthernet1/0/1
S       172.16.5.0 [1/0] via 172.16.6.2
C       172.16.6.0 is directly connected, GigabitEthernet1/0/3
```

4. 장비별 구성 사항

a. 정상 상태에서의 Router configuration

<R1>

```
interface GigabitEthernet1/0/1
 no switchport
 ip address 172.16.1.1 255.255.255.0
 duplex auto
 speed auto
!
interface GigabitEthernet1/0/2
 no switchport
 ip address 172.16.6.2 255.255.255.0
 duplex auto
 speed auto
!
interface GigabitEthernet1/0/3
 no switchport
 ip address 172.16.2.1 255.255.255.0
 duplex auto
 speed auto
!
```

```
ip classless
ip route 172.16.5.0 255.255.255.0 172.16.2.2
ip route 172.16.3.0 255.255.255.0 172.16.2.2
ip route 172.16.4.0 255.255.255.0 172.16.2.2
```

<R2>

```
interface GigabitEthernet1/0/1
 no switchport
 ip address 172.16.5.1 255.255.255.0
 duplex auto
 speed auto
!
interface GigabitEthernet1/0/2
 no switchport
 ip address 172.16.2.2 255.255.255.0
 duplex auto
 speed auto
!
interface GigabitEthernet1/0/3
 no switchport
 ip address 172.16.3.2 255.255.255.0
 duplex auto
 speed auto
!
```

```
ip classless
ip route 172.16.4.0 255.255.255.0 172.16.3.1
ip route 172.16.6.0 255.255.255.0 172.16.3.1
ip route 172.16.1.0 255.255.255.0 172.16.3.1
!
```

<R3>

```
interface GigabitEthernet1/0/1
 no switchport
 ip address 172.16.4.1 255.255.255.0
 duplex auto
 speed auto
!
interface GigabitEthernet1/0/2
 no switchport
 ip address 172.16.3.1 255.255.255.0
 duplex auto
 speed auto
!
interface GigabitEthernet1/0/3
 no switchport
 ip address 172.16.6.1 255.255.255.0
 duplex auto
 speed auto
```

```
ip classless
ip route 172.16.5.0 255.255.255.0 172.16.6.2
ip route 172.16.1.0 255.255.255.0 172.16.6.2
ip route 172.16.2.0 255.255.255.0 172.16.6.2
```

b. 장애 발생 상태에서의 Router configuration

<R1>

```
interface GigabitEthernet1/0/1
 no switchport
 ip address 172.16.1.1 255.255.255.0
 duplex auto
 speed auto
!
interface GigabitEthernet1/0/2
 no switchport
 ip address 172.16.6.2 255.255.255.0
 duplex auto
 speed auto
!
interface GigabitEthernet1/0/3
 no switchport
 ip address 172.16.2.1 255.255.255.0
 duplex auto
 speed auto
 shutdown
!
ip classless
ip route 172.16.5.0 255.255.255.0 172.16.2.2
ip route 172.16.3.0 255.255.255.0 172.16.2.2
ip route 172.16.4.0 255.255.255.0 172.16.2.2
ip route 172.16.4.0 255.255.255.0 172.16.6.1 10
!
```

<R2>

```
interface GigabitEthernet1/0/1
 no switchport
 ip address 172.16.5.1 255.255.255.0
 duplex auto
 speed auto
!
interface GigabitEthernet1/0/2
 no switchport
 ip address 172.16.2.2 255.255.255.0
 duplex auto
 speed auto
 shutdown
!
interface GigabitEthernet1/0/3
 no switchport
 ip address 172.16.3.2 255.255.255.0
 duplex auto
 speed auto
!
!
ip classless
ip route 172.16.4.0 255.255.255.0 172.16.3.1
ip route 172.16.6.0 255.255.255.0 172.16.3.1
ip route 172.16.1.0 255.255.255.0 172.16.3.1
```

<R3>

```
interface GigabitEthernet1/0/1
 no switchport
 ip address 172.16.4.1 255.255.255.0
 duplex auto
 speed auto
!
interface GigabitEthernet1/0/2
 no switchport
 ip address 172.16.3.1 255.255.255.0
 duplex auto
 speed auto
!
interface GigabitEthernet1/0/3
 no switchport
 ip address 172.16.6.1 255.255.255.0
 duplex auto
 speed auto
```

```
ip classless
ip route 172.16.5.0 255.255.255.0 172.16.6.2
ip route 172.16.1.0 255.255.255.0 172.16.6.2
ip route 172.16.2.0 255.255.255.0 172.16.6.2
```