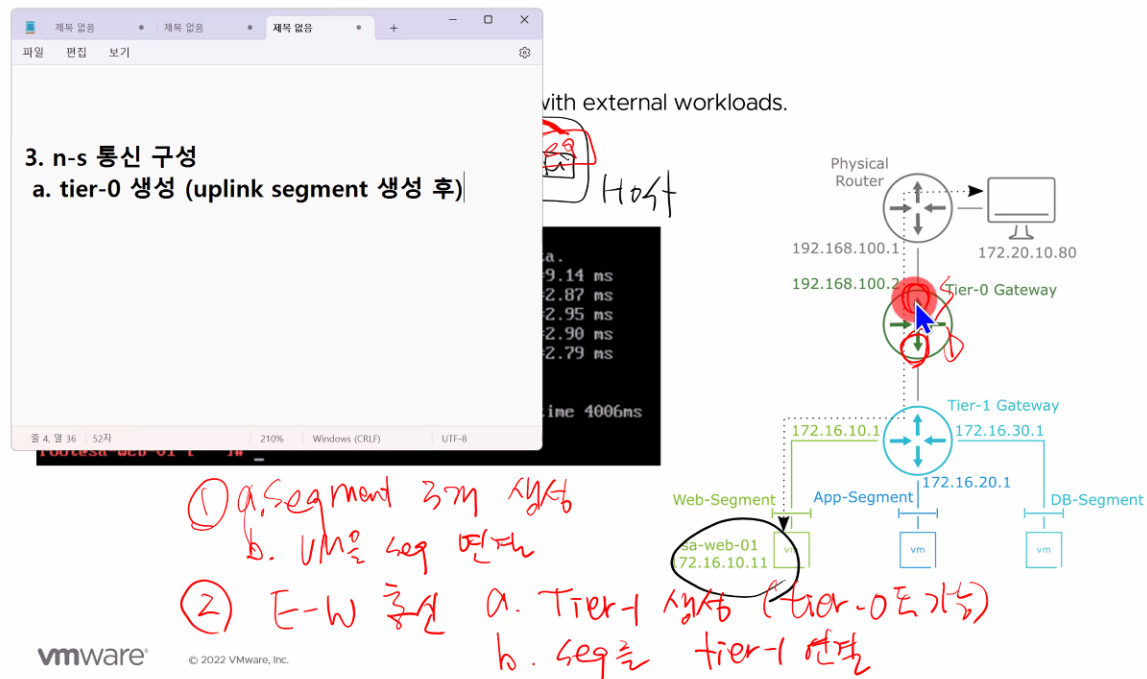
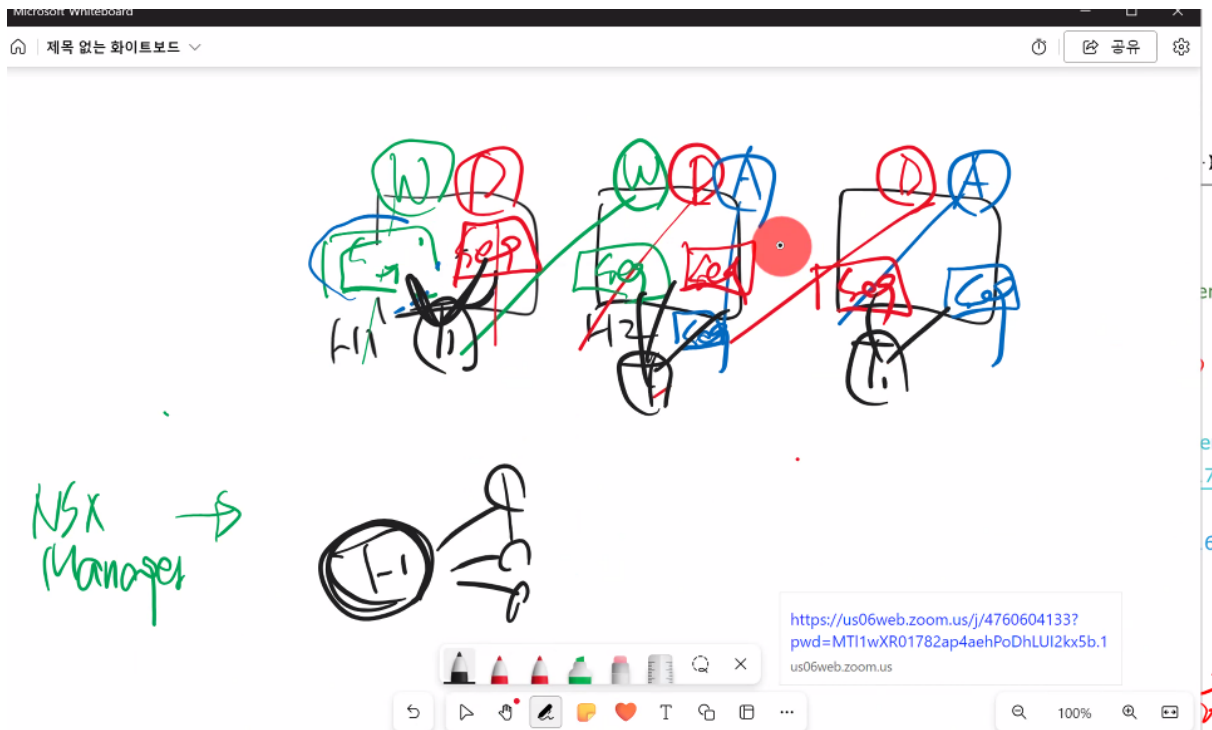


VMware NSX Static / Dynamic Routing



- 세그먼트 3개 생성해주고 vm을 세그먼트로 연결
- E-W 통신 구성
 - tier 1생성 / tier 0도 가능
 - 세그먼트를 tier-1로 연결
- ns- 통신 구성
 - tier-0 생성 (uplink segment 생성후) 업링크 연결
 - 티어0에서 라우팅 설정
 - 티어1과 티어0 연결
 - 티어1 네트워크 정보를 티어0으로 advertise (옵션 : route advertisement)(광고) 티어0에서 re-distribution을 통해 네트워크 정보를 외부로 advertise



- 티어1에 각 세그먼트를 붙이면 각각의 호스트에 티어1이 분산 스위치처럼 생기는 구조
 - vlan 대체용

Static and Dynamic Routing

Static routing:

- Static route configuration is a manual procedure performed by **administrators**.
- The configuration process enables **fine-tuning** of route selection.
- **Route changes** cannot be made dynamically.
- Limited **scalability** is because of administrative overhead.
- **Failover planning** is possible:
 - Network administrators must design and account for all network failure scenarios.
 - Route redundancy must be configured manually.

Dynamic routing:

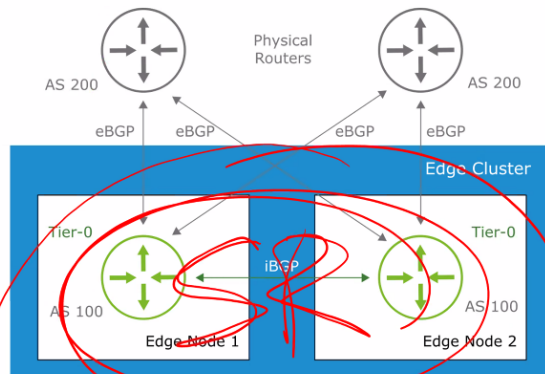
- Dynamic route configuration enables gateways to exchange information about the network.
- Routing protocols are used to dynamically obtain routes to access the networks.
- Routers inform neighbor gateways when a network change occurs.

- 스테틱이 다이나믹보단 우선순위가 높다.

Tier-0 Gateway Routing Configurations (1)

The Tier-0 gateway supports the following routing configurations:

- Static routing toward upstream physical gateways
- Dynamic routing using Border Gateway Protocol (BGP):
 - External BGP (eBGP) sessions with peers in a different autonomous system (AS)
 - Internal BGP (iBGP) sessions with peers in the same AS



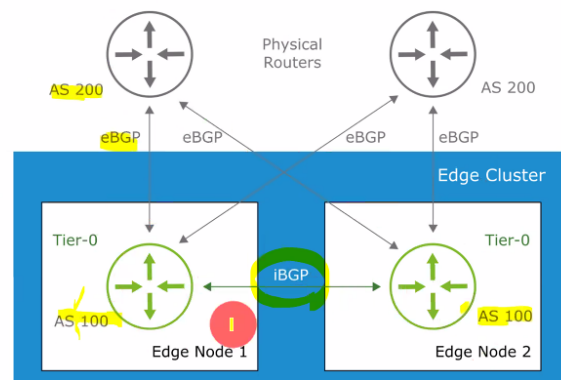
vmware © 2022 VMware, Inc.

- static, bgp 제공 (회사간에 서로 다른 네트워크 제공할 때) 자주사용
 - bgp는 들어오고 나가는 트래픽을 한 곳에서 제어가능
 - 대용량 네트워크 엔트리를 다룰 수 있음 (다른 프로토콜은 한계가 명확함)
 - 확장성과 정책 때문에

Tier-0 Gateway Routing Configurations (1)

The Tier-0 gateway supports the following routing configurations:

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 - External BGP (eBGP) sessions with peers in a different autonomous system (AS)
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Handwritten notes: 'eBGP' and 'iBGP' with arrows pointing to the respective sessions in the diagram.

- 같은 bgp끼리 묶으면 iBGP

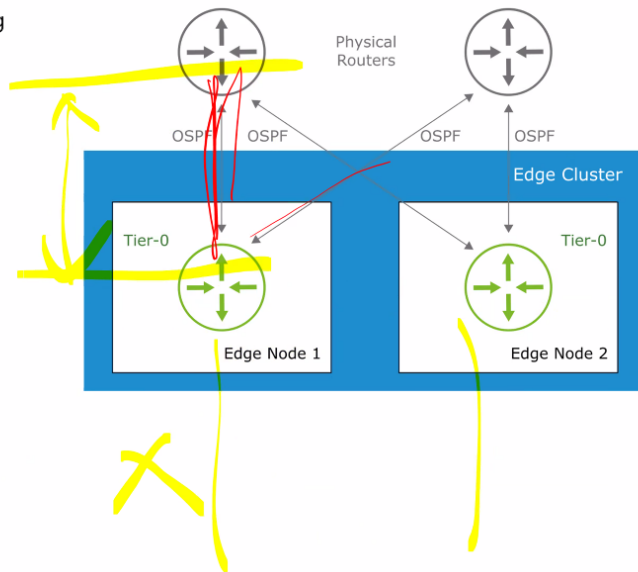
Tier-0 Gateway Routing Configurations (2)

Tier-0 gateways also support dynamic routing configurations using Open Shortest Path First (OSPF):

- OSPF over point-to-point networks
- OSPF over broadcast networks

(DR/BDR)
eth

Serial X



- 이더넷은 브로드 캐스트
- 시리얼은 point to point

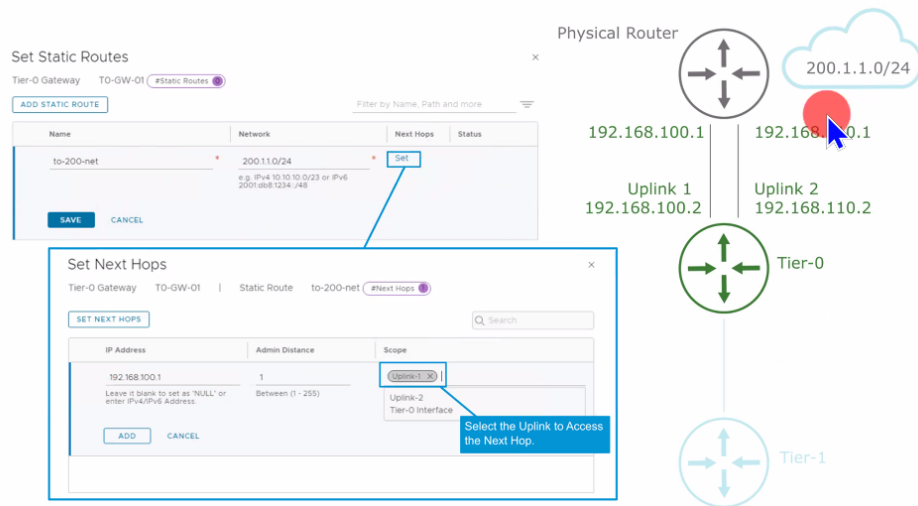
Configuring Static Routes on a Tier-0 Gateway (1)

You can configure static routes in the ROUTING section of the Tier-0 gateway.

- 스테틱 설정하는 방법

Configuring Static Routes on a Tier-0 Gateway (2)

You can add one or multiple static routes and configure the next hops.



BGP 설정

```
** R1
conf t
int e0/0
ip add 192.168.12.1 255.255.255.0
no sh
int lo 0
ip add 1.1.1.1 255.255.255.0

** R2
conf t
int e0/0
ip add 192.168.12.2 255.255.255.0
no sh
int lo0
ip add 2.0.0.1 255.255.255.0

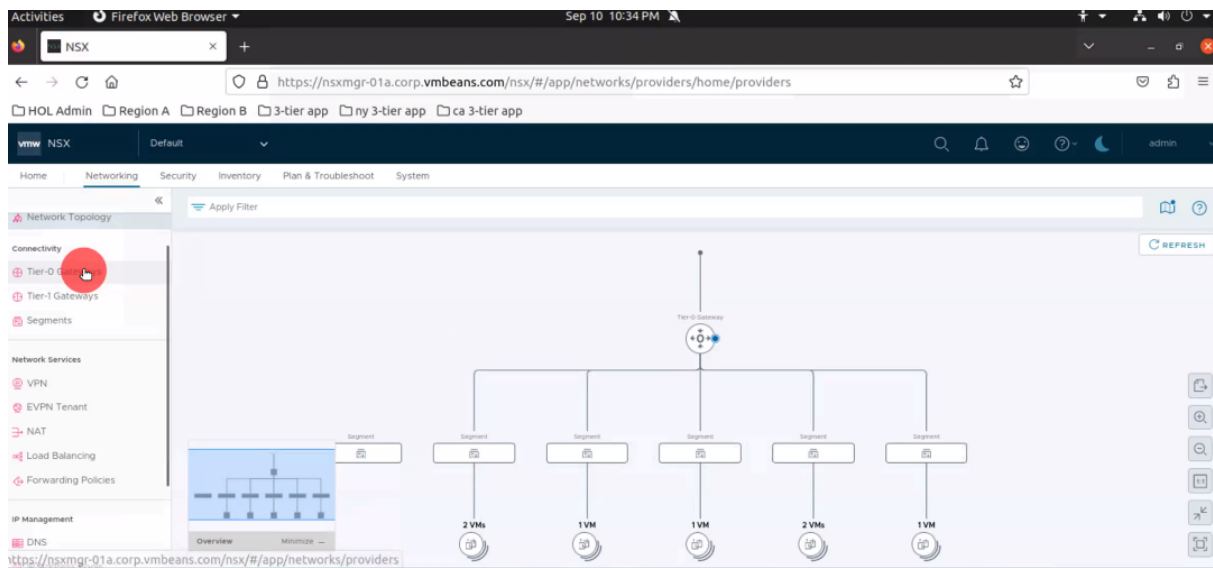
**R1
router bgp 100
neighbor 192.168.12.2 remote-as 200
network 1.1.1.0 mask 255.255.255.0
```

**R2

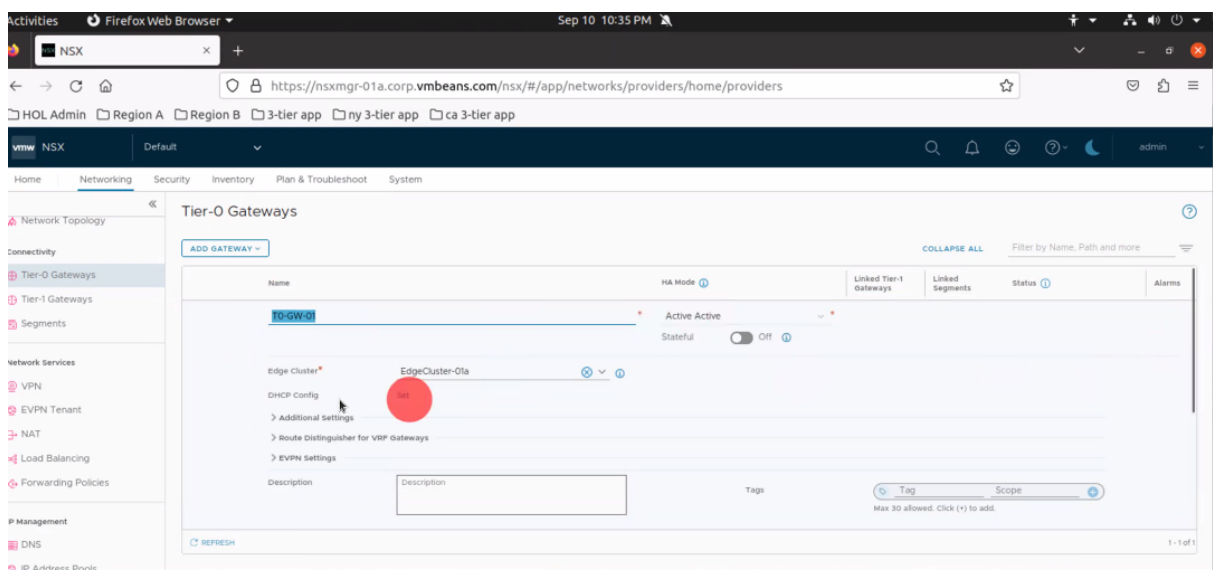
router bgp 200

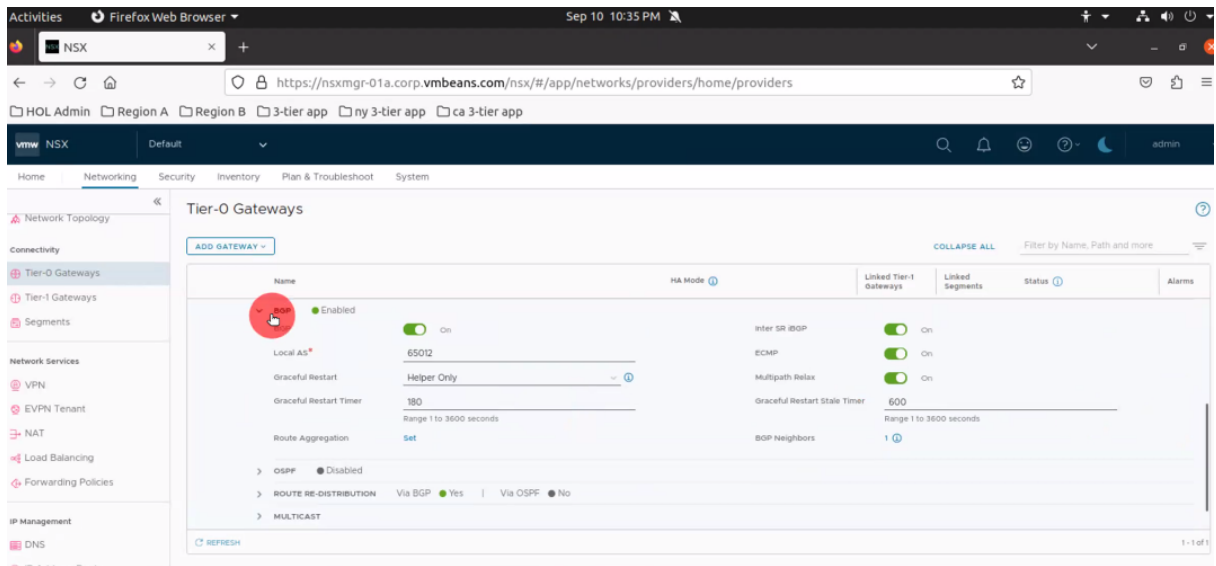
nei 192.168.12.1 remote-as 100

NSX에서 BGP 세팅

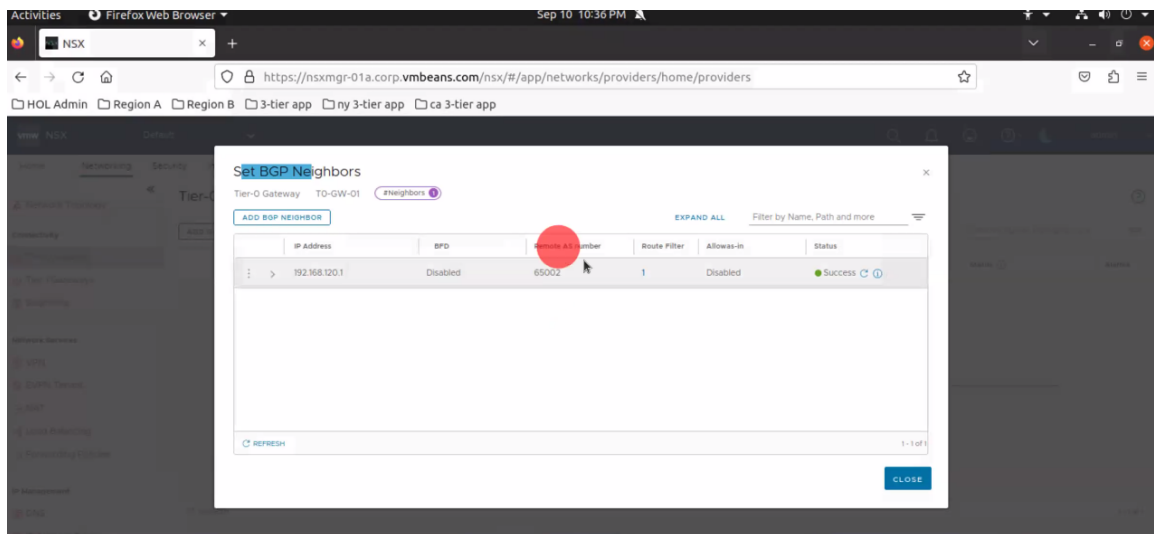


- 티어0에서 수행
- edit 클릭

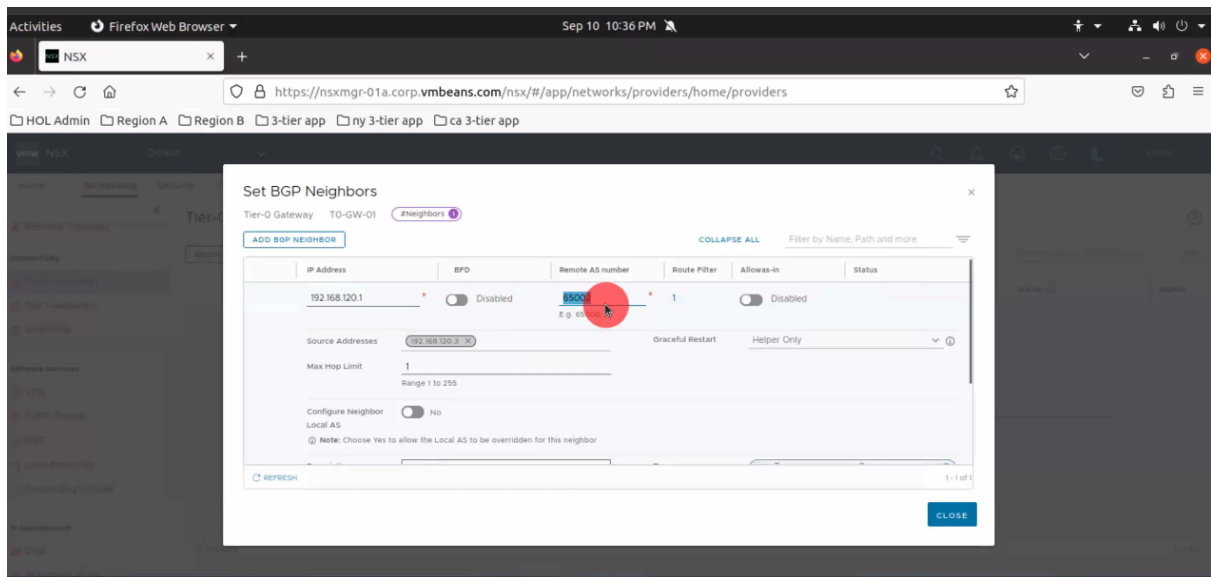




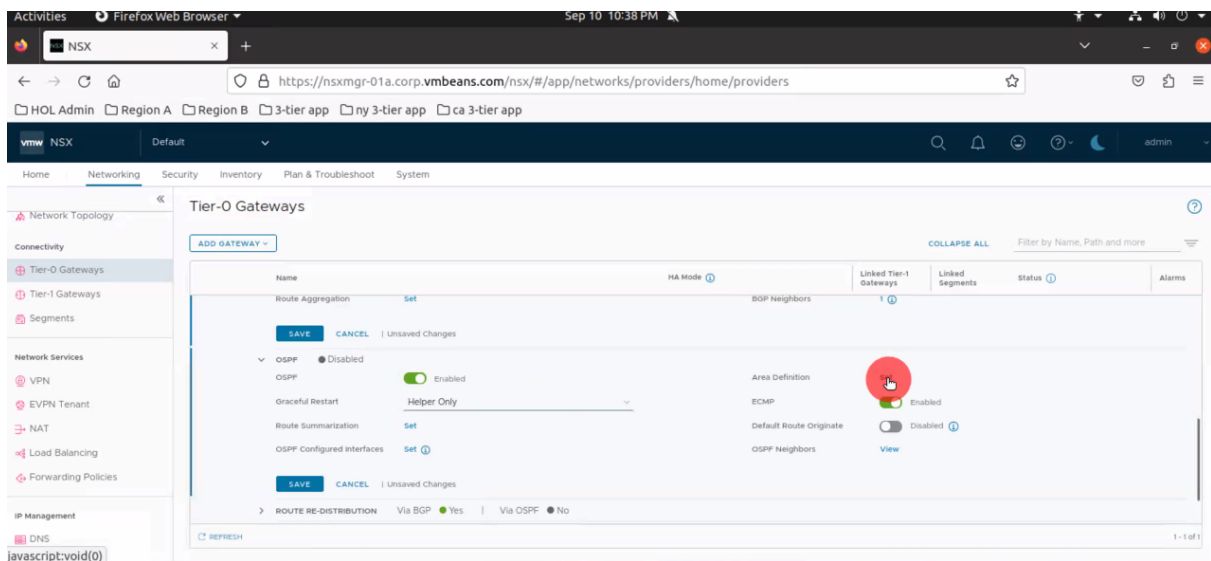
- bgp 활성화된 상태
- 65012 자기자신
- 네이버 숫자 클릭

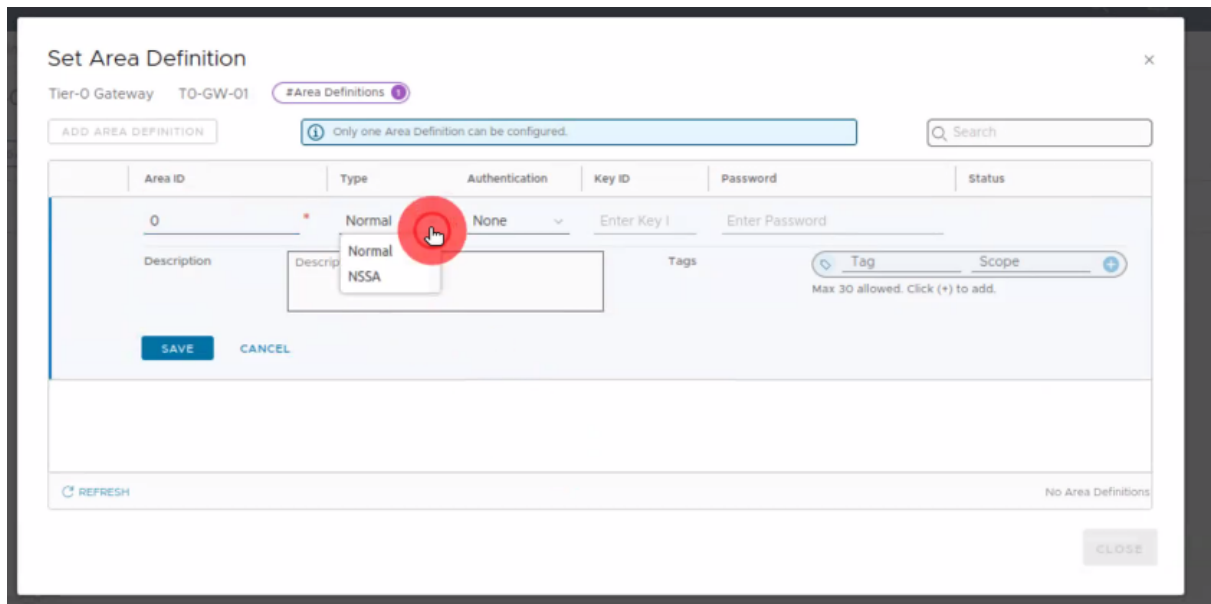


- 상대방 아이피가 보임 클릭하면

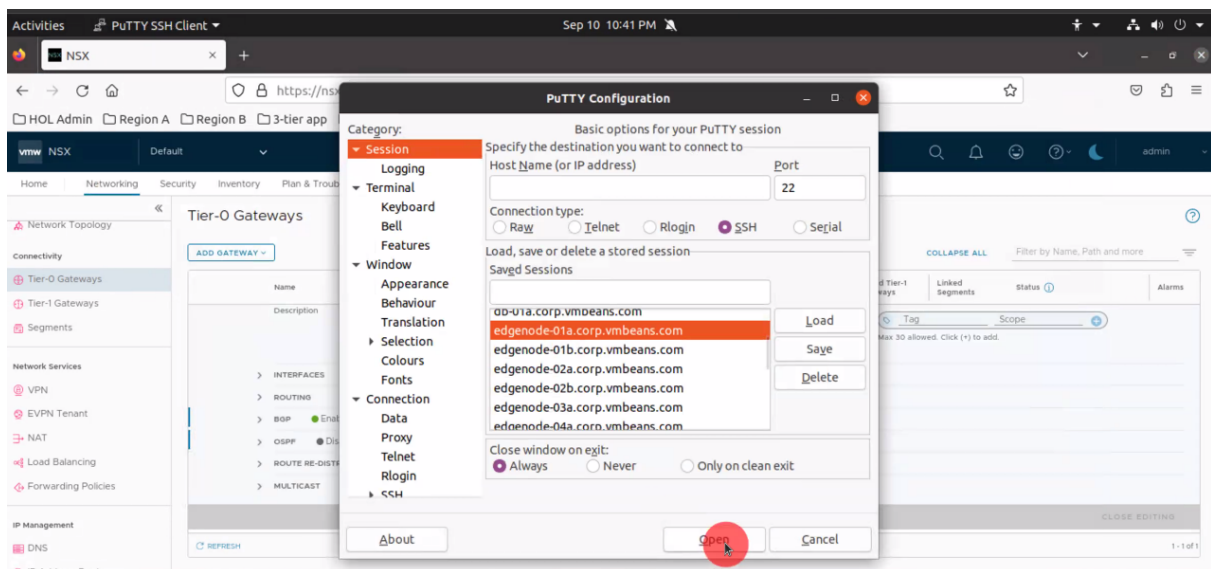


- 65002는 상대편 번호
- 내리면 ospf도 활성화 가능
 - 대신에 ospf, bgp 둘 중 하나만 사용하기

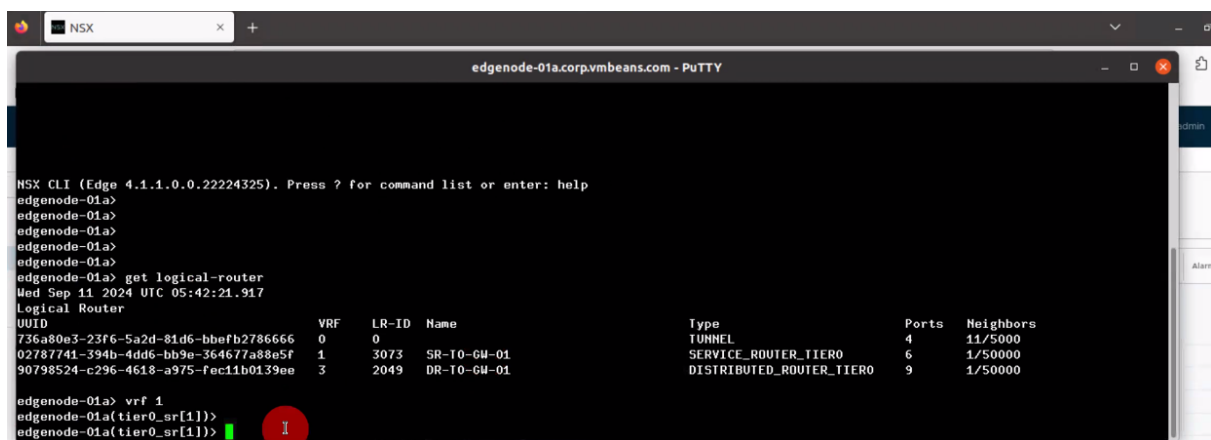




- ospf area 지정가능



- 엣지노드 01a 오픈



- ```
Activities PUTTY SSH Client Sep 10 10:42 PM [Icons]

NSX x +

edgenode-01a.corp.vmbeans.com - PuTTY

Flags: t0c - Tier0-Connected, t0s - Tier0-Static, b - BGP, o - OSPF
t0n - Tier0-NAT, t1s - Tier1-Static, t1c - Tier1-Connected,
t1n - Tier1-NAT, t1l - Tier1-LB VIP, t1ls: Tier1-LB SNAT,
t1d - Tier1-DNS FORWARDER, t1psec: Tier1-IPSec, isr: Inter-SR,
lvs: Inter-VRF-Static, > - selected route, * - FIB route

Total number of routes: 14

b > * 0.0.0.0/0 [20/0] via 192.168.120.1, uplink-275, 03:14:12
t0c> * 169.254.0.0/25 is directly connected, backplane-277, 03:14:18
t0s> * 169.254.0.128/25 is directly connected, inter-sr-273, 03:15:07
t0c> * 172.16.10.0/24 is directly connected, downlink-279, 03:15:07
t0c> * 172.16.20.0/24 is directly connected, downlink-274, 03:15:07
t0c> * 172.16.140.0/24 is directly connected, downlink-278, 03:15:07
t0c> * 172.16.120.0/24 is directly connected, downlink-281, 03:15:07
t0c> * 172.16.130.0/24 is directly connected, downlink-276, 03:15:07
b > * 172.16.150.0/24 [20/0] via 192.168.120.1, uplink-275, 03:14:12
b > * 172.16.160.0/24 [20/0] via 192.168.120.1, uplink-275, 03:14:12
b > * 172.16.170.0/24 [20/0] via 192.168.120.1, uplink-275, 03:14:12
t0c> * 192.168.120.0/24 is directly connected, uplink-275, 03:15:07
b > * 192.168.220.0/24 [20/0] via 192.168.120.1, uplink-275, 03:14:12

Load Balancing > ROUTE RE-DISTRIBUTION Via BGP Yes Via OSPF No
Forwarding Policies > MULTICAST
Management
```

- VMware NSX Static / Dynamic Routing

## **실습**

VMware NSX - Networking Fundamentals (HOL-2425-01-NET)

VMware HOL 들어가서 가이드 다운로드 후 121p - 166부터 실습