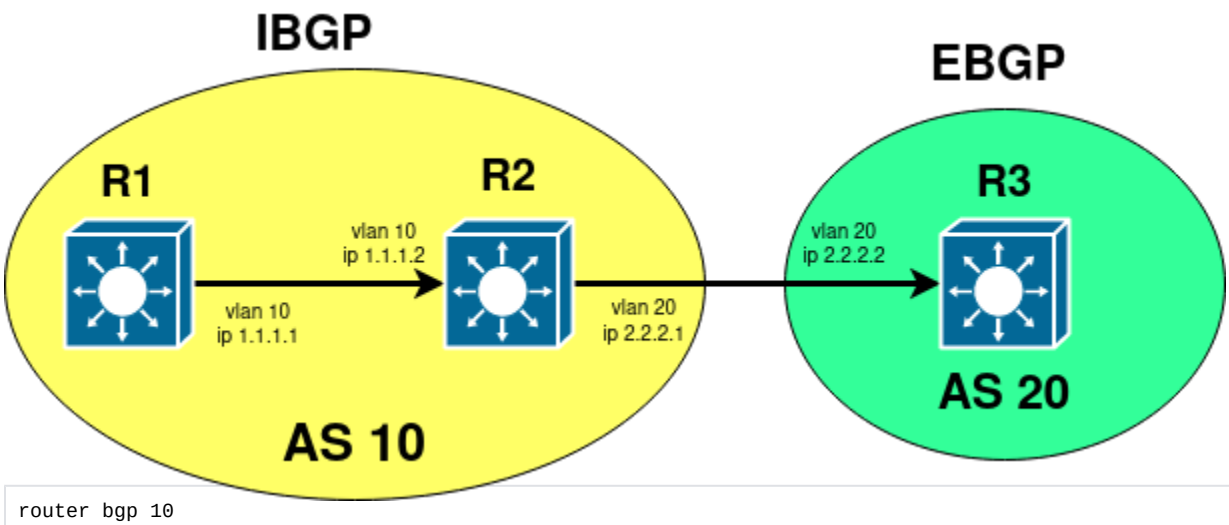
BGP SNR

BGP - , , AS (eBGP), (iBGP). L3- SNR.

BGP

:



R2:

```
router bgp 10
 bgp router-id 1.1.1.2
 network 1.1.1.0/30
 network 2.2.2.0/30
 neighbor 1.1.1.1 remote-as 10
 neighbor 2.2.2.2 remote-as 20
```

R1 R3 , router-id . 1.1.1.0/30 2.2.2.0/30 - .

, :

```
show ip bgp summary:
Neighbor        V          AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
1.1.1.1         4          10       2       3       34    0    0 00:00:06       0
2.2.2.2         4          20       7       9       34    0    0 00:05:26       0

show ip route:
Codes: K - kernel, C - connected, S - static, R - RIP, B - BGP
       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
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default
C       1.1.1.0/30 is directly connected, Vlan10  tag:0
C       2.2.2.0/30 is directly connected, Vlan20  tag:0
```

BFD (Bidirectional Forwarding Detection)

, BGP- . . BFD. IP- . , , VLAN-.

```
router bgp 10
 neighbor 1.1.1.2 bfd
```

MED, Weight, Community

MED (multi-exit discriminator) , AS AS. , AS. AS, ***bgp always-compare-med.***

```
route-map metric permit 10
 set metric 50
!
router bgp 10
 bgp always-compare-med
 neighbor 1.1.1.1 remote-as 10
 neighbor 1.1.1.1 route-map metric out
```

Weight , AS. - , .

```
router bgp 20
 neighbor 2.2.2.1 weight 150
```

BGP community . community. , . , . ip access-list:

```
access-list 1 permit 2.0.0.0 0.255.255.255
access-list 2 permit any-source
!
router bgp 10
 neighbor 2.2.2.2 route-map set-community out
!
route-map set-community permit 10
 match ip address 1
 set community 1111
!
route-map set-community permit 20
 match ip address 2
```

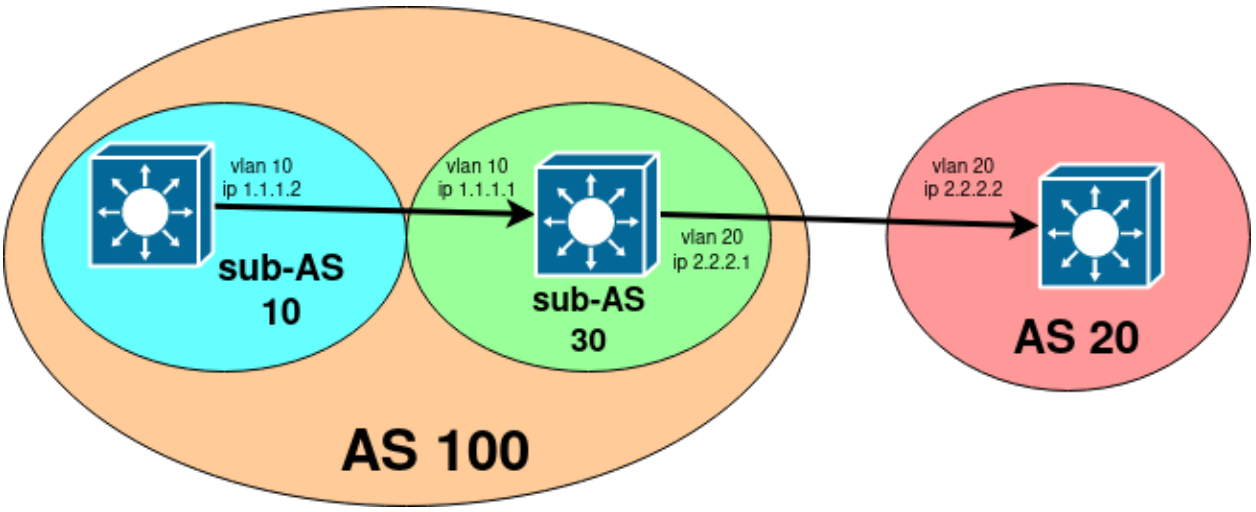
, Community 0:1111 2.2.2.2

> ⚠
>
> *clear ip bgp <neighbor_ip> soft*, .

BGP confederation

BGP Confederation. , AS (AS). iBGP- iBGP- AS, . AS AS.

:



:

```
!
router bgp 10
 bgp router-id 1.1.1.2
 bgp confederation identifier 100
 bgp confederation peers 30
 neighbor 1.1.1.1 remote-as 30
!
router bgp 30
 bgp router-id 1.1.1.1
 bgp confederation identifier 100
 bgp confederation peers 10
 neighbor 1.1.1.2 remote-as 10
 neighbor 2.2.2.2 remote-as 20
```

Route Reflector

"" . , Route Reflector , , .. , . RR- . :

- , .
- RR , .
- RR eBGP-, .

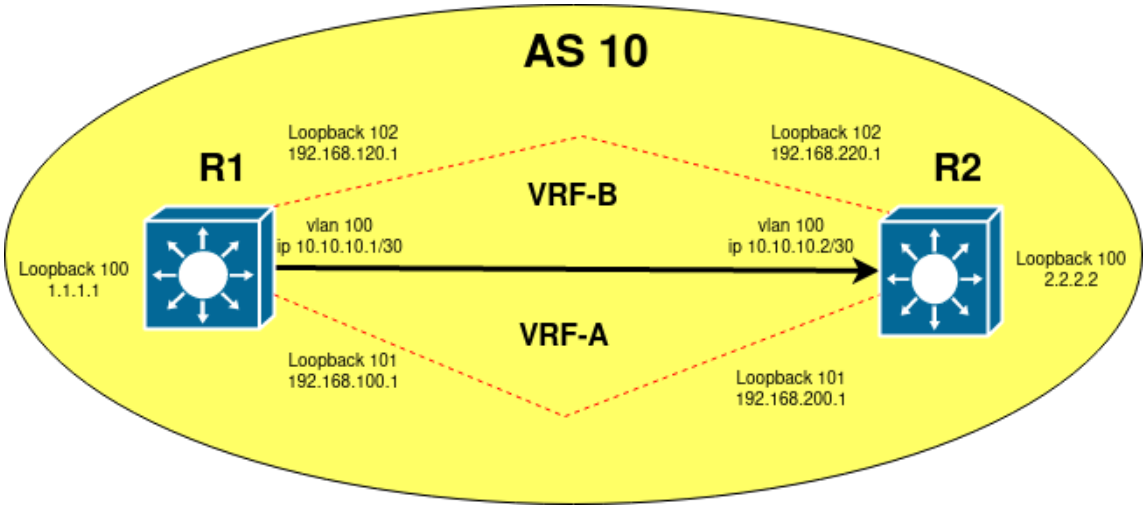
iBGP- RR route-reflector-client:

```
router bgp 10
 bgp router-id 1.1.1.1
 network 1.1.1.0/30
 redistribute connected
 neighbor 1.1.1.2 remote-as 10
 neighbor 1.1.1.2 route-reflector-client
```

BGP VPN

VPN, VRF . VRF BGP, BGP VPN-IPv4 . , VRF - . VRF, , RT. BGP, BGP extended community. VPN, RD, BGP extended community.

:



:

```
mpls enable
!
vlan 100
name TEST_VRF
!
ip vrf VRF-A
rd 100:10
route-target both 100:10
!
ip vrf VRF-B
rd 100:20
route-target both 100:20
!
interface Vlan100
mtu 2000
label-switching
ldp enable
ip address 10.10.10.1 255.255.255.252
!
interface Loopback100
ip address 1.1.1.1 255.255.255.255
!
interface Loopback101
ip vrf forwarding VRF-A
ip address 192.168.100.1 255.255.255.255
!
interface Loopback102
ip vrf forwarding VRF-B
ip address 192.168.120.1 255.255.255.255
!
router bgp 10
redistribute connected
redistribute static
neighbor 2.2.2.2 remote-as 10
neighbor 2.2.2.2 update-source 1.1.1.1
address-family vpnv4 unicast
neighbor 2.2.2.2 activate
exit-address-family
address-family ipv4 vrf VRF-A
redistribute connected
redistribute static
exit-address-family
address-family ipv4 vrf VRF-B
redistribute connected
redistribute static
exit-address-family
```

R2 , ., :

```
show ip route
Codes: K - kernel, C - connected, S - static, R - RIP, B - BGP
       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
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default
C       1.1.1.1/32 is directly connected, Loopback100  tag:0
O E2    2.2.2.2/32 [110/20] via 10.10.10.2, Vlan100, 01:35:58  tag:0
C       10.10.10.0/30 is directly connected, Vlan100  tag:0

show ip route vrf VRF-A
C       192.168.100.1/32 is directly connected, Loopback101  tag:0
B       192.168.200.1/32 [200/0] via 2.2.2.2, 01:38:42  tag:0

show ip route vrf VRF-B
C       192.168.120.1/32 is directly connected, Loopback102  tag:0
B       192.168.220.1/32 [200/0] via 2.2.2.2, 01:38:47  tag:0
```

, . ,.. VRF.