kathara lab

bgp: simple-peering with frr

Version	1.0
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Description	setting up a bgp peering between two autonomous systems; kathara version of a netkit lab

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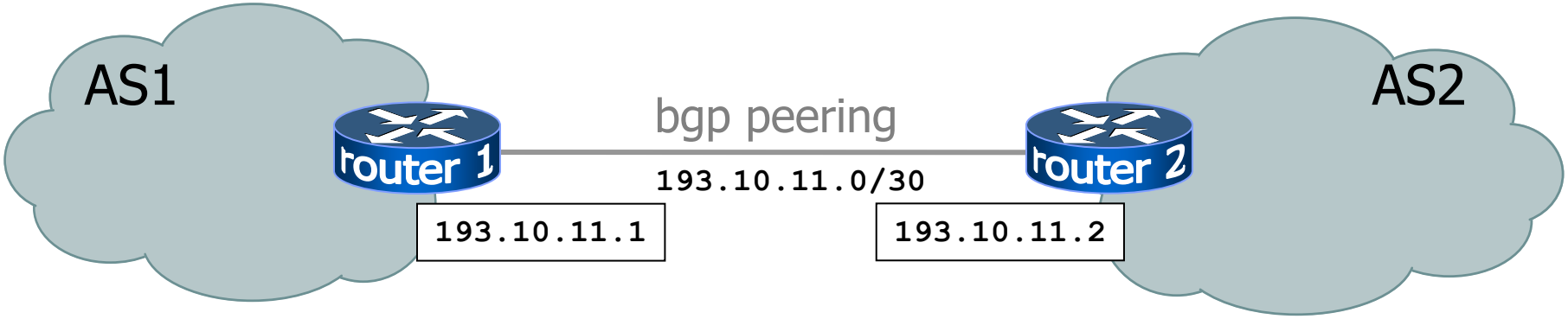
preconditions

- for this lab we assume you have chosen “kathara/frr” as the default image of your Kathará installation
  - execute “kathara settings”
    - select “choose default image”
    - select “kathara/frr”
    - exit from the settings procedure

a bgp peering between two ases

- bgp allows routers to exchange information only if a peering session is up
- a bgp peering is the tcp connection over which routing information will be exchanged



peering configuration commands

command syntax

```
! <a-comment-on-a-single-line>
```

command syntax

```
router bgp <my-as-number>
```

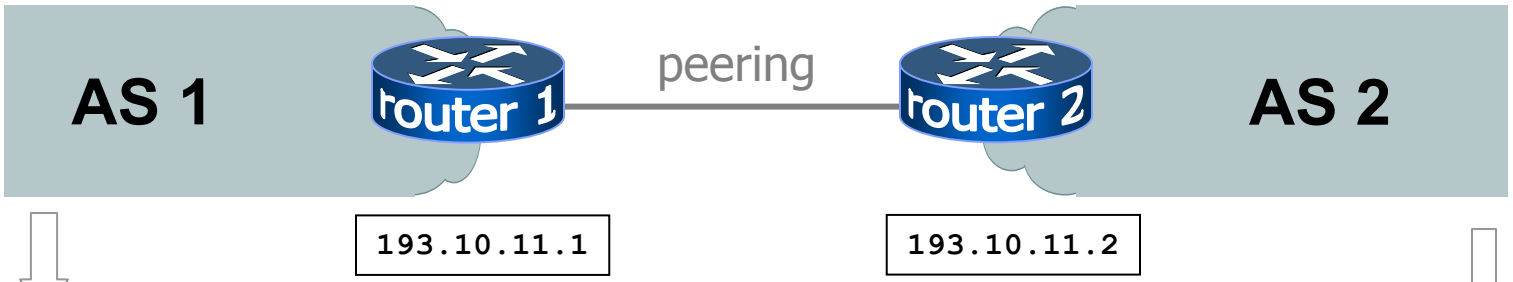
command syntax

```
neighbor <neighbor-ip> remote-as <neighbor-as-num>
```

command syntax

```
neighbor <neighbor-ip> description <text>
```

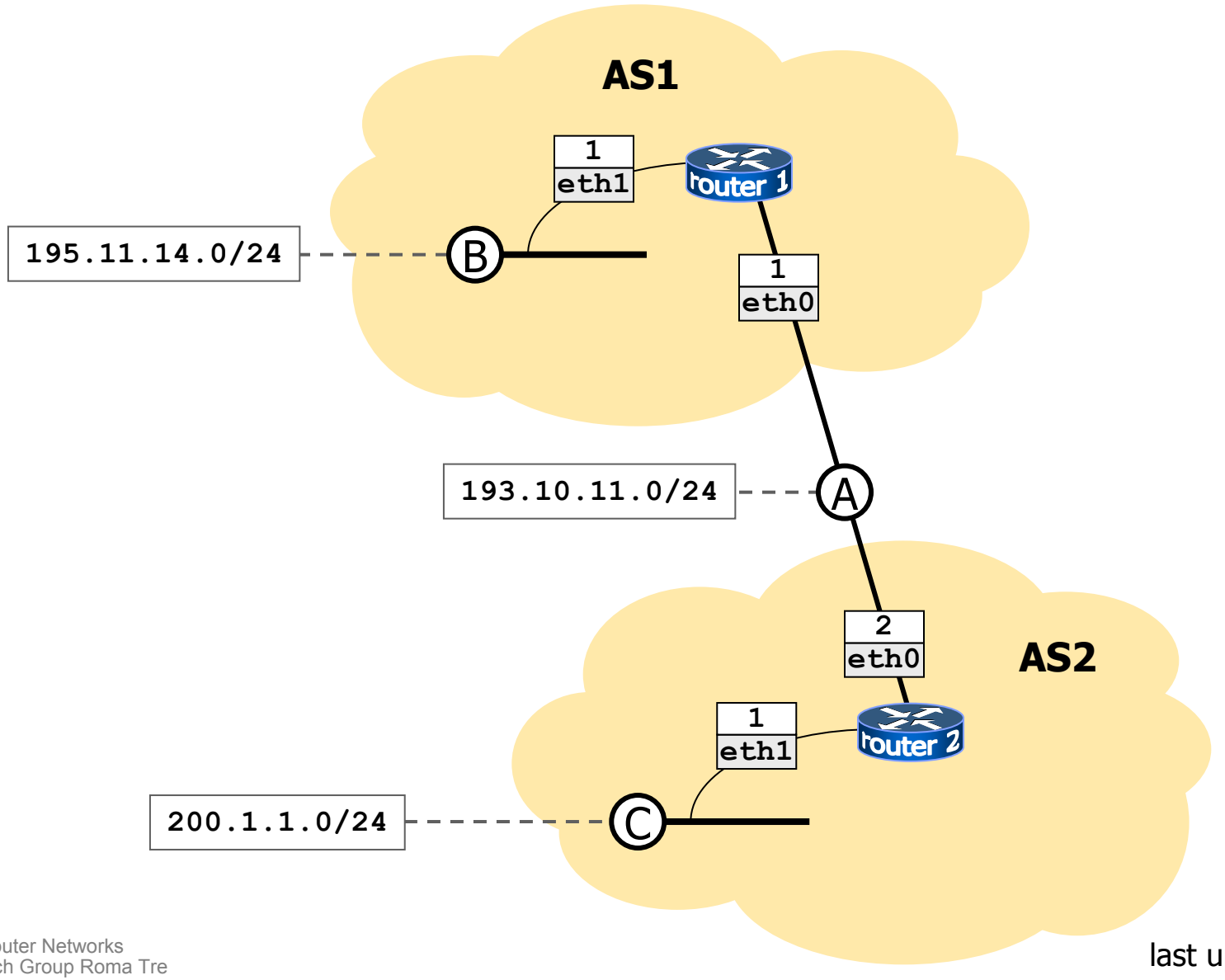
peering configuration example




```
! router 1 configuration file
router bgp 1
neighbor 193.10.11.2 remote-as 2
neighbor 193.10.11.2 description Router 2
```

```
! router 2 configuration file
router bgp 2
neighbor 193.10.11.1 remote-as 1
neighbor 193.10.11.1 description Router 1
```

a simple peering



last update: Oct 2021

a simple peering

- launch the script

host machine

```
user@localhost:~$ cd kathara-lab_bgp-simple-peering_frr
user@localhost:~/kathara-lab_bgp-simple-peering_frr$ kathara lstart
```

- check the frr configuration file

router1

```
router1:~# less /etc/frr/frr.conf
!
password zebra
enable password zebra
!
router bgp 1
...
...
```

a simple peering

- check the kernel routing table

router1

```
router1:~# route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
193.10.11.0     *               255.255.255.0   U     0      0        0 eth0
195.11.14.0     *               255.255.255.0   U     0      0        0 eth1
router1:~#
```

  - as no routing protocol (not even bgp!) is propagating routing information, only local routes are known

a simple peering

- check the log file of the frr daemons

router1

```
root@router1:/# cat /var/log/frr/frr.log
2021/10/23 21:31:28 ZEBRA: client 30 says hello and bids fair to announce only vnc routes vrf=0
2021/10/23 21:31:28 ZEBRA: client 26 says hello and bids fair to announce only bgp routes vrf=0
2021/10/23 21:31:28 ZEBRA: client 37 says hello and bids fair to announce only static routes vrf=0
2021/10/23 21:31:29 BGP: 193.10.11.2 sending KEEPALIVE
2021/10/23 21:31:29 BGP: 193.10.11.2 KEEPALIVE rcvd
2021/10/23 21:31:30 BGP: u1:s1 announcing routes upon coalesce timer expiry(1050 ms)
2021/10/23 21:31:30 BGP: 193.10.11.2 rcvd UPDATE wlen 0 attrlen 0 alen 0
2021/10/23 21:31:30 BGP: bgp_best_path_select_defer: processing route for IPv4 Unicast : cnt 0
2021/10/23 21:31:30 BGP: bgp_update_receive: rcvd End-of-RIB for IPv4 Unicast from 193.10.11.2 in vrf default
2021/10/23 21:32:29 BGP: 193.10.11.2 sending KEEPALIVE
2021/10/23 21:32:29 BGP: 193.10.11.2 KEEPALIVE rcvd
2021/10/23 21:33:29 BGP: 193.10.11.2 sending KEEPALIVE
2021/10/23 21:33:29 BGP: 193.10.11.2 KEEPALIVE rcvd
root@router1:/#
```

a simple peering

- check the command line interface of bgpd

router1

```
root@router1:/# telnet localhost bgpd
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^]'.

Hello, this is FRRouting (version 7.5.1).
Copyright 1996-2005 Kunihiro Ishiguro, et al.

User Access Verification

Password: zebra
router1> show ip bgp summary

IPv4 Unicast Summary:
BGP router identifier 195.11.14.1, local AS number 1 vrf-id 0
BGP table version 0
RIB entries 0, using 0 bytes of memory
Peers 1, using 21 KiB of memory

Neighbor        V         AS   MsgRcvd   MsgSent   TblVer  InQ OutQ  Up/Down State/PfxRcd   PfxSnt
193.10.11.2     4          2         9         9        0    0    0 00:06:06            0        0

Total number of neighbors 1
router1>
```

a simple peering

- check the peering status

router1

```
router1> show ip bgp neighbors
BGP neighbor is 193.10.11.2, remote AS 2, local AS 1, external link
 Description: Router 2 of AS2
Hostname: router2
  BGP version 4, remote router ID 200.1.1.1, local router ID 195.11.14.1
  BGP state = Established, up for 00:08:31
  Last read 00:00:31, Last write 00:00:31
  Hold time is 180, keepalive interval is 60 seconds
  Neighbor capabilities:
    4 Byte AS: advertised and received
    AddPath:
      IPv4 Unicast: RX advertised IPv4 Unicast and received
    Route refresh: advertised and received(old & new)
    Address Family IPv4 Unicast: advertised and received
    Hostname Capability: advertised (name: router1,domain name: n/a) received
(name: router2,domain name: n/a)
    Graceful Restart Capability: advertised and received
      Remote Restart timer is 120 seconds
      Address families by peer:
        none
  Graceful restart information:
    End-of-RIB send: IPv4 Unicast
    End-of-RIB received: IPv4 Unicast
    Local GR Mode: Helper*
 --More--
```

a simple peering

- show the bgp table

router1

```
router1-frr# show ip bgp
No BGP prefixes displayed, 0 exist
router1-frr#
```

- stop the lab

host machine

```
user@localhost:~$ cd kathara-lab_bgp-simple-peering_frr
user@localhost:~/kathara-lab_bgp-simple-peering_frr$ kathara lclean
```