kathara lab

bgp: announcement
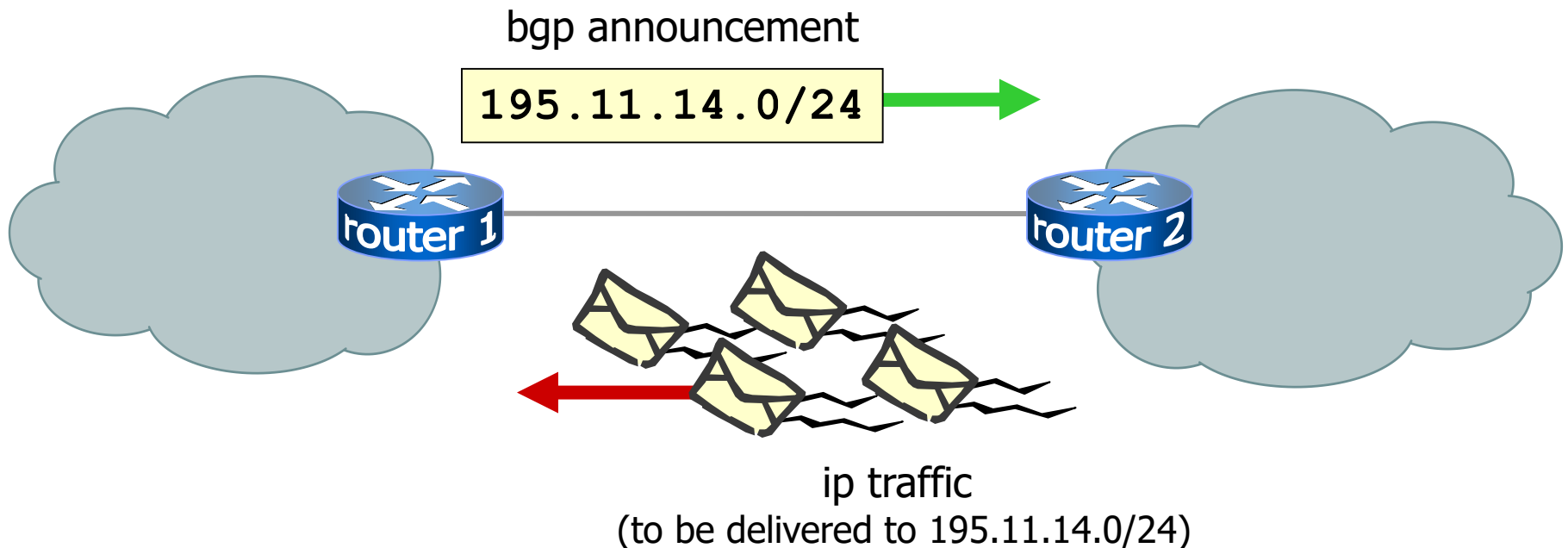
Version	1.0
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Web	http://www.kathara.org/
Description	a simple bgp announcement; kathara version of a netkit lab

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announcements and traffic flows

- bgp allows a router to offer connectivity to another router

- "offering connectivity" means "promising the delivery to a specific destination"

bgp announcement

195.11.14.0/24

router 1

router 2

ip traffic
(to be delivered to 195.11.14.0/24)

announcement commands

```
network <network-ip> mask <network-mask>
```

```
network <network-ip/network-mask>
```

- this command flags a network as local to the as
- without further specifications the network will be announced to all peers
- notice that the network
  - may not be local
  - is not even required to exist(!)

announcement commands

- observe that the `network` command

  - *does not* inject any route in the kernel forwarding table

  - checks whether the network address matches the netmask; if it does not, the command is automatically replaced in the router configuration; for example:

    - `network 193.100.0.0/8`
      is replaced by
      `network 193.0.0.0/8`

    - `network 1.2.3.4/0`
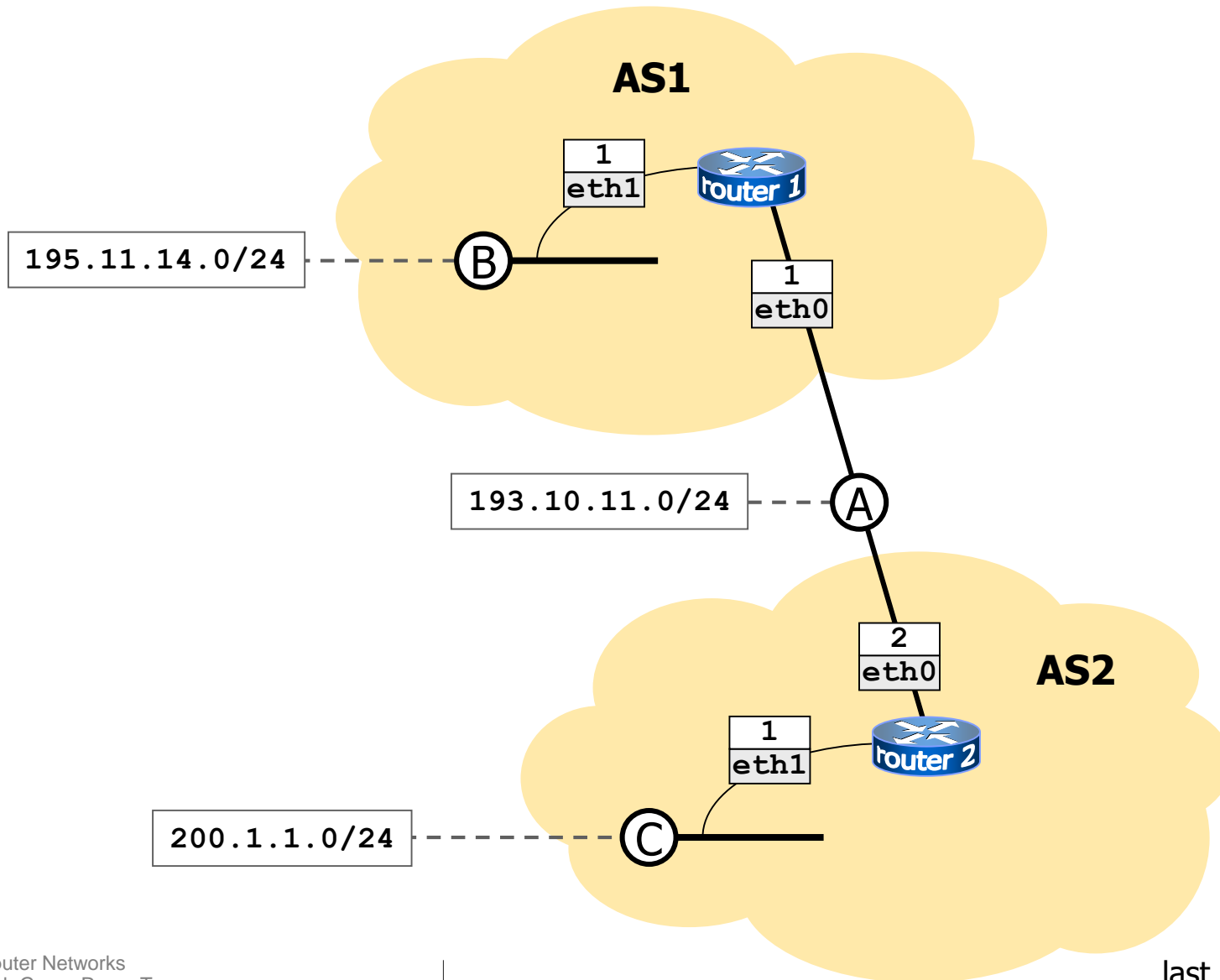   is replaced by
      `network 0.0.0.0/0`

announcement example
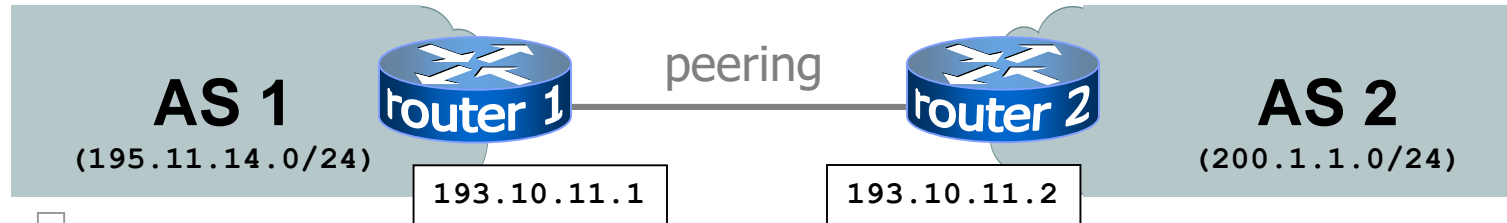

```
! router 1 configuration file
router bgp 1
network 195.11.14.0/24
neighbor 193.10.11.2 remote-as 2
```

```
! router 2 configuration file
router bgp 2
network 200.1.1.0/24
neighbor 193.10.11.1 remote-as 1
```

peering configuration

AS1

1
eth1

router 1

195.11.14.0/24 ---- B

1
eth0

193.10.11.0/24 ---- A

2
eth0

AS2

1
eth1

router 2

200.1.1.0/24 ---- C

announcement example

- ## start the lab

```
user@localhost:~$ cd kathara-lab_bgp-announcement
user@localhost:~/kathara-lab_bgp-announcement$ lstart
▮
```

- ## check the zebra routing table

```
router2:~# telnet localhost zebra
.....
User Access Verification

Password: zebra
Router> show ip route
Codes: K - kernel route, C - connected, S - static, R - RIP, O - OSPF,
       B - BGP, > - selected route, * - FIB route

C>* 127.0.0.0/8 is directly connected, lo
C>* 193.10.11.0/24 is directly connected, eth0
B>* 195.11.14.0/24 [20/0] via 193.10.11.1, eth0, 00:04:46
C>* 200.1.1.0/24 is directly connected, eth1
Router> ▮
```

announcement example

- check the bgpd log file

```
router2:~# less /var/log/zebra/bgpd.log
2007/05/22 12:36:57 BGP: 193.10.11.1 [FSM] Receive_KEEPALIVE_message
(Established->Established)
2007/05/22 12:36:58 BGP: 193.10.11.1 [FSM] Timer (routeadv timer expire)
2007/05/22 12:36:58 BGP: 193.10.11.1 send UPDATE 200.1.1.0/24
2007/05/22 12:36:58 BGP: 193.10.11.1 rcvd UPDATE w/ attr: nexthop
193.10.11.1, origin i, path 1
2007/05/22 12:36:58 BGP: 193.10.11.1 rcvd 195.11.14.0/24
2007/05/22 12:36:58 BGP: 193.10.11.1 [FSM] Receive_UPDATE_message
(Established->Established)
2007/05/22 12:37:28 BGP: 193.10.11.1 [FSM] Timer (routeadv timer expire)
2007/05/22 12:37:50 BGP: Performing BGP general scanning
2007/05/22 12:37:57 BGP: 193.10.11.1 [FSM] Timer (keepalive timer expire)
2007/05/22 12:37:57 BGP: 193.10.11.1 [FSM] KeepAlive_timer_expired
(Established->Established)
2007/05/22 12:37:57 BGP: 193.10.11.1 sending KEEPALIVE
/var/log/zebra/bgpd.log
```

window title: **router2**

announcement example

- **check the bgpd log file**


```
router2:~# less /var/log/zebra/bgpd.log
2007/05/22 12:36:57 BGP: 193.10.11.1 [FSM] Receive_KEEPALIVE_message
(Established->Established)
2007/05/22 12:36:58 BGP: 193.10.11.1 [FSM] Timer (routeadv timer expire)
2007/05/22 12:36:58 BGP: 193.10.11.1 send UPDATE 200.1.1.0/24
2007/05/22 12:36:58 BGP: 193.10.11.1 rcvd UPDATE w/ attr: nexthop
193.10.11.1 ... length 1
2007/... ...0.11.1 rcvd 195.11.14.0/24
2007/... ...3.10.11.1 [FSM] Receive_UPDATE_message
(Est... ...
2007/... ...3.10.11.1 [FSM] Timer (routeadv timer expire)
2007/05/22 12:37:50 BGP: Performing BGP general scanning
2007/05/22 12:37:57 BGP: 193.10.11.1 [FSM] Timer (keepalive timer expire)
2007/05/22 12:37:57 BGP: 193.10.11.1 [FSM] KeepAlive_timer_expired
(Established->Established)
2007/05/22 12:37:57 BGP: 193.10.11.1 sending KEEPALIVE
/var/log/zebra/bgpd.log
```

sent announcement

received announcement

kathara – [lab: bgp-announcement]

last update: Nov 2018

announcement example

- check the bgpd cli (command line interface)
  - type "`telnet localhost bgpd`"
  - insert the password "`zebra`"
  - type "`show ip bgp neighbors`"
  - type "`show ip bgp 200.1.1.0`"
- ping "`200.1.1.0`"
- terminate the lab

host machine

```
user@localhost:~$ cd kathara-lab_bgp-announcement
user@localhost:~/kathara-lab_bgp-announcement$ lclean ■
```