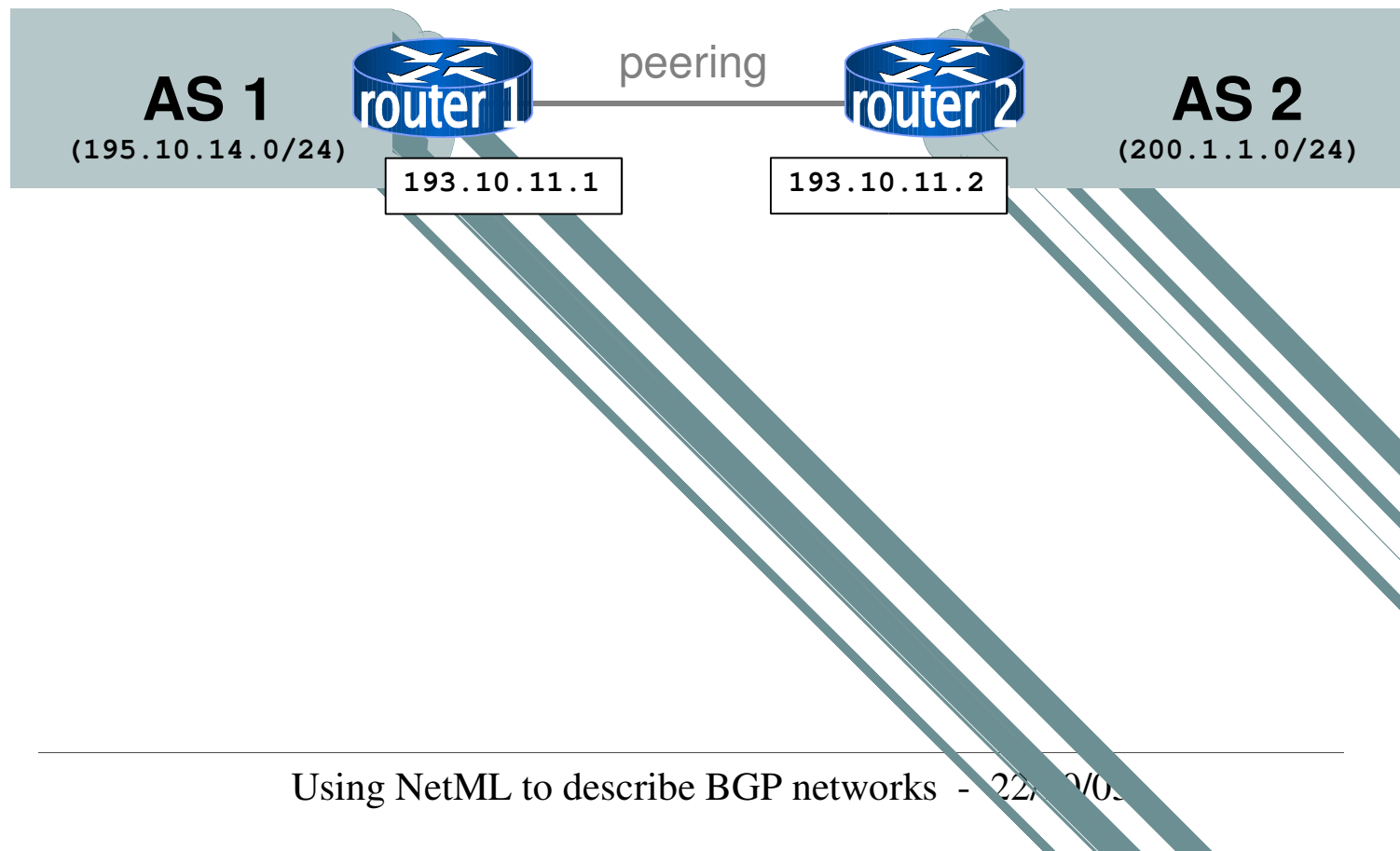


# Using NetML to describe BGP networks

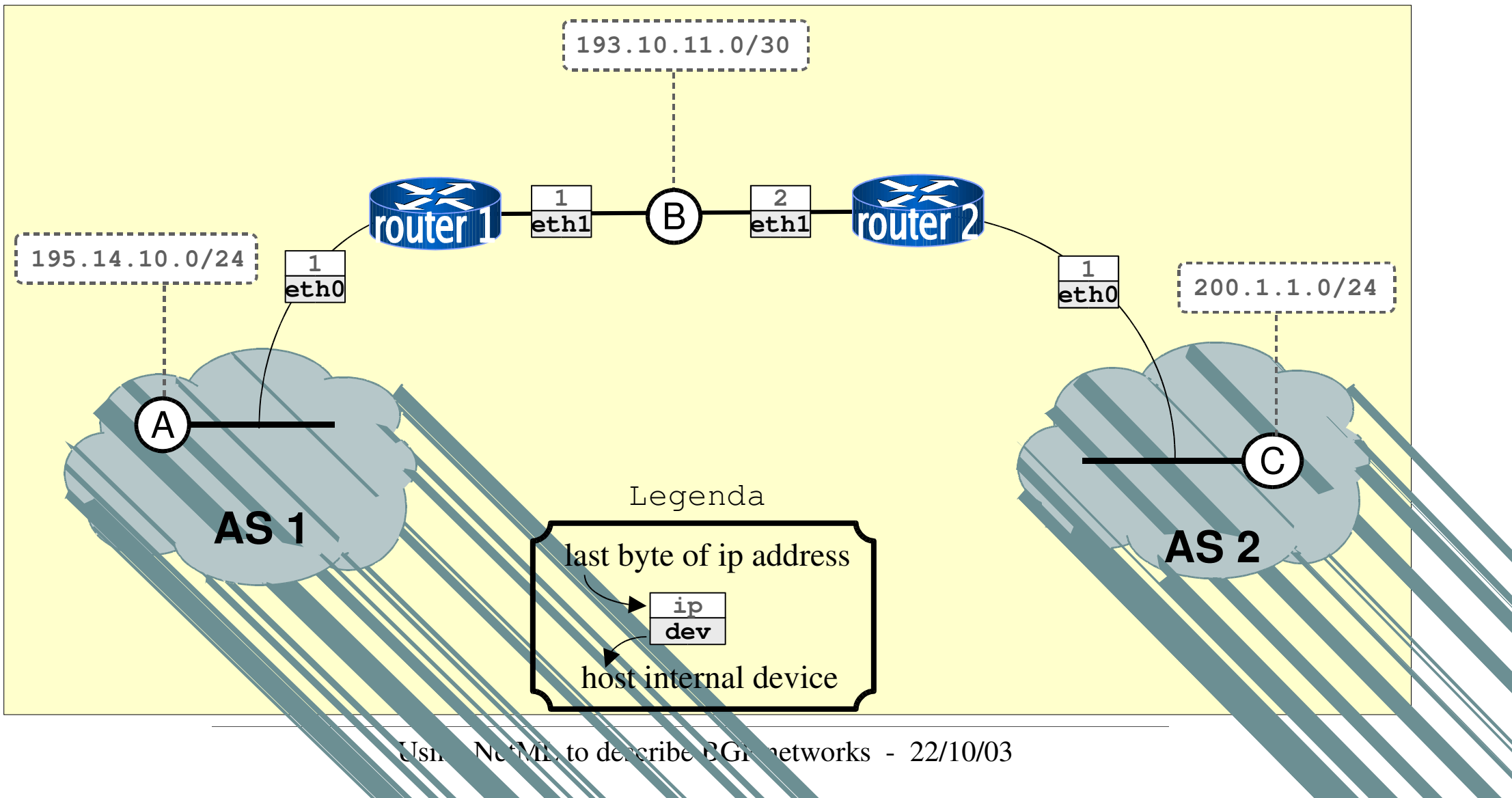
# bgp-simple.xml

## A simple network running Bgp



# bgp-simple.xml

## A simple network running Bgp



# bgp-simple.xml

## BGP configuration

```
<RouterConf id="r_2" Hostname="r2">
  ...
  <BGPConf as="2">
    <StaticRoutes>
      <s address="200.1.1.0/24"/>
    </StaticRoutes>
    <PeerGroup name="EBGP">
      <Neighbor address="193.10.11.1">
        <Description>Peering with router1</Description>
        <Peer-AS name="1"/>
      </Neighbor>
    </PeerGroup>
  </BGPConf>
</RouterConf>
```

# bgp-simple.xml

## Checking routing

```
R_1-r1# sh ip bgp
BGP table version is 0, local router ID is 195.14.10.1
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal
Origin codes: i - IGP, e - EGP, ? - incomplete
```

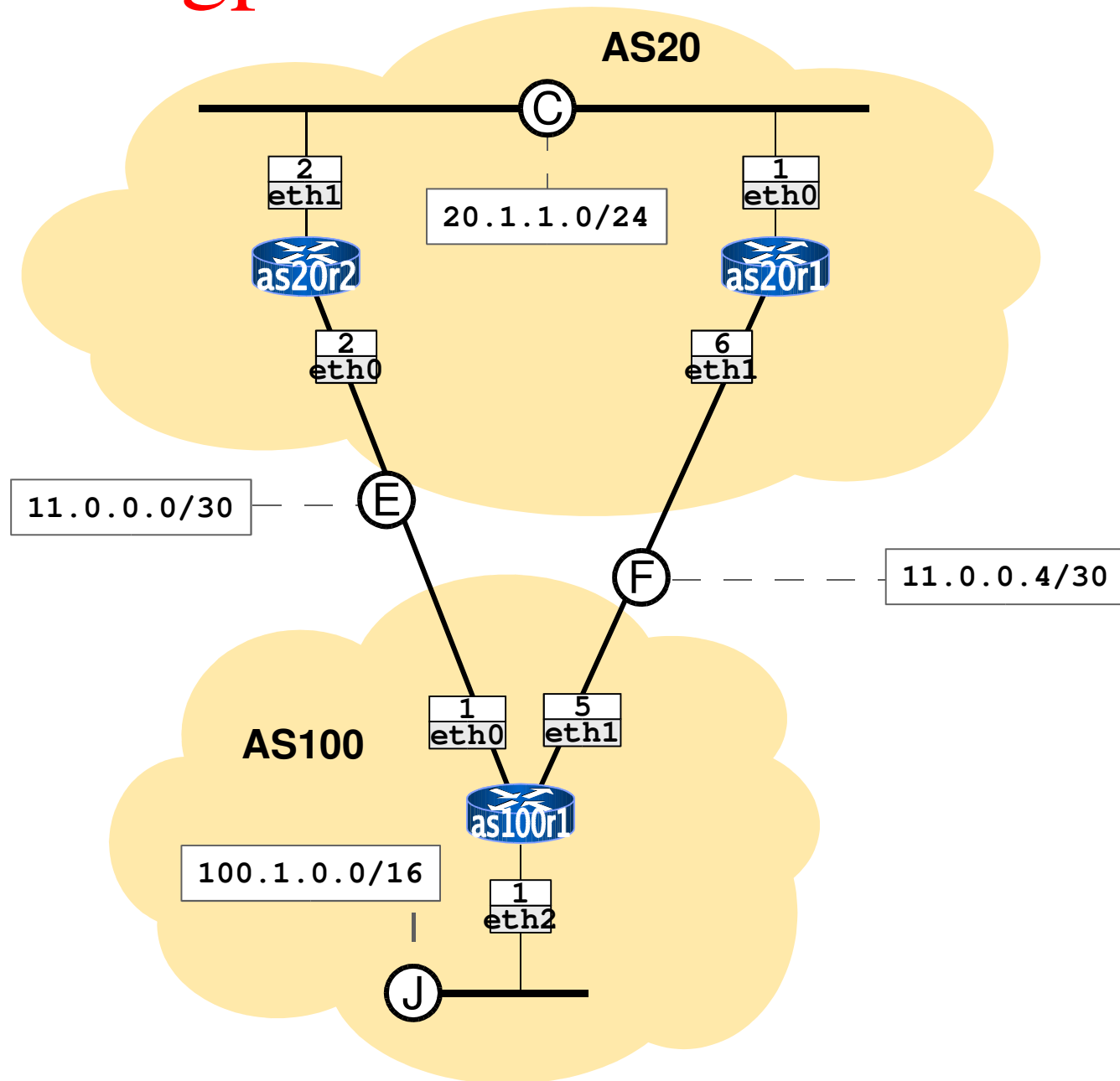
Network	Next Hop	Metric	LocPrf	Weight	Path
*> 195.14.10.0	0.0.0.0	0		32768	i
*> 200.1.1.0	193.10.11.2	0		0 2	i

```
Total number of prefixes 2
```

```
r_1-r1:~# route -n
Kernel IP routing table
```

Destination	Gateway	Genmask	Flags	Metric	Ref	Use	Iface
193.10.11.0	0.0.0.0	255.255.255.252	U	0	0	0	eth1
195.14.10.0	0.0.0.0	255.255.255.0	U	0	0	0	eth0
200.1.1.0	193.10.11.2	255.255.255.0	UG	0	0	0	eth1

# bgp-multi-homed.xml



# bgp-multi-homed.xml

## BGP neighbors configuration

```
<BGPConf as="20">
  ...
  <PeerGroup name="EBGP">
    <Neighbor address="11.0.0.1">
      <Description>Router as100r1</Description>
      <Default-Originate/>
      <Peer-AS name="100"/>
      <List type="Prefix" inOut="import">as100In</List> -->
    </Neighbor>
  </PeerGroup>
  <PeerGroup name="IBGP">
    <Neighbor address="20.1.1.1">
      <Description>Router as100r2</Description>
      <Peer-AS name="20"/>
    </Neighbor>
  </PeerGroup>
</BGPConf>
```

# bgp-multi-homed.xml

## Policies and static-routes

```
<BGPCConf as="20">  
  <StaticRoutes>  
    <s address="0.0.0.0/0"/>  
  </StaticRoutes>  
  <Policy type="export">RedistConnected</Policy>  
  ...  
</BGPCConf>
```

# bgp-multi-homed.xml

## Checking routing

```
r_100_1-as100r1:~# route -n
```

```
Kernel IP routing table
```

Destination	Gateway	Genmask	Flags	Metric	Ref	Use	Iface
11.0.0.4	0.0.0.0	255.255.255.252	U	0	0	0	eth1
11.0.0.0	0.0.0.0	255.255.255.252	U	0	0	0	eth0
20.1.1.0	11.0.0.2	255.255.255.0	UG	0	0	0	eth0
100.1.0.0	0.0.0.0	255.255.0.0	U	0	0	0	eth2
0.0.0.0	11.0.0.6	0.0.0.0	UG	0	0	0	eth1

```
r_100_1-as100r1:~# traceroute -n 20.1.1.1
```

```
traceroute to 20.1.1.1 (20.1.1.1), 64 hops max, 40 byte packets
```

```
 1 11.0.0.2  1 ms  0 ms  1 ms
 2 20.1.1.1  1 ms  1 ms  1 ms
```

# bgp-multi-homed.xml

## zebra bgp table

```
R_100_1-as100r1# show ip bgp
```

```
BGP table version is 0, local router ID is 100.1.0.1
```

```
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal
```

```
Origin codes: i - IGP, e - EGP, ? - incomplete
```

	Network	Next Hop	Metric	LocPrf	Weight	Path
*	0.0.0.0	11.0.0.2	0		0	20 i
*>		11.0.0.6	0		0	20 i
*	11.0.0.0/30	11.0.0.2	0		0	20 ?
*		11.0.0.6			0	20 ?
*>		0.0.0.0	0		32768	?
*	11.0.0.4/30	11.0.0.2			0	20 ?
*		11.0.0.6	0		0	20 ?
*>		0.0.0.0	0		32768	?
*	20.1.1.0/24	11.0.0.6	0		0	20 ?
*>		11.0.0.2	0		0	20 ?
*	100.1.0.0/16	0.0.0.0	0		32768	?
*>		0.0.0.0	0		32768	i

```
Total number of prefixes 5
```