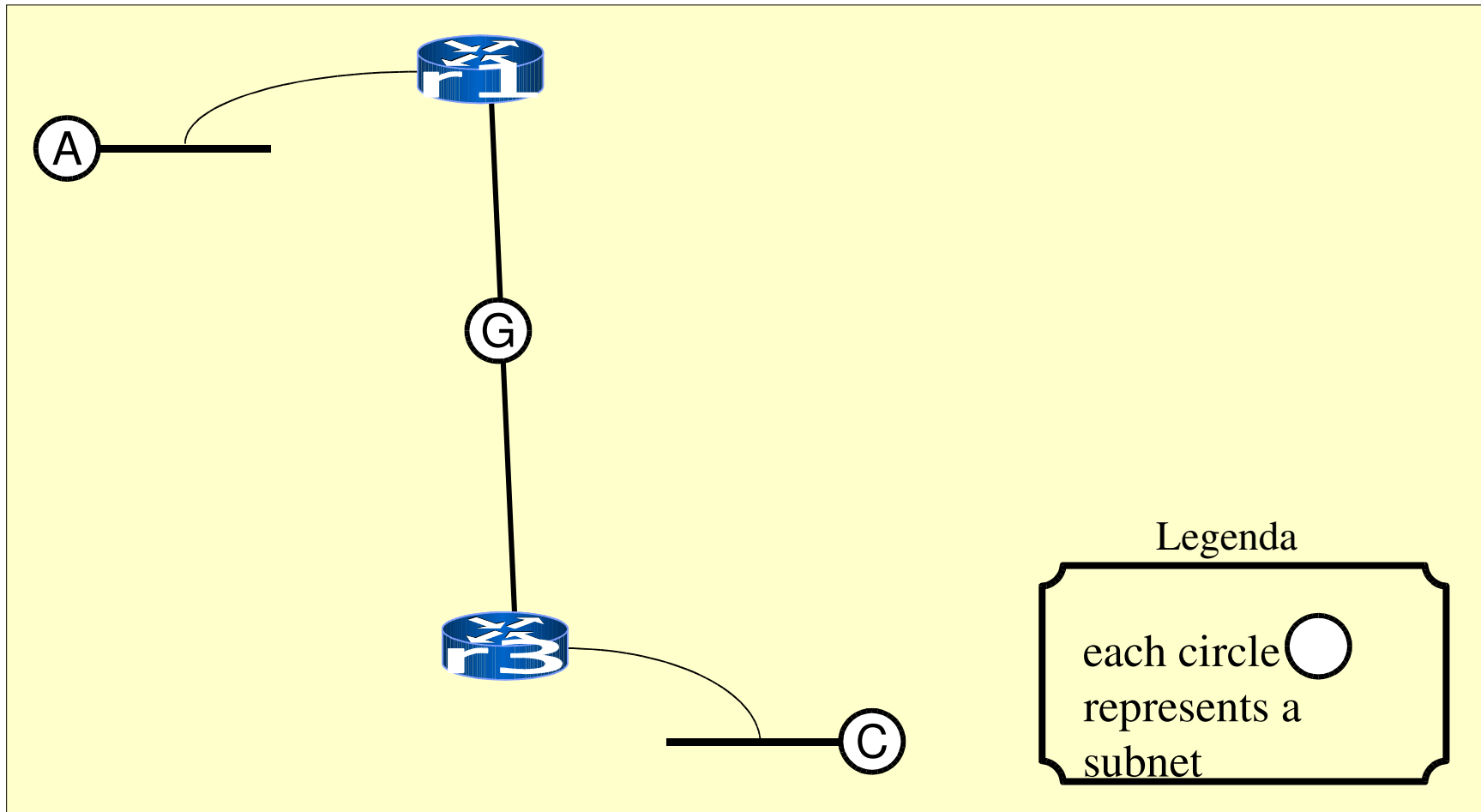


# Using NetML to describe RIP networks

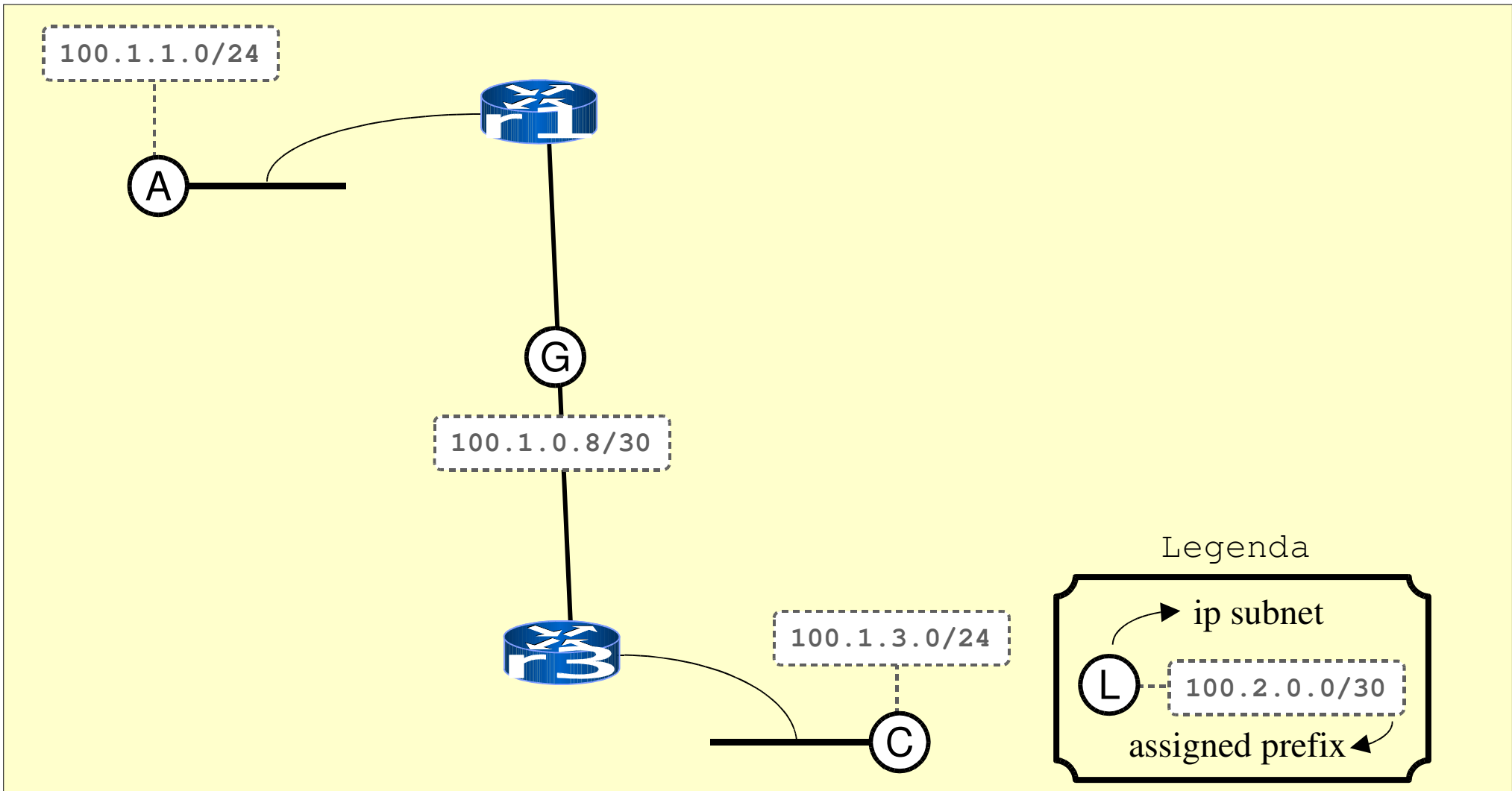
# rip-single.xml

## A small network running RIP



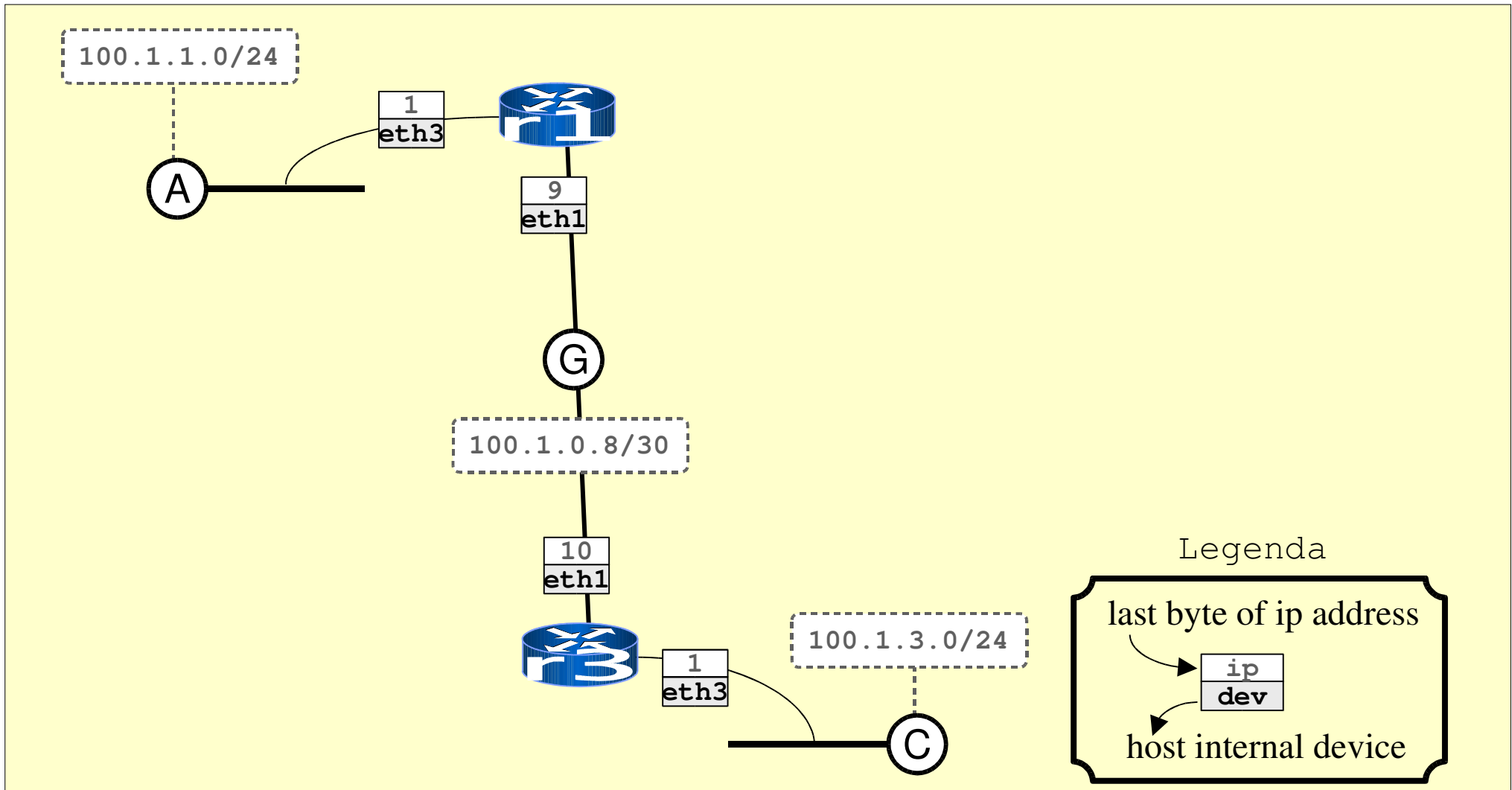
# rip-single.xml

## Assigning IP addresses to subnets



# rip-single.xml

## Assigning IP addresses to interfaces



# rip-single.xml

## Rip configuration

```
<RouterConf id="r_1" Hostname="r1">
  ...
  <Policy name="redist-conn">
    ...
  </Policy>
  <RipConf>
    <neighbour>
      <address>100.1.0.8/30</address>
    </neighbour>
    <policy type="export" name="redist-conn"/>
  </RipConf>
</RouterConf>
```

# rip-single.xml

## Specifying and applying policies

```
<RouterConf id="r_1" Hostname="r1">
  ...
  <Policy name="redist-conn">
    <Redistribution>
      <from_protocol>connected</from_protocol>
      <to_protocol>rip</to_protocol>
    </Redistribution>
  </Policy>
  <RipConf>
    <neighbour>
      <address>100.1.0.8/30</address>
    </neighbour>
    <policy type="export" name="redist-conn"/>
  </RipConf>
</RouterConf>
```

In order to use a Policy a reference to it inside Rip configuration must be created

# rip-single.xml

## Checking routing – without Rip

```
r_1-r1:~# route
Kernel IP routing table
Destination      Gateway          Genmask          Flags Metric Ref    Use Iface
100.1.0.8        *               255.255.255.252 U        0     0      0 eth1
100.1.1.0        *               255.255.255.0   U        0     0      0 eth0
```

```
r_1-r1:~# ping 100.1.3.1
PING 100.1.3.1 (100.1.3.1): 56 data bytes
ping: sendto: Network is unreachable
ping: wrote 100.1.3.1 64 chars, ret=-1
ping: sendto: Network is unreachable
ping: wrote 100.1.3.1 64 chars, ret=-1
```

The host doesn't know anything about this route! (it's the 'hidden' interface of router R2)

# rip-single.xml

## Checking routing – with Rip

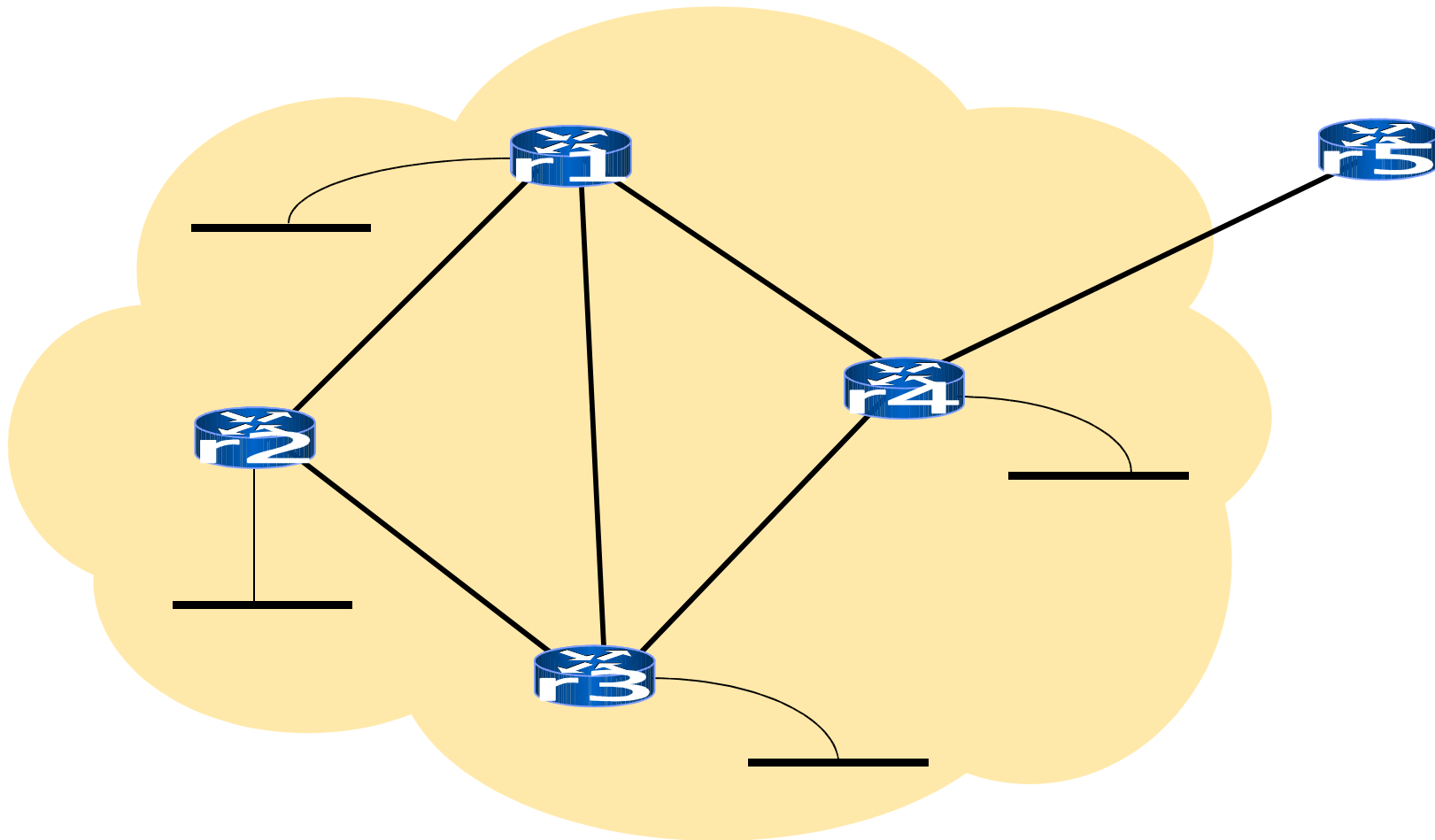
```
r_1-r1:~# route
Kernel IP routing table
Destination      Gateway          Genmask          Flags Metric Ref    Use Iface
100.1.0.8        *               255.255.255.252 U        0     0      0 eth1
100.1.3.0        100.1.0.10     255.255.255.0   UG       2     0      0 eth1
100.1.1.0        *               255.255.255.0   U        0     0      0 eth0
```

```
r_1-r1:~# ping 100.1.3.1
PING 100.1.3.1 (100.1.3.1): 56 data bytes
64 bytes from 100.1.3.1: icmp_seq=0 ttl=255 time=0.8 ms
64 bytes from 100.1.3.1: icmp_seq=1 ttl=255 time=0.5 ms
```

The host has  
learned the route  
via RIP

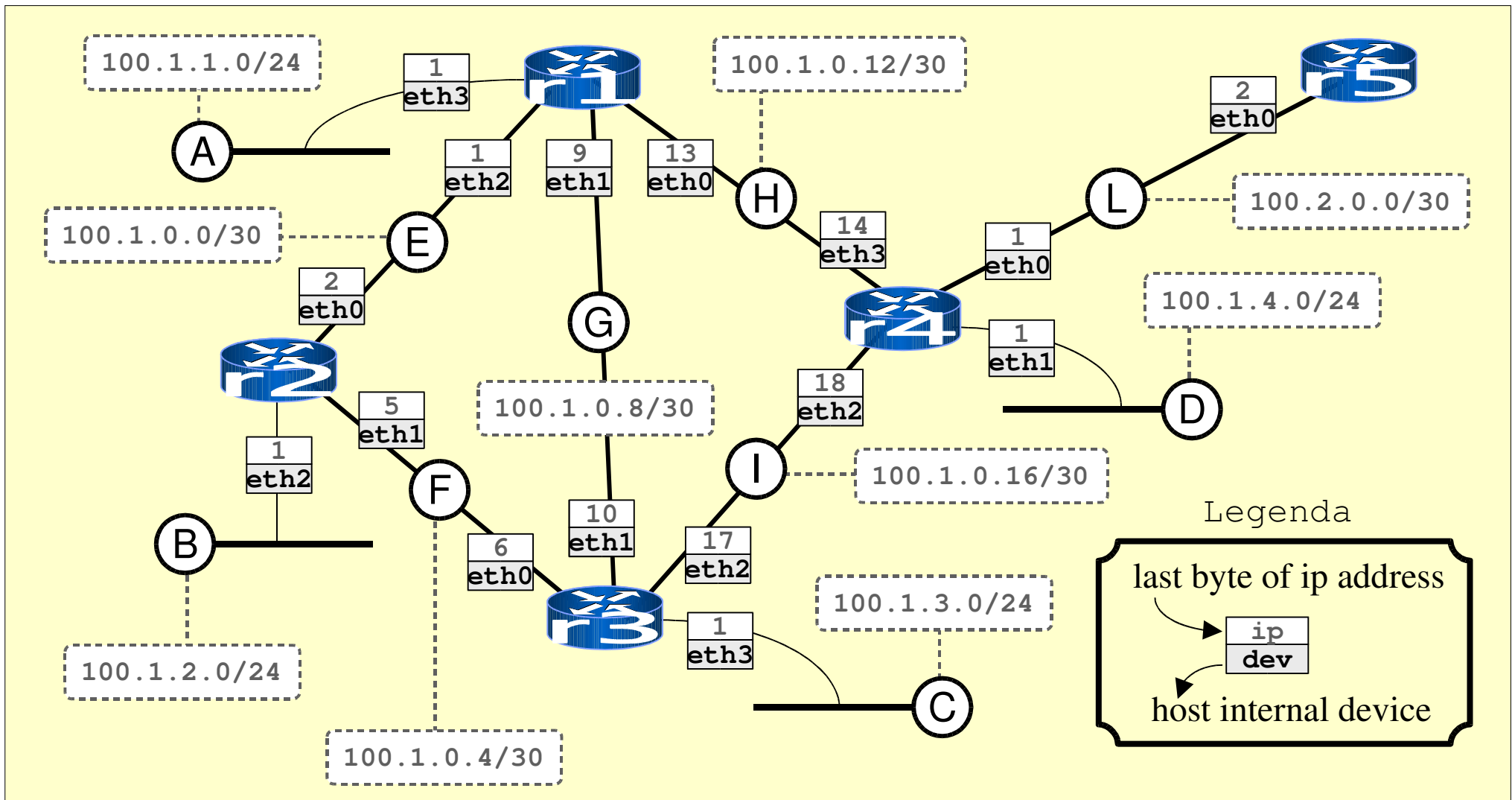
# rip-full.xml

A network connected to the Internet



# rip-full.xml

## Interfaces and Subnets



# rip-full.xml

## Checking connectivity

```
r_2-r2:~# traceroute -n 100.1.0.14
traceroute to 100.1.0.14 (100.1.0.14), 64 hops max, 40 byte packets
 1  100.1.0.1  1 ms  0 ms  1 ms
 2  100.1.0.14 1 ms  1 ms  1 ms
```

The host R2 can reach  
R5 (internet side)

```
r_2-r2:~# traceroute -n 100.2.0.2
traceroute to 100.2.0.2 (100.2.0.2), 64 hops max, 40 byte packets
 1  100.1.0.1  1 ms  0 ms  0 ms
 2  100.1.0.14 1 ms  1 ms  1 ms
 3  100.2.0.2  2 ms  1 ms  1 ms
```