BGPSec Interoperability Test QuaggaSRx and BIRD BGPsec

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Oliver Borchert
(oliver.borchert@nist.gov)
National Institute of Standards and Technology

Tested Systems:

QuaggaSRx

BGPSEC-IO*

(https://bgpsrx.antd.nist.gov)

BIRD BGPsec

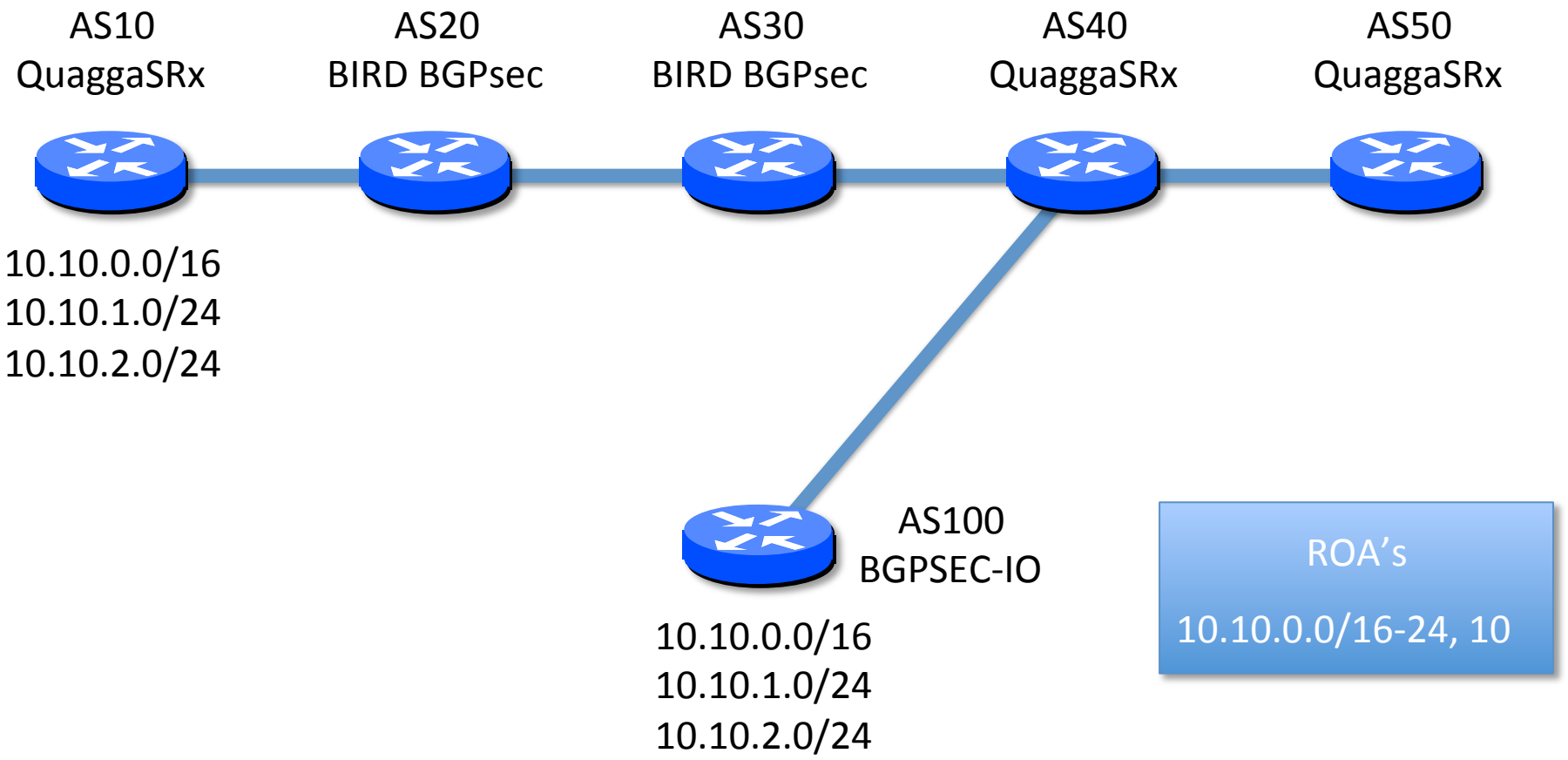
(http://www.securerouting.net/tools/bird/)

*BGPSEC Traffic Generator

BGPSEC-IO

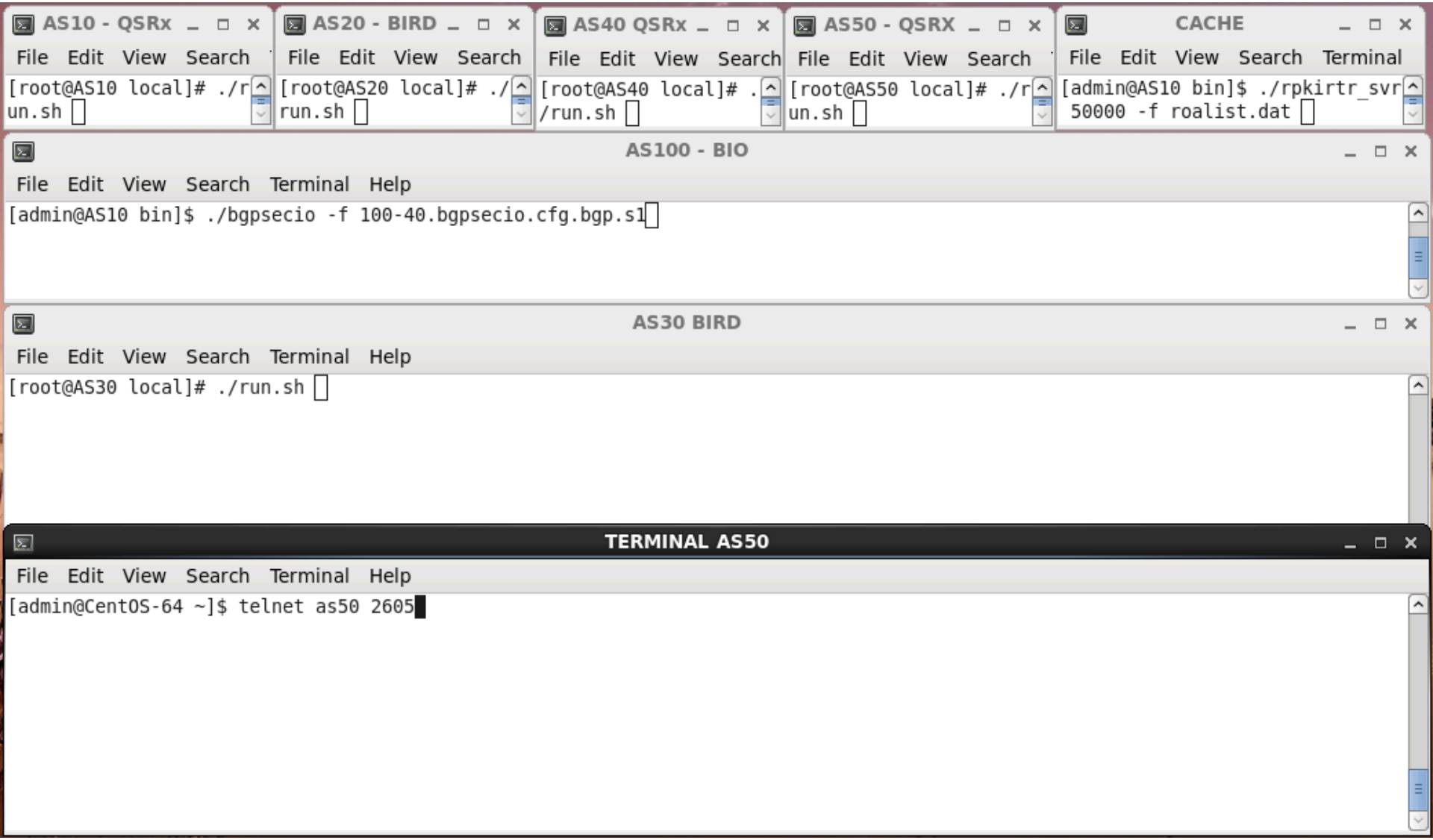
- Allows to generate pre-scripted BGPSEC traffic
  - Supports both eBGP and iBGP traffic
  - Allows to display received BGP / BGPsec traffic in "Wireshark" display form.
- Easy to configure
  - Accepts configuration script, command line, piped in traffic.
- Can generate pre-scripted signatures for debugging
- Can test BGPsec crypto modules (SrxCryptoAPI)

Topology Scenario S1

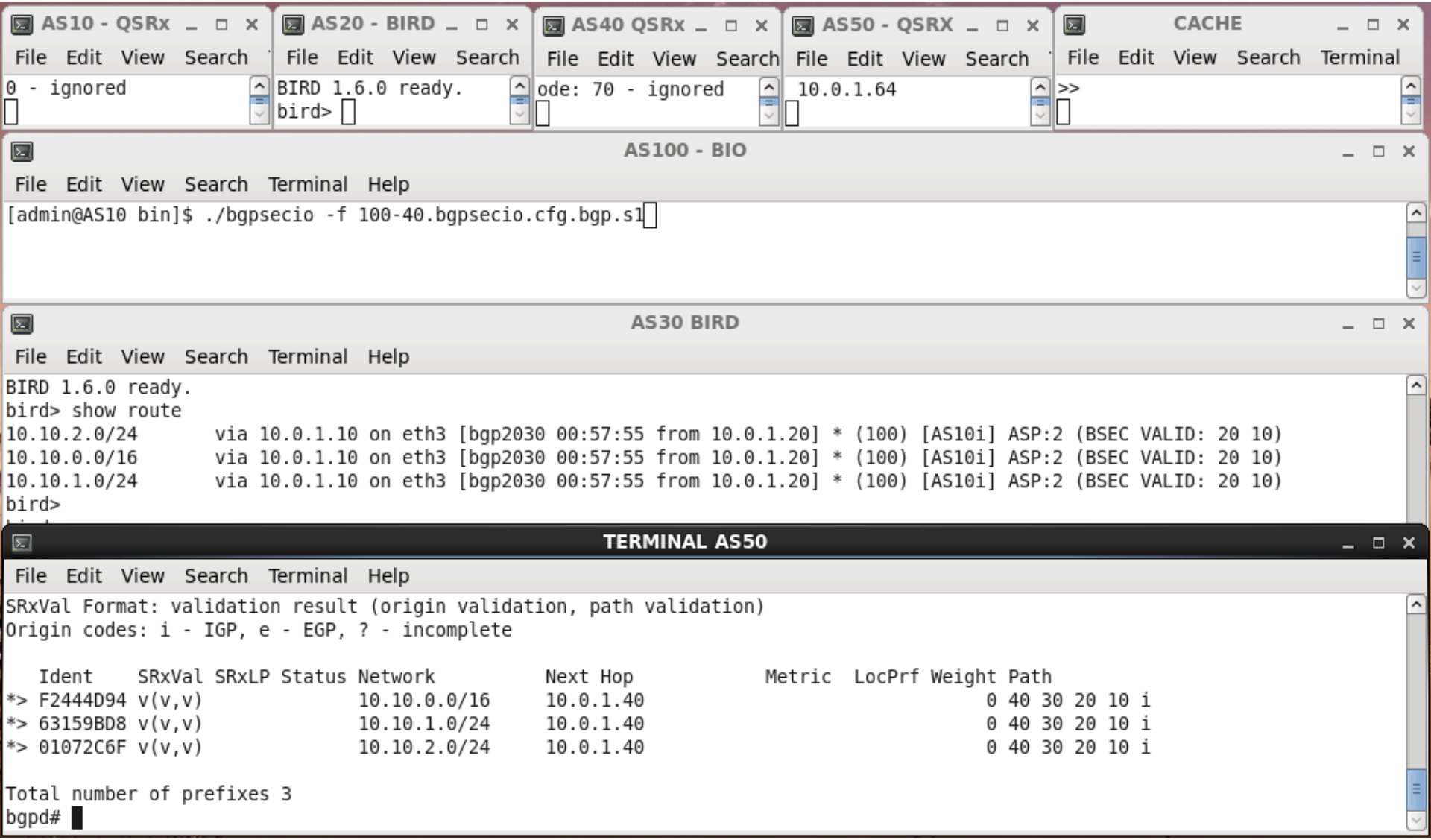


AS100 attempts to hijack the traffic of AS10

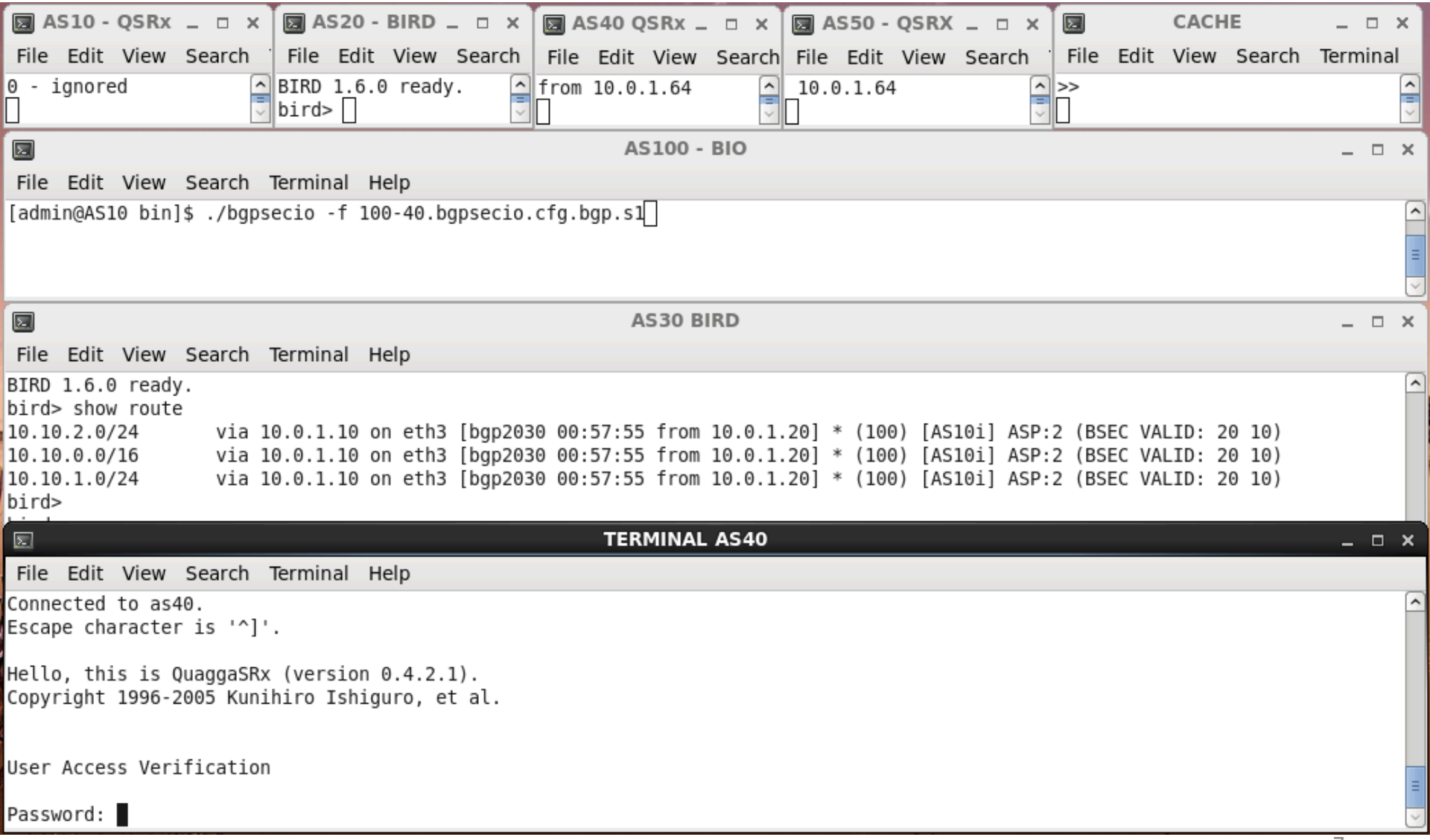
Starting AS 10, 20, 30, 40, 50



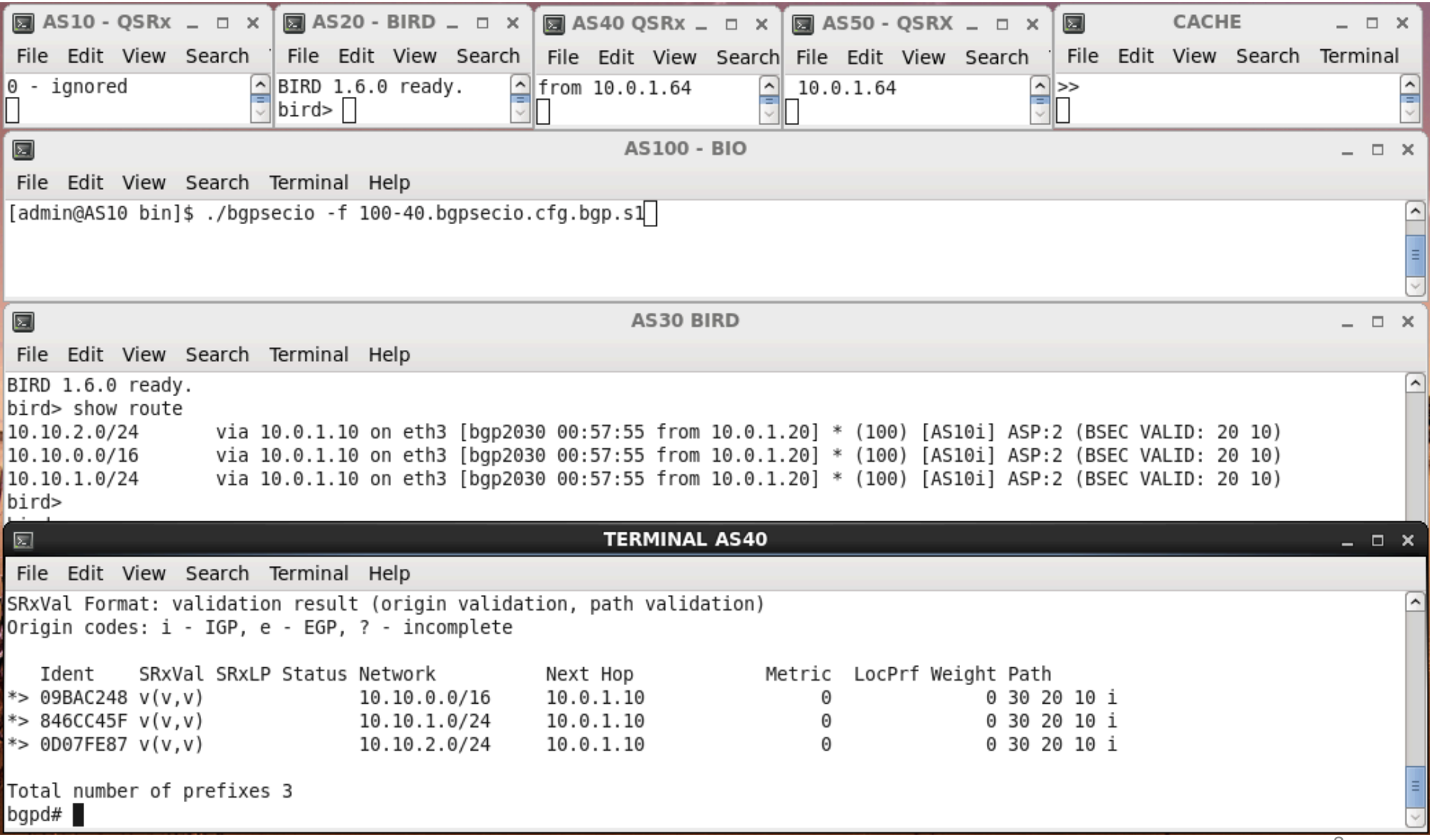
Starting AS 10, 20, 30, 40, 50



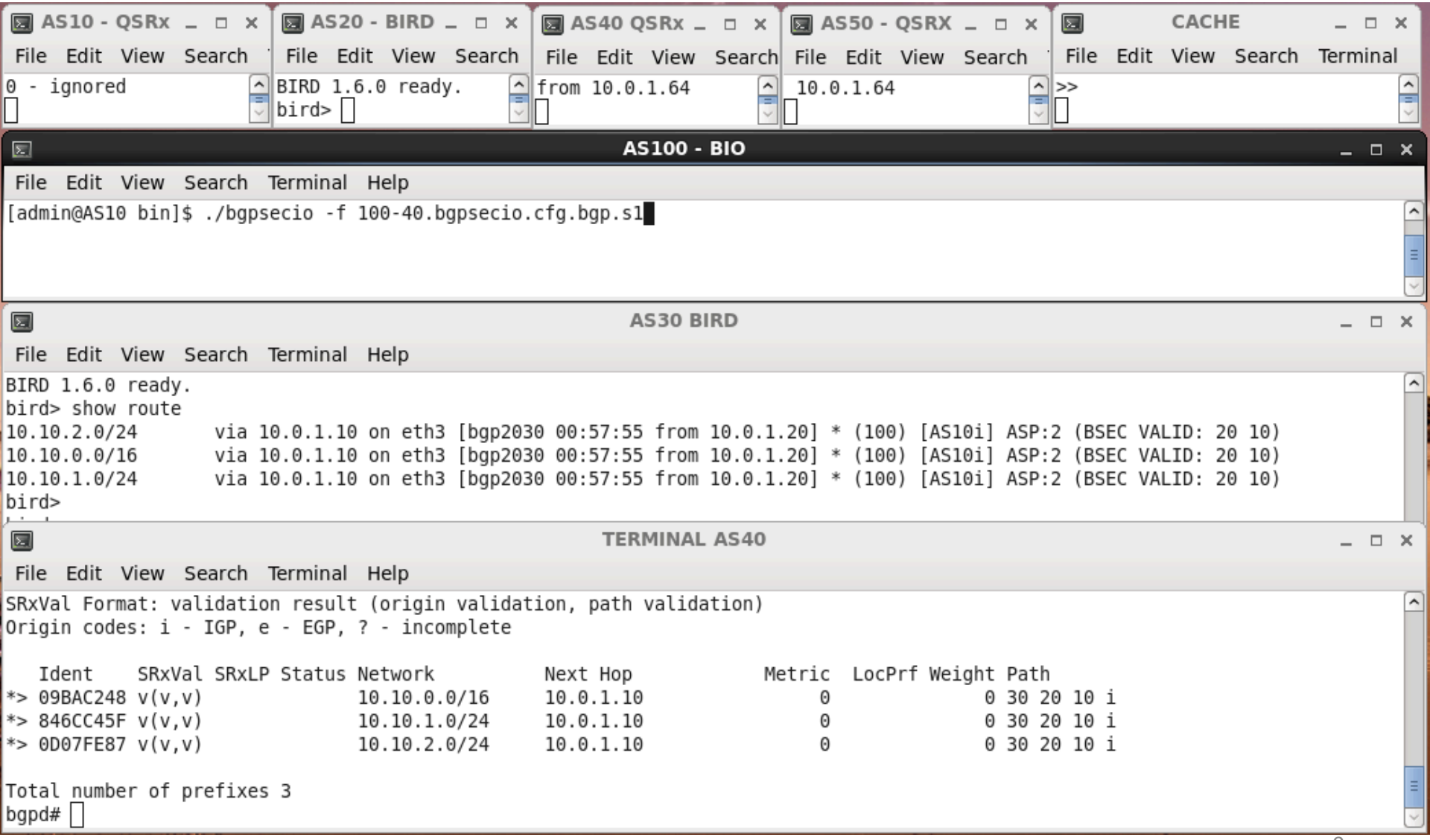
Switching to AS40



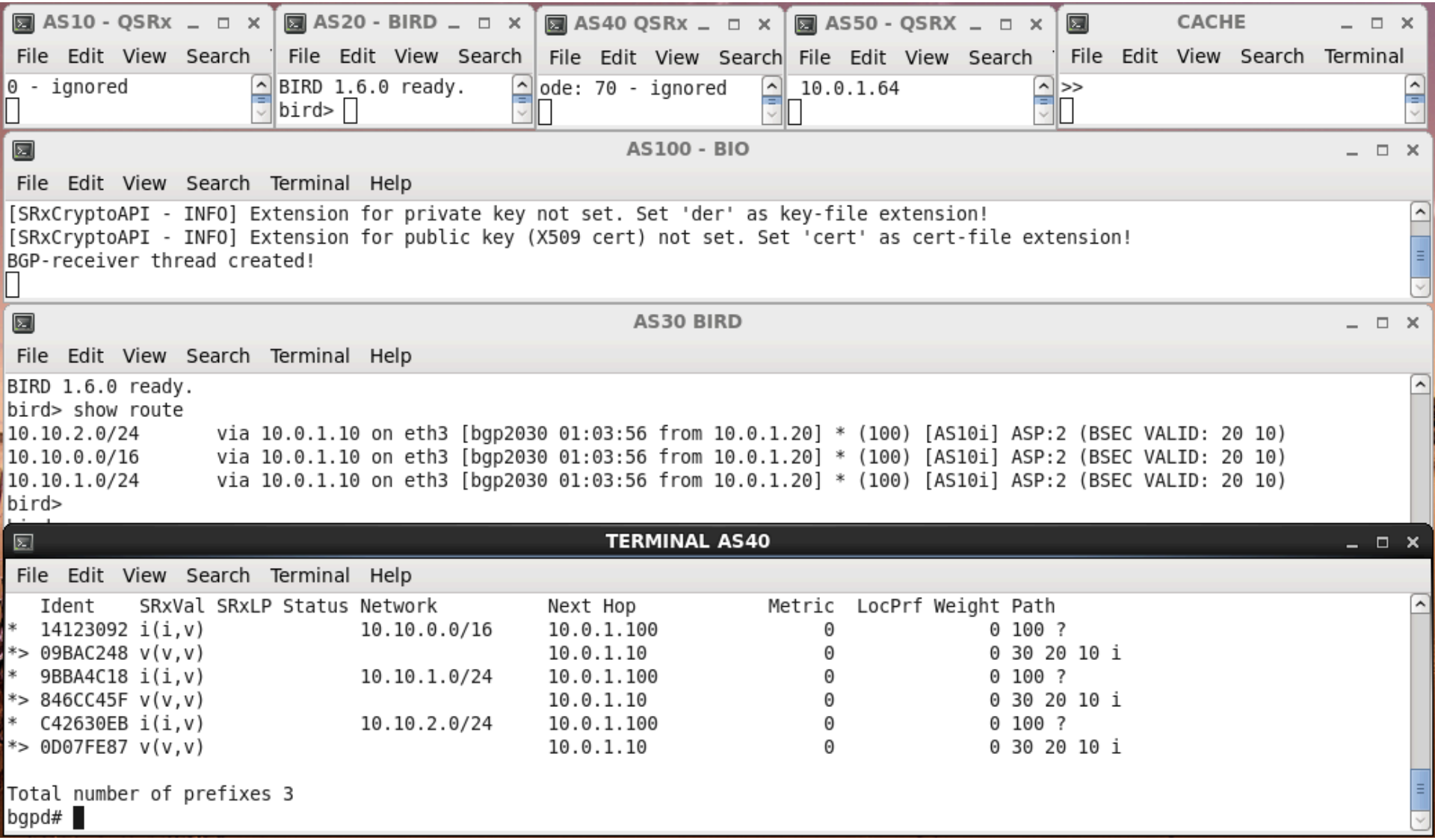
Switching to AS40



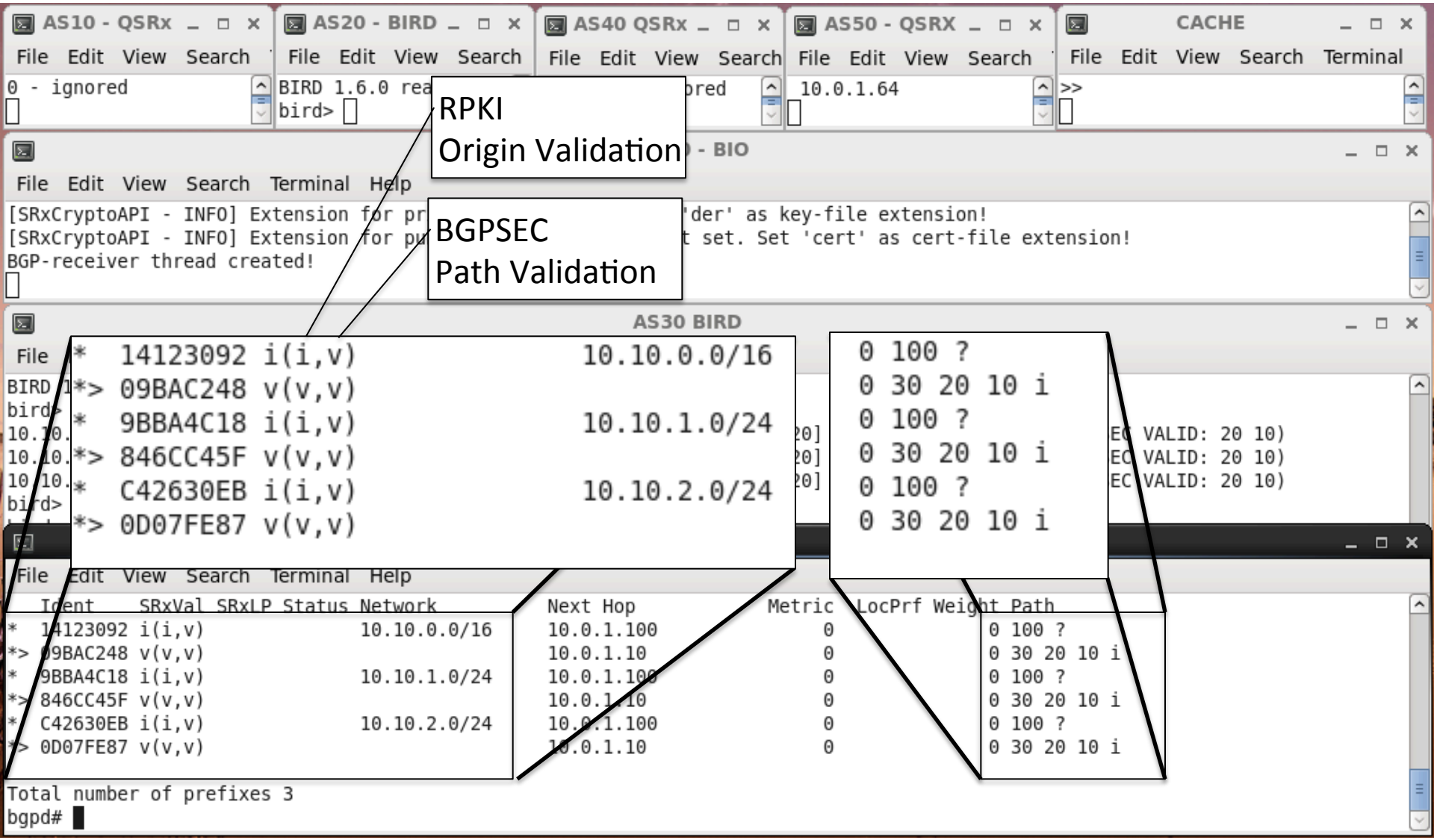
Adding Traffic using BGPSEC-IO



Adding Traffic using BGPSEC-IO



Adding Traffic using BGPSEC-IO



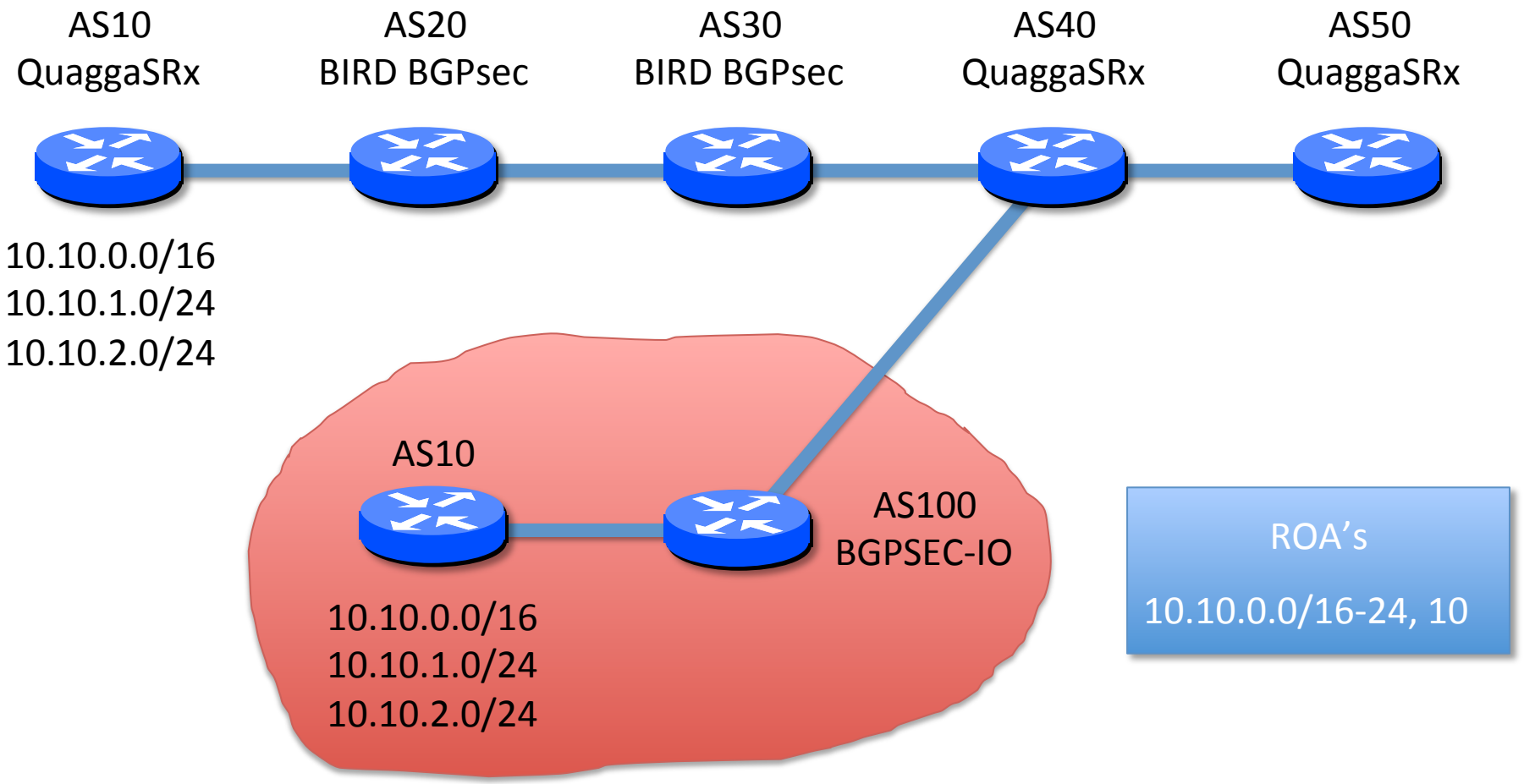
Result

```
*  14123092 i(i,v)                10.10.0.0/16
*> 09BAC248 v(v,v)
*  9BBA4C18 i(i,v)                10.10.1.0/24
*> 846CC45F v(v,v)
*  C42630EB i(i,v)                10.10.2.0/24
*> 0D07FE87 v(v,v)
```

```
0 100 ?
0 30 20 10 i
0 100 ?
0 30 20 10 i
0 100 ?
0 30 20 10 i
```

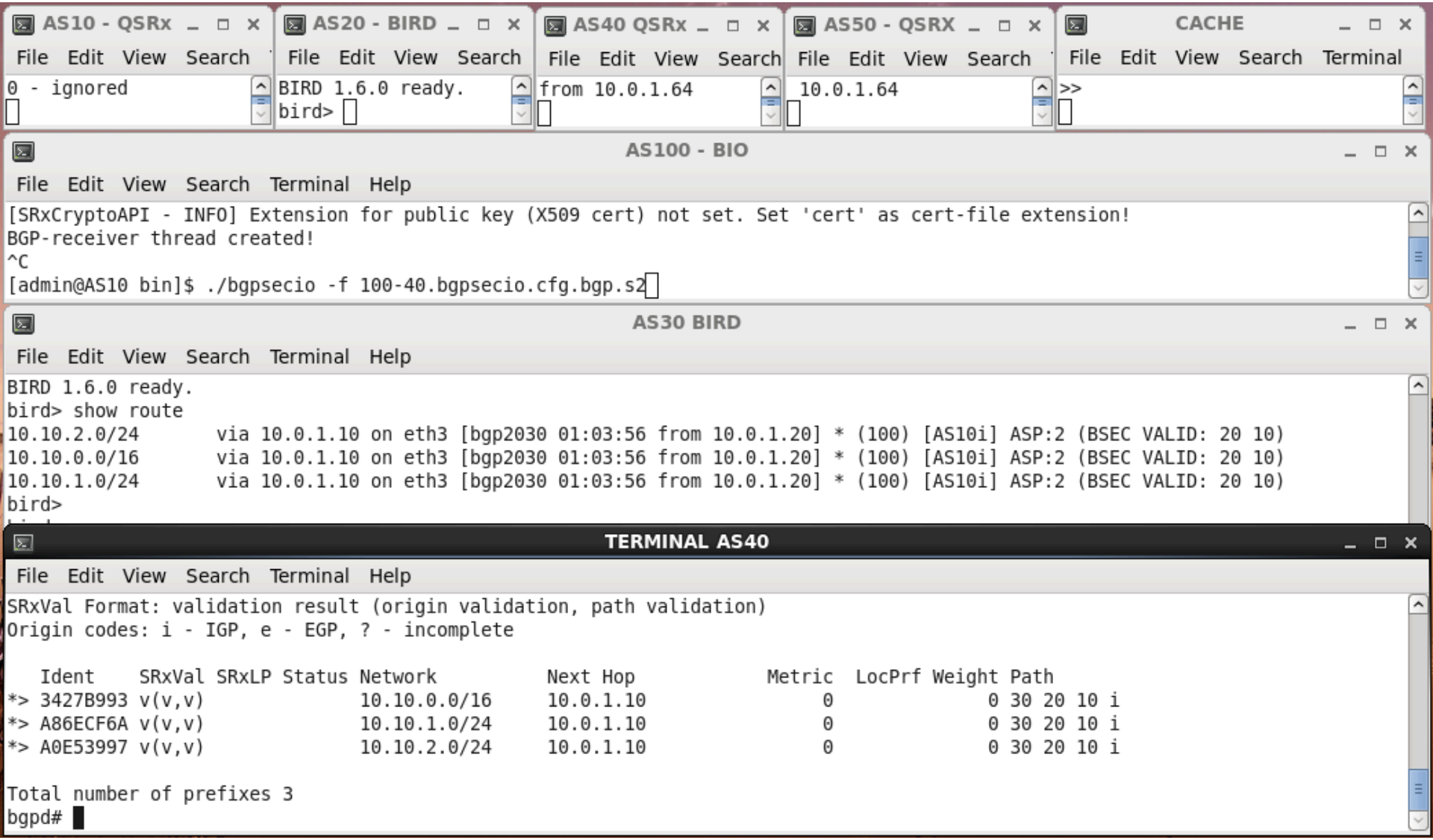
- The Prefix Hijack was unsuccessful:
  - Announced prefixes passed path validation
  - Announcement **failed** RPKI **origin validation**
- Policy is prefer valid
  - no switch to shorter invalid route

Topology Scenario S2

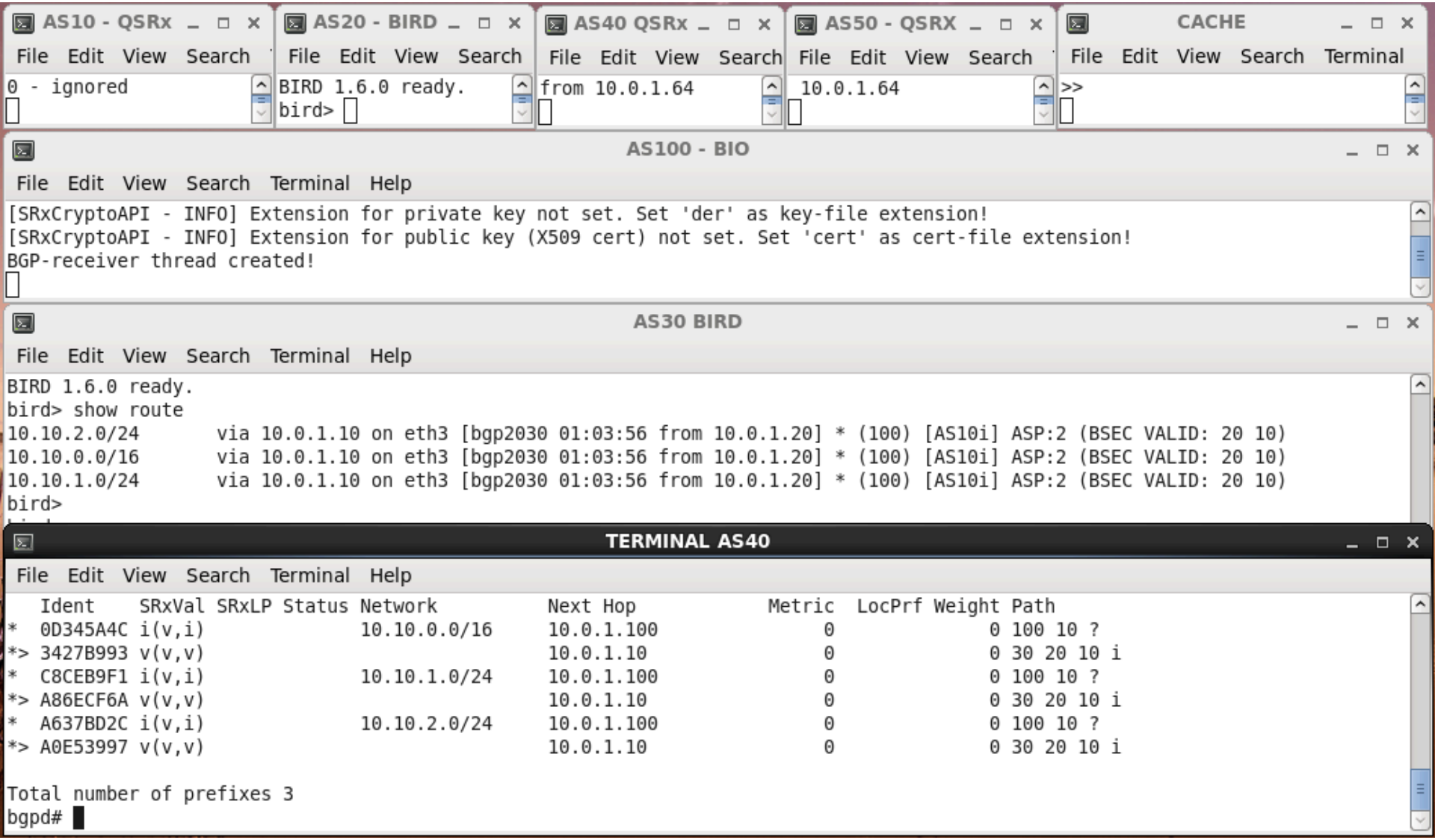


AS100 attempts to hijack the traffic of AS10 by **pre-pending** AS10

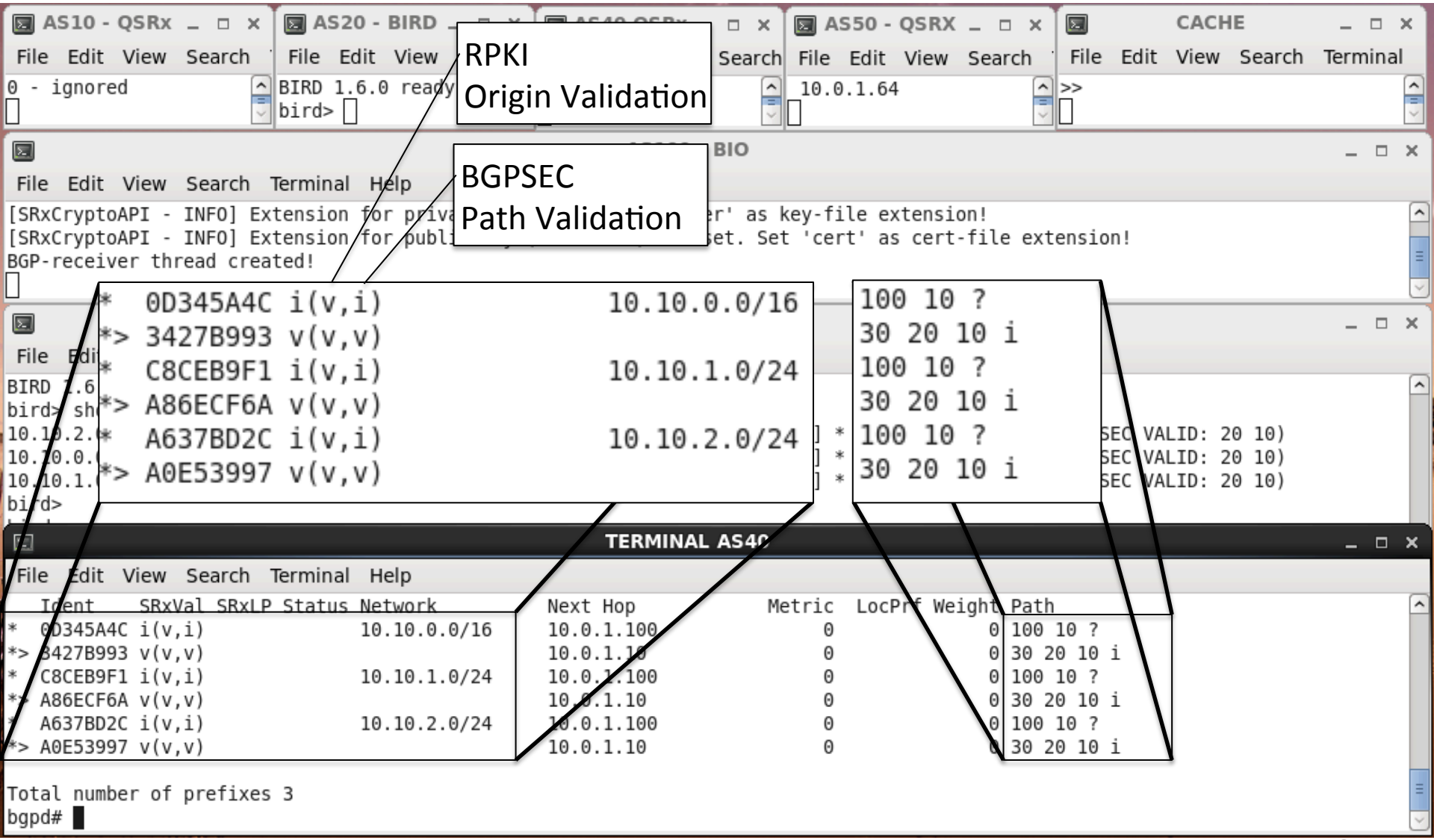
Restarting Traffic using BGPSEC-IO



Restarting Traffic using BGPSEC-IO



Restarting Traffic using BGPSEC-IO



Result

```
*  0D345A4C i(v,i)          10.10.0.0/16
*> 3427B993 v(v,v)
*  C8CEB9F1 i(v,i)          10.10.1.0/24
*> A86ECF6A v(v,v)
*  A637BD2C i(v,i)          10.10.2.0/24
*> A0E53997 v(v,v)
```

```
100 10 ?
30 20 10 i
100 10 ?
30 20 10 i
100 10 ?
30 20 10 i
```

- The Prefix Hijack was unsuccessful:
  - Announced prefixes **failed path validation**
  - Announcement passed RPKI origin validation
- Policy is prefer valid
  - no switch to shorter invalid route

Questions ?

oliver.borchert@nist.gov
National Institute of Standards and Technology