Bootstrapper

SCION end host Bootstrapper

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Goal

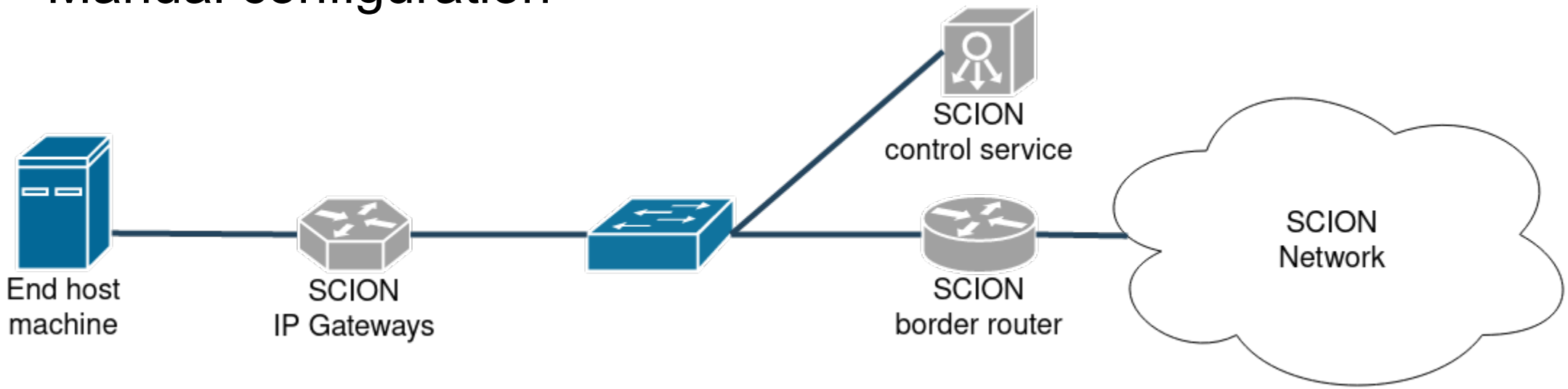
- Autoconfigure end hosts for native SCION from the network

Use Cases

- Campus deployments
- Large deployments
- Home use

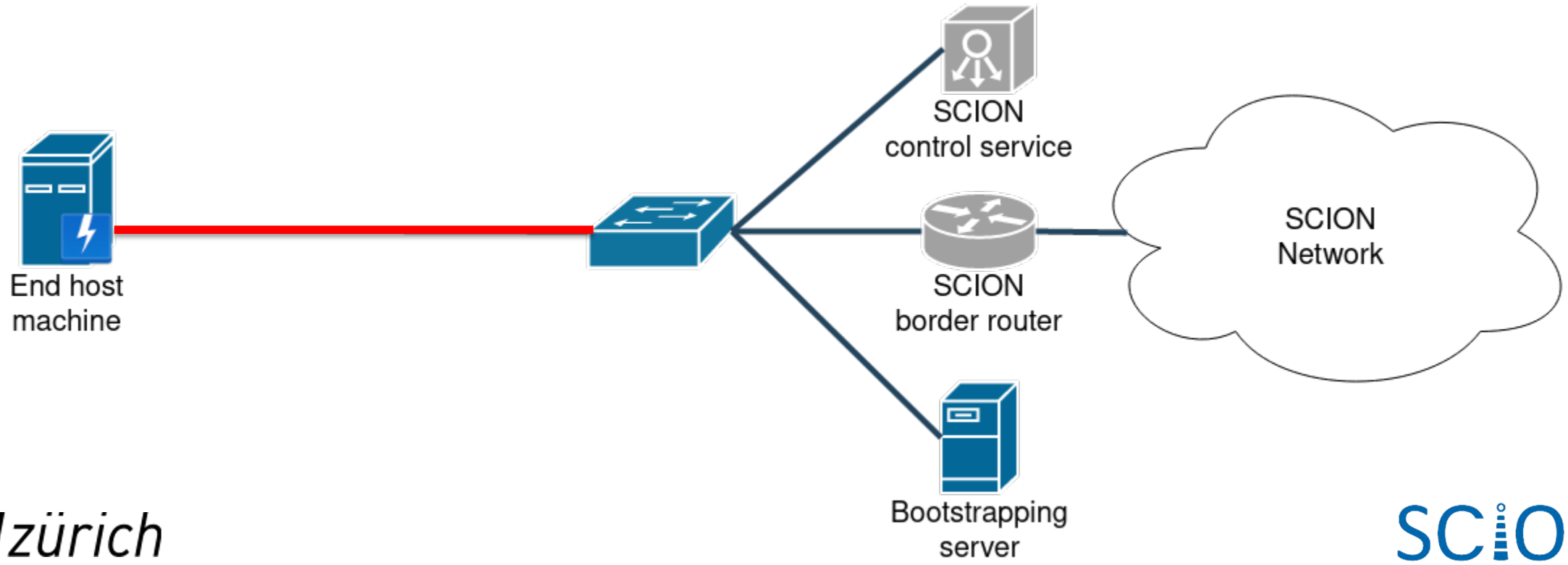
Alternative Approaches

- No native SCION applications
  - Connect to SCION network only via SIGs
- Manual configuration



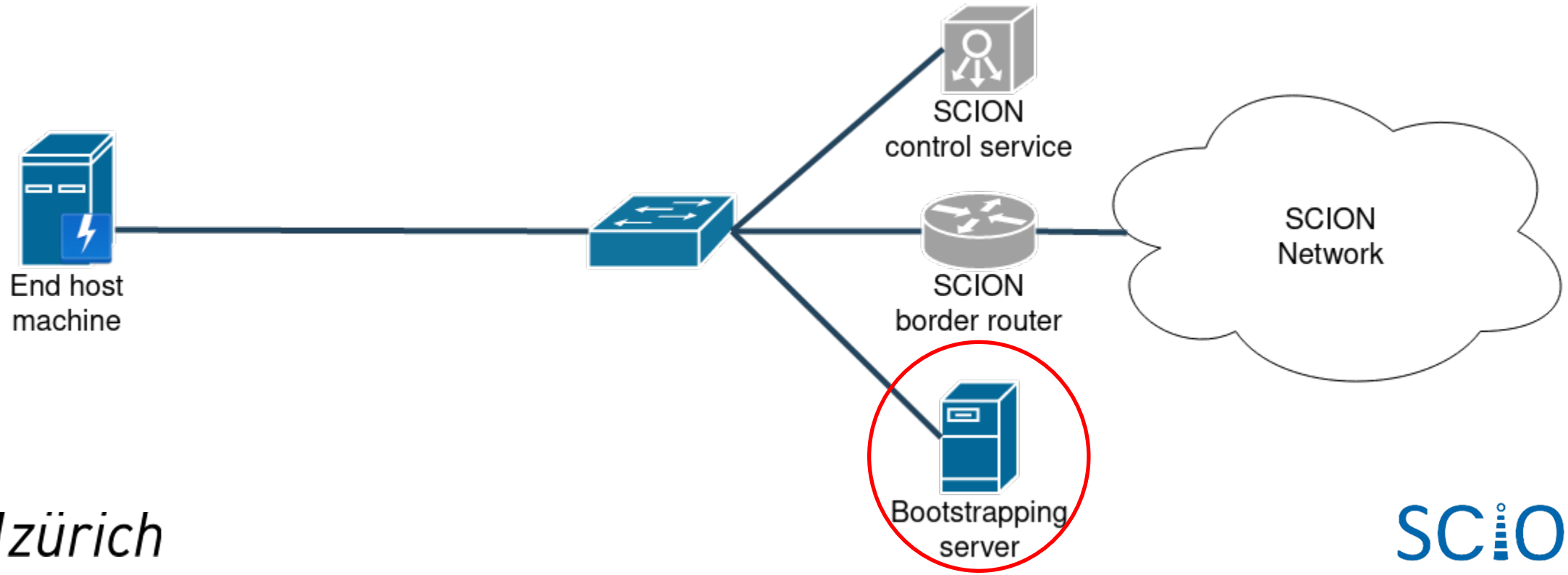
What components do we need?

- Zero conf mechanism
  - Get IP:port tuple of bootstrapping server



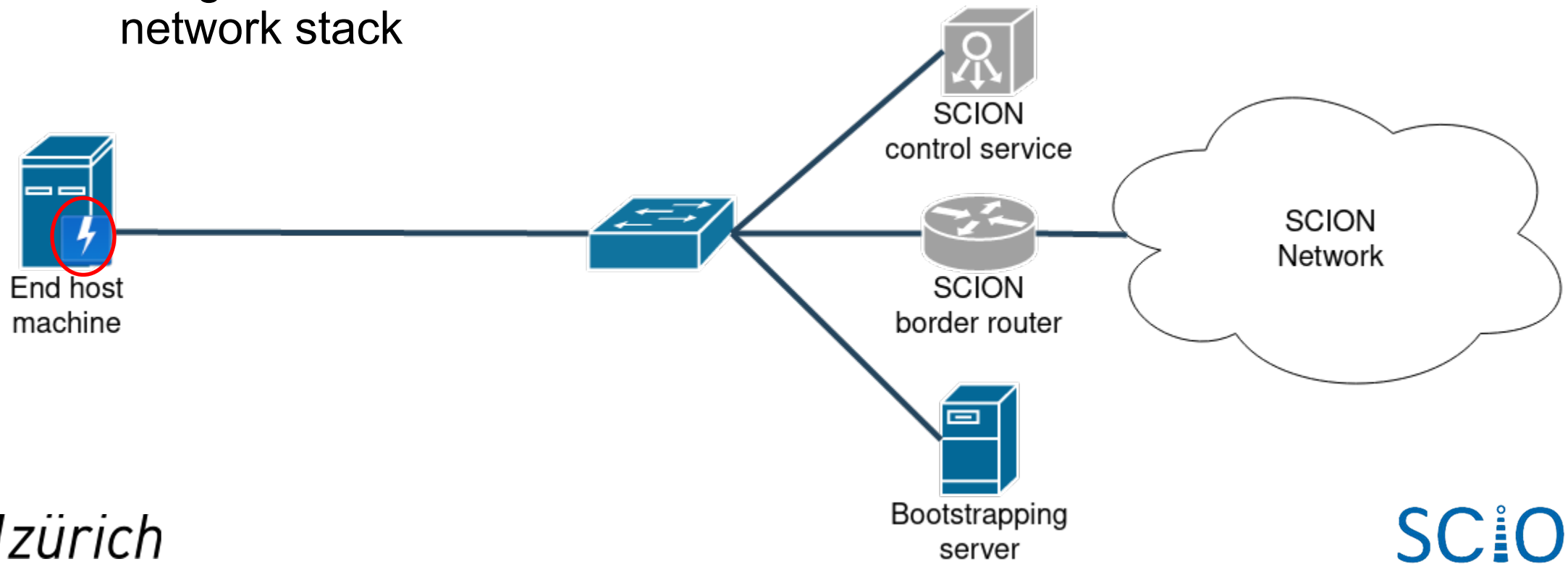
What components do we need?

- Bootstrapping server



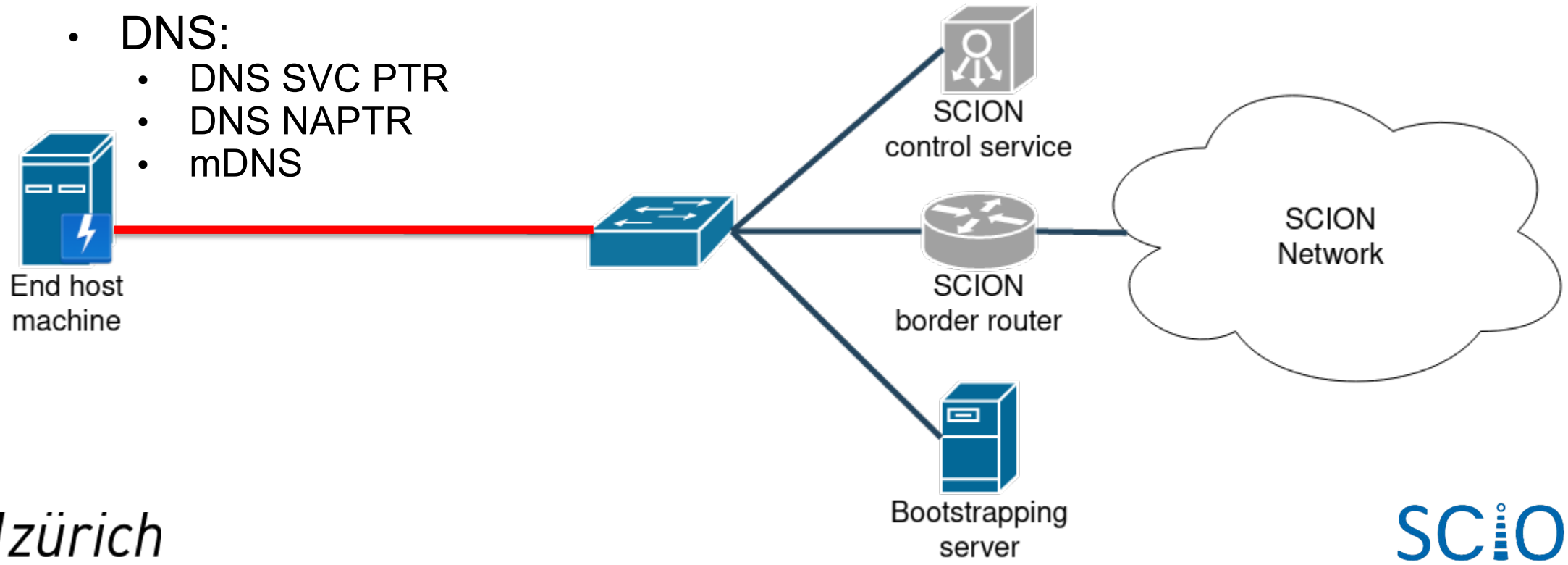
What components do we need?

- Client software
  - Debian package (scion-bootstrapper.deb), brings in the SCION end host network stack



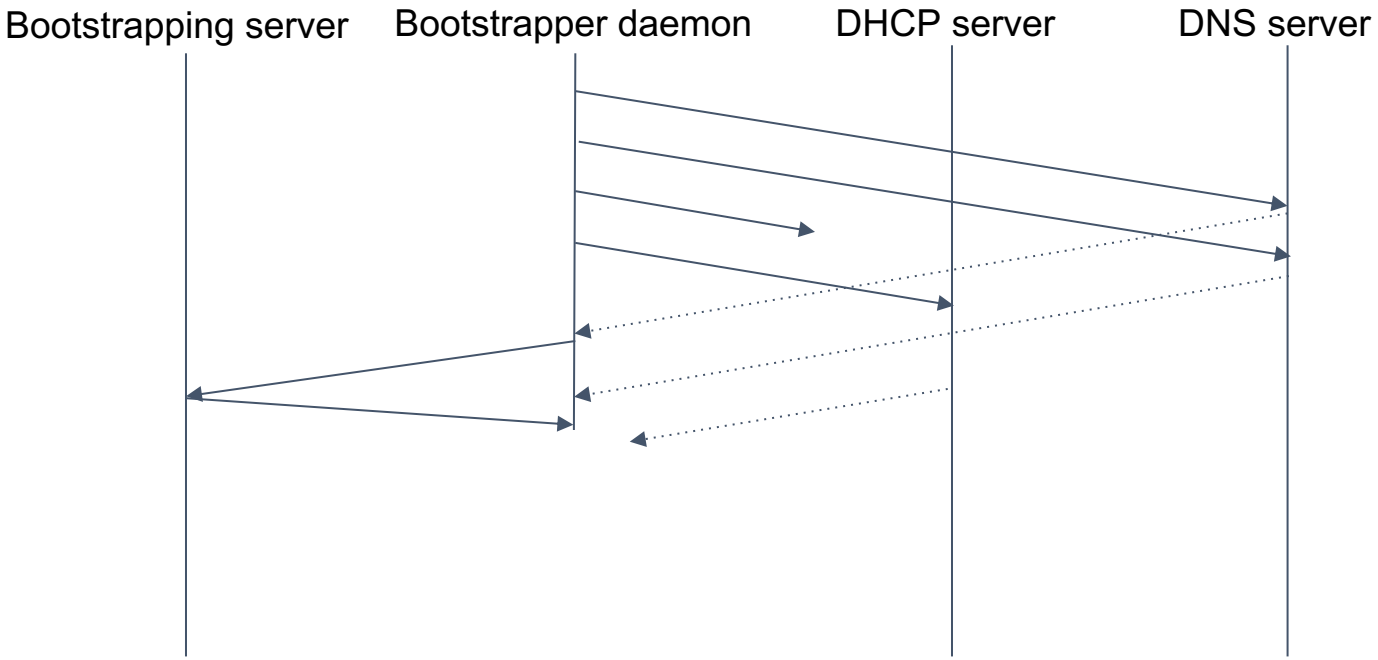
How can we efficiently bootstrap native SCION end hosts?

- Rely on existing bootstrapping mechanisms for network configuration & service discovery:
  - DHCP
  - DNS:
    - DNS SVC PTR
    - DNS NAPTR
    - mDNS



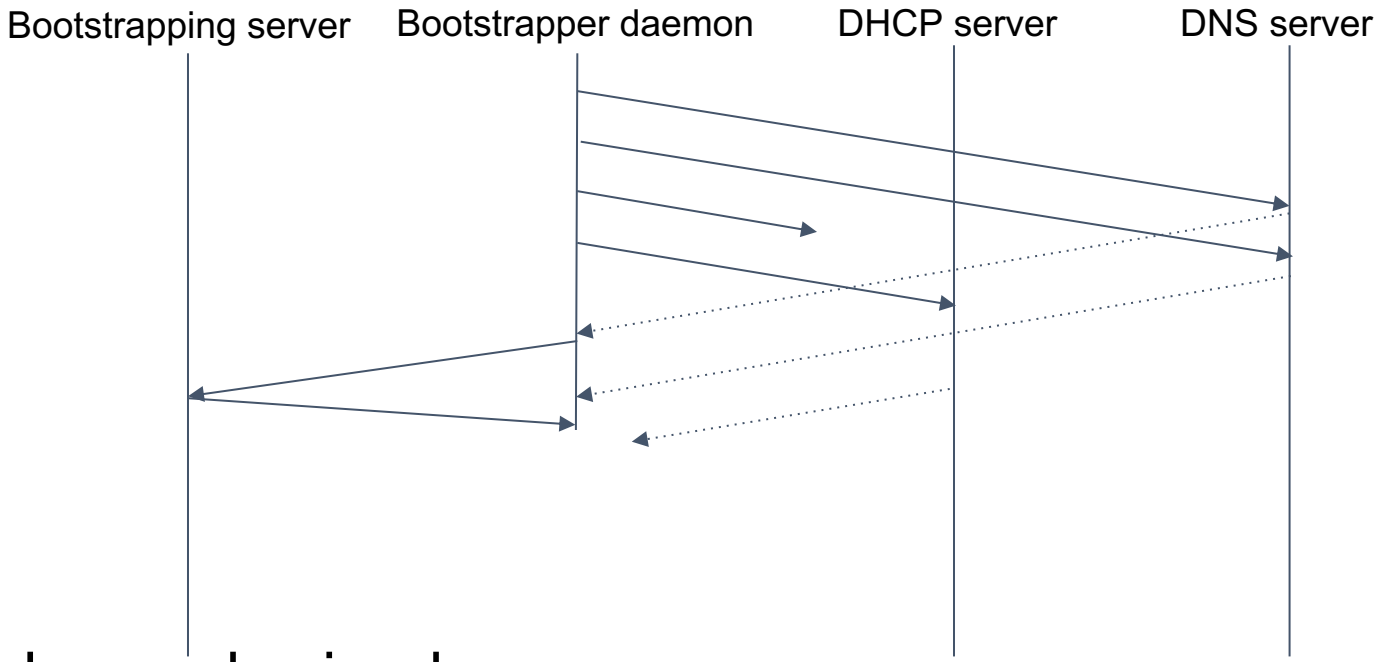
Bootstrapping steps

- Check hints
  - success
- Retrieve configuration
- Apply configuration
  - TRC and topology file

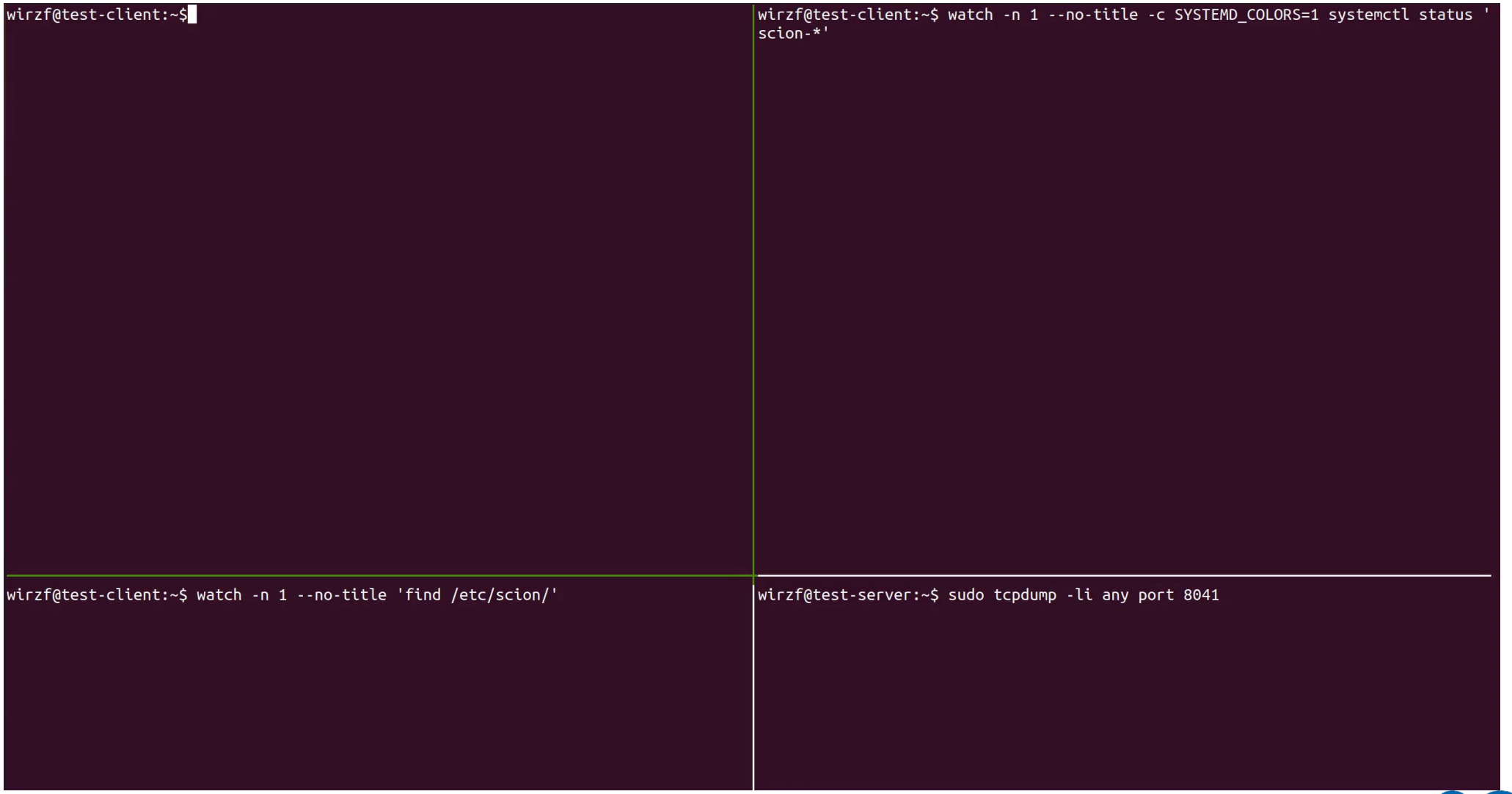


Bootstrapping steps

- Check hints
  - success
- Retrieve configuration
- Apply configuration
  - TRC and topology file
  - (re)start SCION dispatcher and sciond



Demo


wirzf@test-client:~$
wirzf@test-client:~$ watch -n 1 --no-title -c SYSTEMD_COLORS=1 systemctl status 'scion-*'
wirzf@test-client:~$ watch -n 1 --no-title 'find /etc/scion/'
wirzf@test-server:~$ sudo tcpdump -li any port 8041

Contributions welcome

https://github.com/netsec-ethz/bootstrapper

Q&A

- Zero conf
- Why native SCION
- Why multiple supported mechanisms