Mobile VPN Tunnel using openVPN
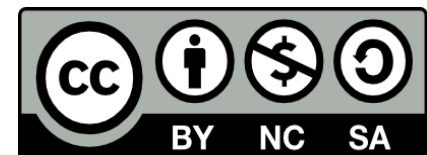
Samo Pogačnik

Škofja Loka, 18.4.2011

About

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About this work:
➔   Concepts behind openVPN setup

A mobile VPN user

- ...)?
  - Automatic preservation of all communication through the tunnel
  - L2, L3

External communication

Home Area Network

Mobile Tunnel of a VPN connection

Local communication

Tunnel structure

- …
  - …

External
communication

**Home Area
Network**

(internal IP network)

Public IP of the physical
interface

Local
communication

Internal IP of the virtual
(TAP or TUN) interface
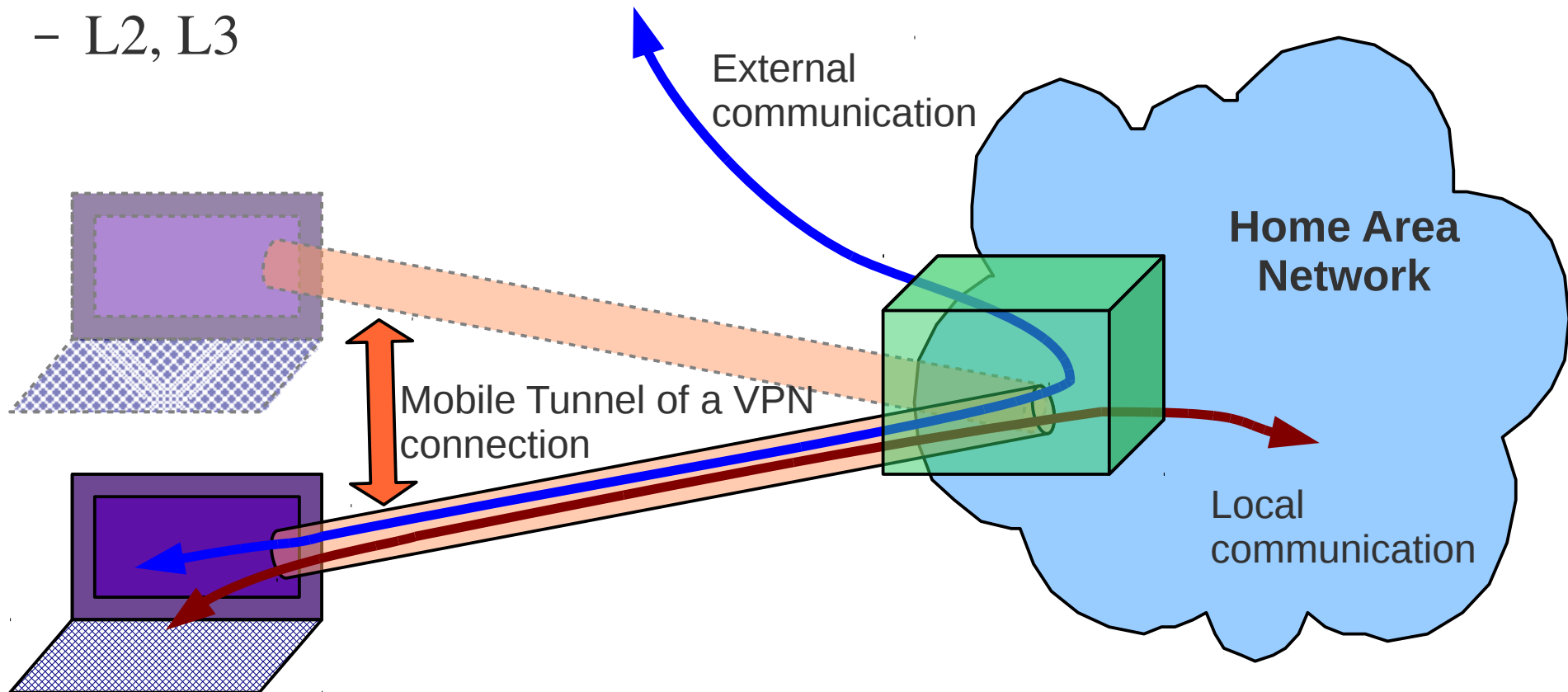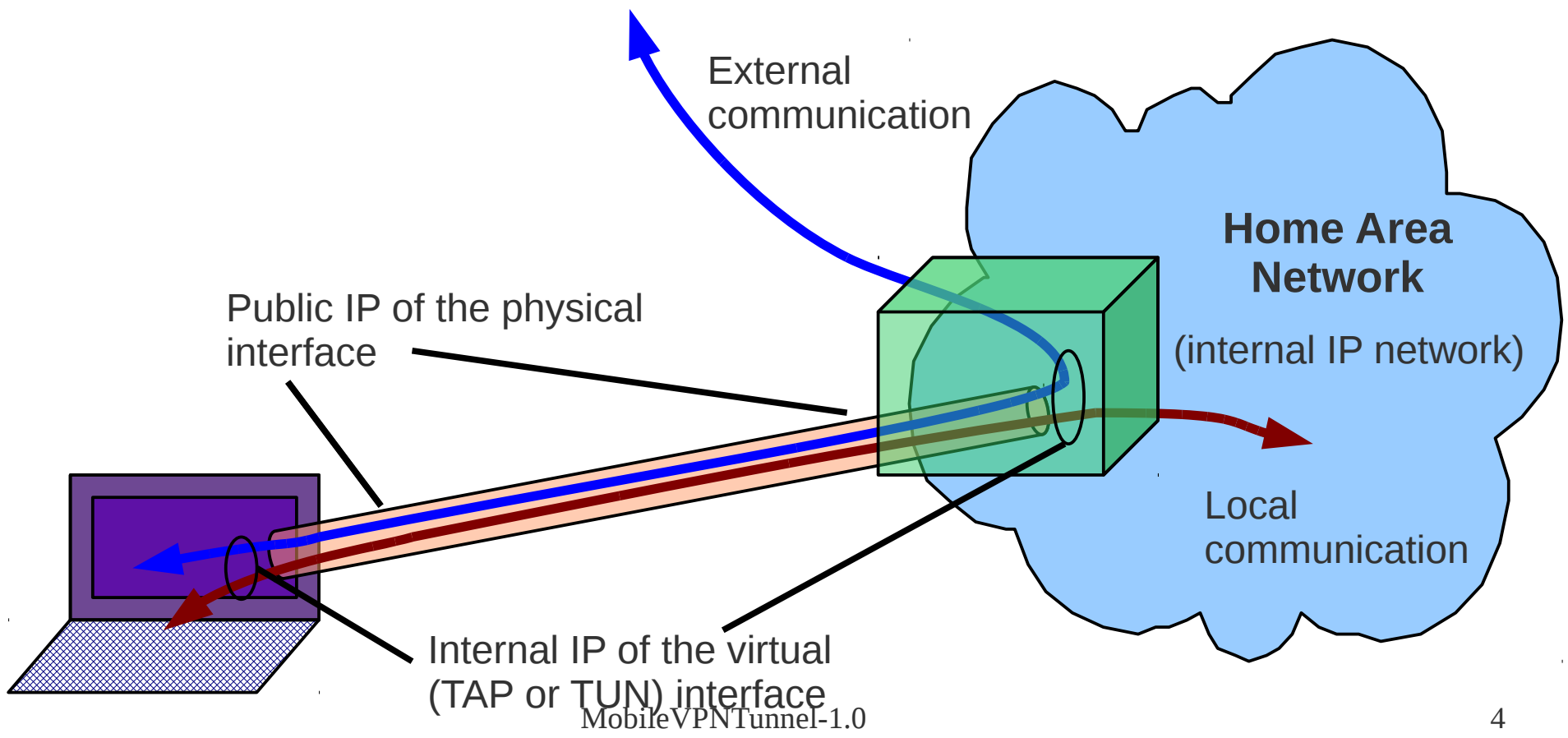
L3 OpenVPN Tunnel - client

- ...
  - ...

MobileVPNTunnel-1.0
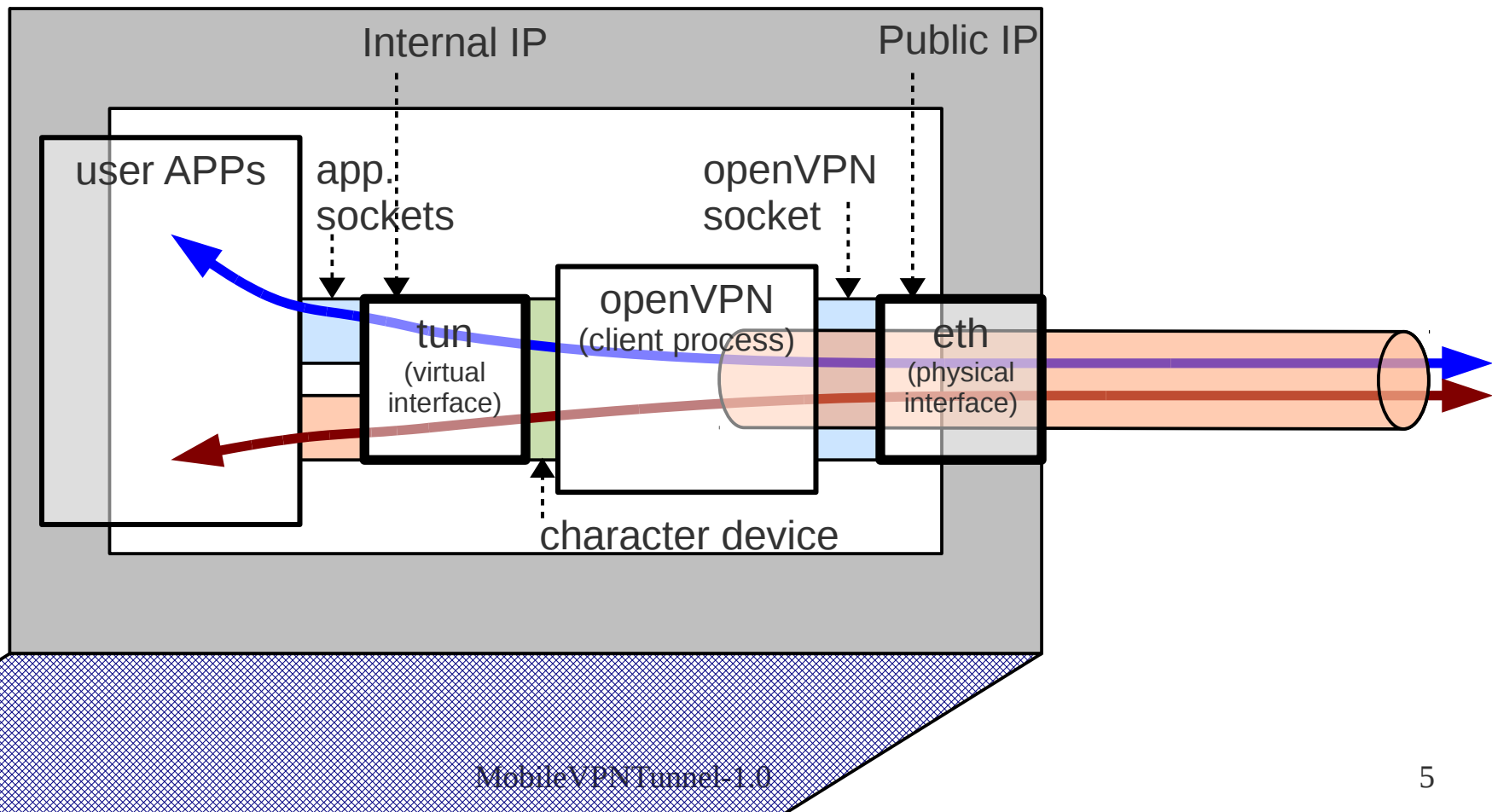
L3 OpenVPN Tunnel - server

- ...
  - ...

network
subsystem
(routing, filtering, NAT, ...)

Public IP

eth0
(physical
interface)

openVPN
(server process)

tun
(virtual
interface)

eth1
(physical
interface)

Internal IP1

Internal IP2

openVPN
socket

character device

MobileVPNTunnel-1.0

6
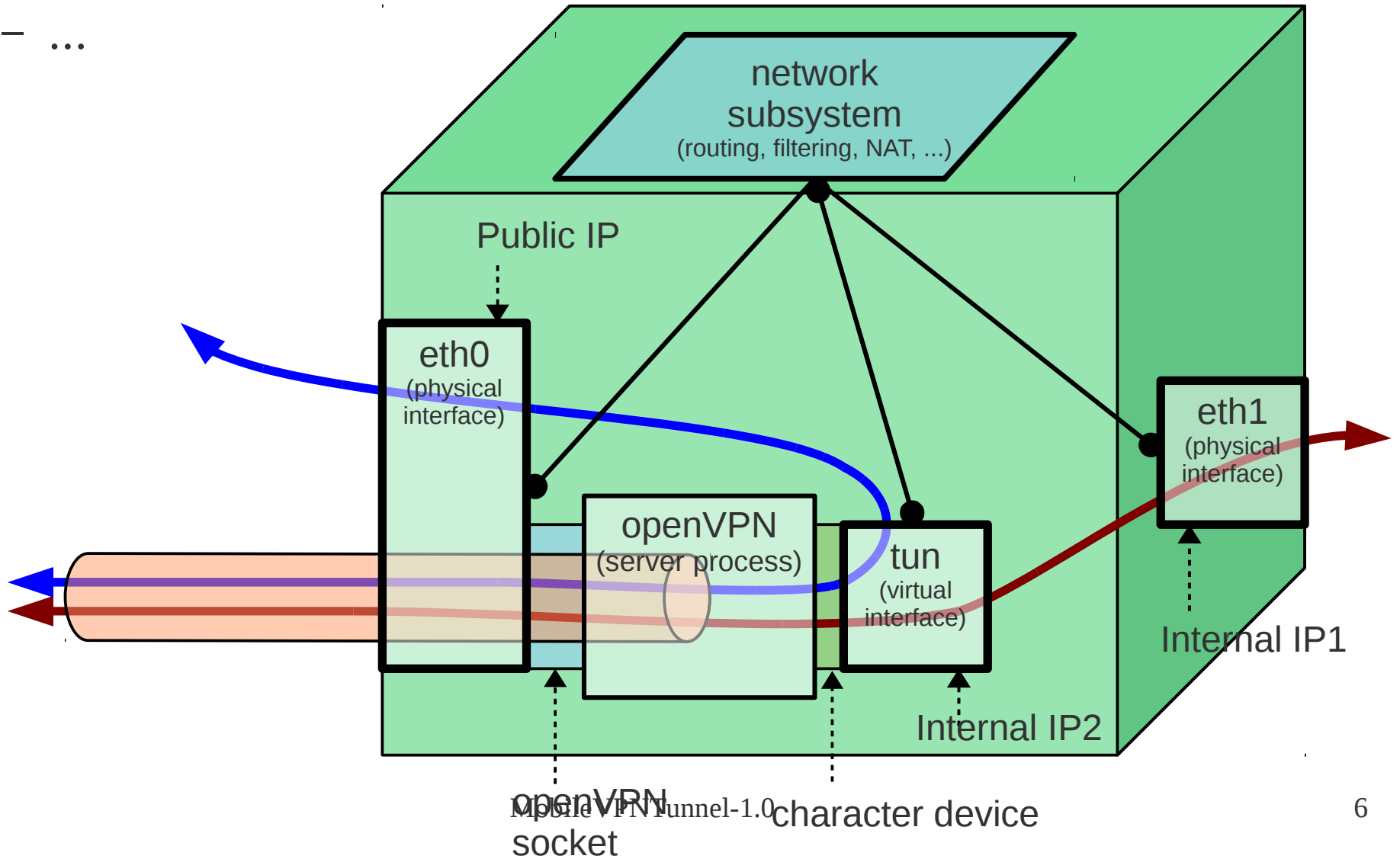
L3 OpenVPN Tunnel - routing

- Client side:
  - A host route to the public IP address of the VPN server via default router for the IP subnet of the public IP address of the VPN client (for openVPN client to server process communication – provides a tunnel).
  - A route to client's provider's IP subnet via physical port.
  - A network route towards the internal IP subnet of the VPN via the virtual TUN network interface for the internal communication.
  - A default route for all external comunication: If we want also external communication through the VPN, then the default route gateway is the internal IP of the VPN server. Otherwise client's public IP network default router represents the gateway of the client's default route.

L3 OpenVPN Tunnel - routing

- Server side:
  - A default route through external physical port via default gateway of the public IP subnet. This is necessary for all extrenal communication (openVPN server also communicates via this route).

  - A route to our local internal IP subnet through our internal physical network interface.

  - A route to our second internal IP subnet via virtual network interface (TUN), prepared for our remote clients.

L3 OpenVPN Tunnel - routing

- Let's make most of communication through the tunnel.
  - ...