

# DT Terastream 2018

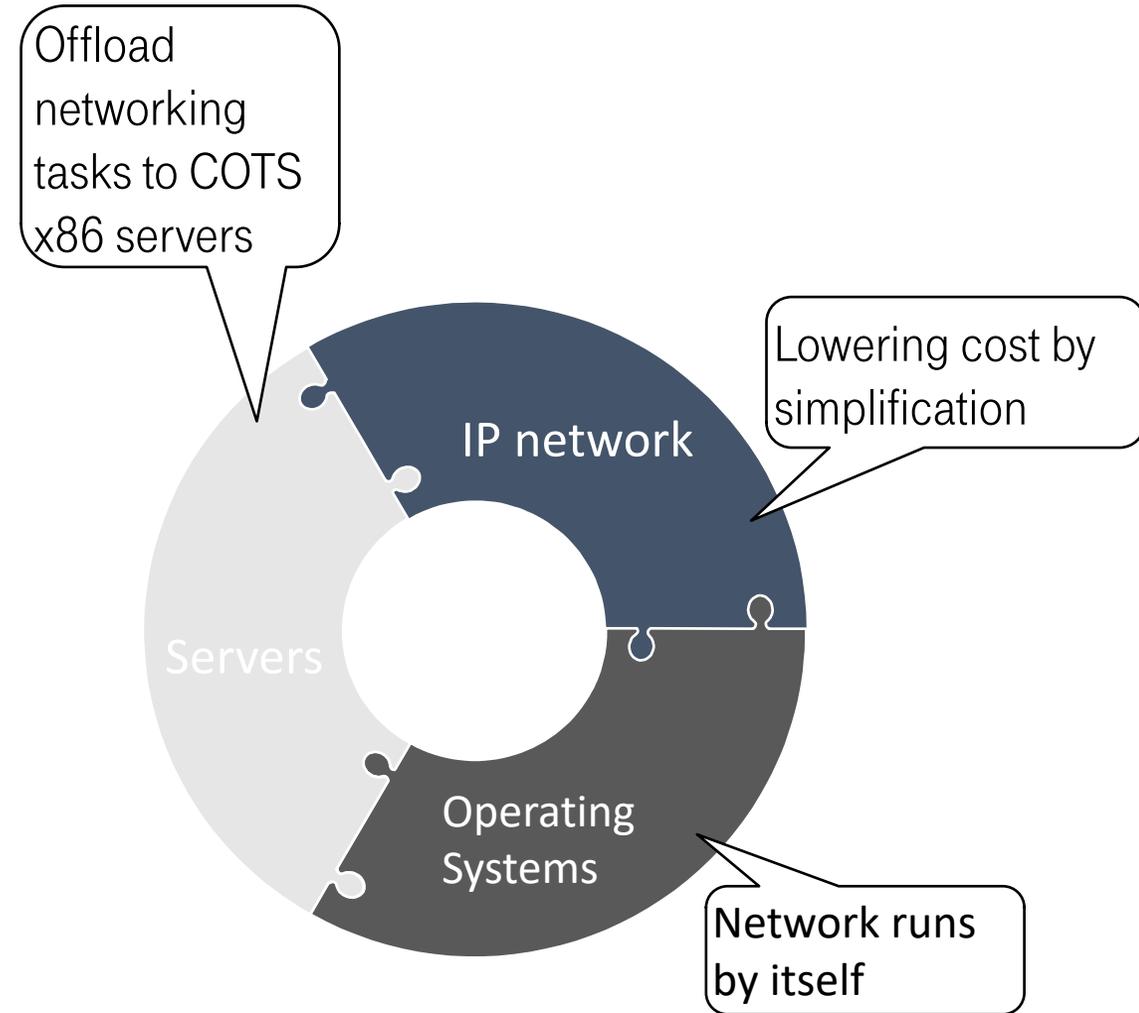
Mikael Abrahamsson

Deutsche Telekom

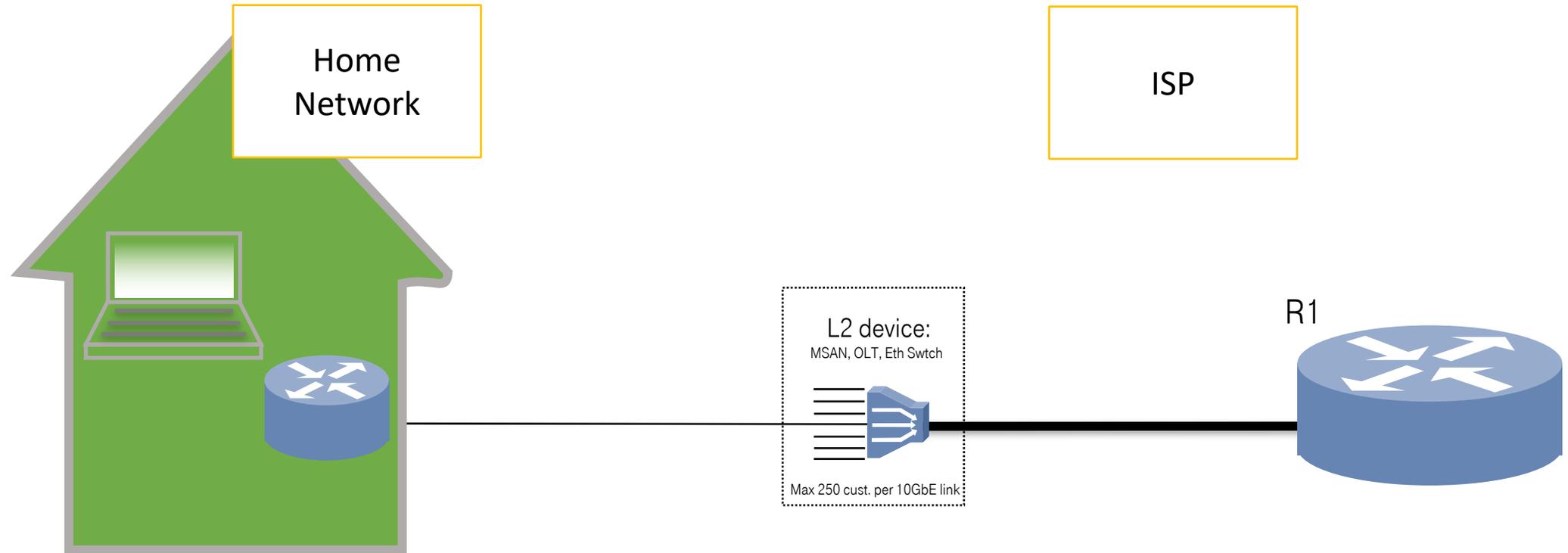
[Mikael.abrahamsson@t-systems.se](mailto:Mikael.abrahamsson@t-systems.se)

# DT Terastream summary

- Simplification (fewer mechanisms/protocols and support systems)
- IPv6 native forwarding (single stack)
- Netconf/YANG everywhere
- ISIS+BGP for core routing
- One NMS system configures everything via Netconf
- IPv4 and VPNs (L2/L3) using packet-in-IPv6-tunnels (LW4o6 and L2TPv3)



# Access network overview



## Access link:

- One customer per vlan (untagged IPv6oEthernet towards HGW)
- Jumbo frames (1500 IPv4 MTU support in LW4o6 software (tunnel))
- DHCPv6 (Prefix Delegation and DHCPv6 stateless information)
- Netconf for management (SIP configuration and software upgrade)

# Home GateWay (HGW)

- Software based on OpenWrt (with vendor proprietary binary for SoC hardware support (packet forwarding + POTS))
- Native IPv6 packet acceleration
- LW4o6 tunnel packet acceleration (Broadcom BCM63138 and Mindspeed/Freescale SOC)
- Sysrepo for Netconf/YANG management ([www.sysrepo.org](http://www.sysrepo.org))
- All protocols and mechanisms standardised in IETF, and all code published on github under Apache v2 license, and if possible, upstreamed to FOSS projects.



# HGW LW4o6 Software Provisioning

- On the client side, the following parameters are needed:
  - IPv6 /128 address of the lwAFTR (to use as the tunnel endpoint address)
  - Client's IPv6 tunnel which it will originate traffic from
  - Client's provisioned IPv4 address
  - Client's provisioned range of L4 ports
- Provisioning mechanisms
  - DHCPv6 Option 96 (RFC7598)
    - Currently available in OpenWRT (15.05 and later) and in the ISC Kea DHCPv6 Server
  - Netconf/YANG (draft-ietf-softwire-yang-03)
    - Full Netconf implementation
    - Target approach for Terastream
    - Currently available in the lwAFTR (Igalia/snabb and Sysrepo), but not in the CPE