

TCP/IP in hardware

Using SME

Mark Jan Jacobi & Jan Meznik

University of Copenhagen

May 21, 2019

Background and Motivation

Dedicated hardware needs to transmit data in real time, but native network stacks are usually not enough!

Dedicated Network cards are not perfect either:

Weaknesses of network cards

- Only basic programmability
- Incompatible APIs
- Licensed VHDL code blobs
- Seldom swap-able

A performant, efficient, and flexible network stack in FPGA!

How? Using SME!

- Easier hardware modelling
- Implicit clock
- Built-in simulation utilities

SME and FPGA

Internet Protocol Suite

Challenges

Questions

?