TITLE

IDP

Improving Quality —
One Build System at a Time

Motivation

Working towards the separation of concerns software-defined networking recommends, P4 [1] is a domain-specific programming language targeted at networking hardware, with a target-independent design in mind. NetFPGA SUME is a recently introduced FPGA-based PCIe networking card developed as part of the NetFPGA project [2]. Using the accompanying P4→NetFPGA [3] toolchain, developers are enabled to program NetFPGA

NetFPGA SUME supports P4

SUME and its FPGA with P4, instead of low-level programming languages as VHDL. To do so, the toolchain relies on an elaborated sequence of build steps. Goal of this interdisciplinary project is to improve the overall quality of the build system. For instance, by moving from legacy tools, e.g. Python 2, to a more recent alternative or by verifying that software development best practices are used.

Your Task

- Familiarize yourself with P4 language and NetFPGA platform
- Design an updated framework structure
- Implement a sequence of patches to facilitate the transition between status quo and the proposed update
- Document the new design by providing annotated code examples

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