High speed packet forwarding compiled from protocol independent data plane specifications
Sándor Laki, Dániel Horpácsi, Péter Vörös, Róbert Kitlei, Dániel Leskó, Máté Tejfel
Faculty of Informatics, Eötvös Loránd University, Budapest, Hungary
{lakis, daniel-h, вопраи, kitlei, ldani, matej}@elte.hu

P4 is a high level language for programming packet processors, enabling great flexibility in the description of packet structure and processing, independent of the specifics of underlying hardware. P4 works in conjunction with SDN control protocols like OpenFlow.

**OBJECTIVES**
- Retargetable P4 compiler
- High performance packet processing
- Reconfigurable
- Modular switch program

**EVALUATION**
- L2 forwarding with MAC learning via digest generation
- Demo controller fills tables smac and dmac
- Mellanox ConnectX-4 100Gb ethernet cards
- 1x100Gbps pseudo realistic test traffic (random mac and IPv4 addresses and TCP ports)

**RESULTS**
- Almost complete P4-14 compiler with HAL for Intel DPDK
- NUMA support
- Run-to-completion model
- Comparable performance to official DPDK implementations
- Working L2/L3 switch examples
- Other HALs are coming soon

**CONTACT**
http://p4.elte.hu
info@p4.elte.hu

The authors thank the support of Ericsson Hungary Ltd.