draft-hsingh-coinrg-p4use-00

IETF 110

March 6-12, 2021

COIN RG

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Background

- IETF and IRTF specify algorithms for networked node data plane
- Examples are liveliness detection, congestion control, network measurements and flowlets
- Algorithms are specified using English or flow charts
- However, research papers use P4 to describe data plane algorithms, e.g., HULA, MARPLE, Domino, TurboEPC

Details

- Draft proposes using P4, where possible, to specific algorithms
- Several P4 programs available online, e.g., flowlet, vxlan, crypto, bfp filtering, mirror packets, telemetry, DNS, SRv6, etc.
- Next revision of draft includes few more repos for P4 programs
- If algorithm uses state, use P4 register
- Timer and events are on tap to include in P4

Example

- Flowlet algorithm
  - `I-D.chen-nvo3-load-balancing` (LB) proposed using flowlets for LB
  - I-D includes description (section 4.1) and state machine (section 5) for LB and flowlet
  - does not discuss other tables used and sequence of table invocation
- Sections 4.1 and 5 for LB and order of table invocation is included in `flowlet_switching-bmv2.p4` in open-source P4 compiler (p4c)
- The P4 program is brief is more precise than sections 4.1 and 4 of I-D.chen-nvo3-load-balancing

- Questions/Comments?
- Adopt doc as WG doc?