Lab 2: Calculating Packets Interarrival Times using Hashes and Registers

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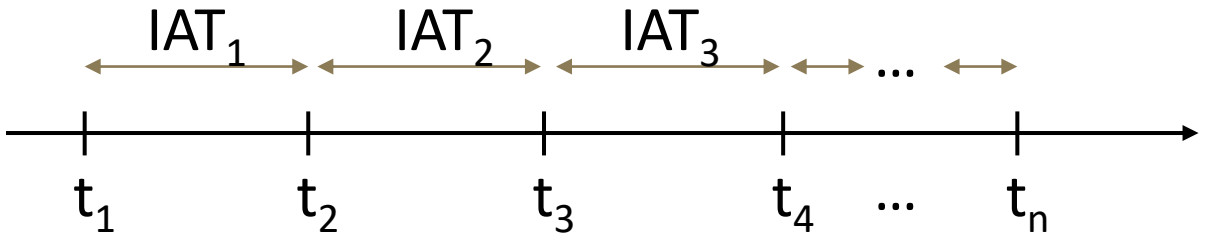
Calculating Packets Interarrival Times using Hashes and Registers

Lab activities are described in Lab 5, P4-DPDK Security lab series

Interarrival Times

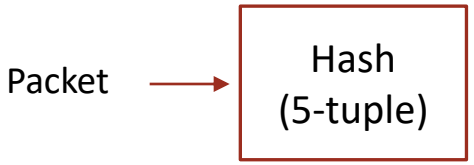
- The Interarrival time (IAT) is the time between two consecutive packets belonging to the same flow



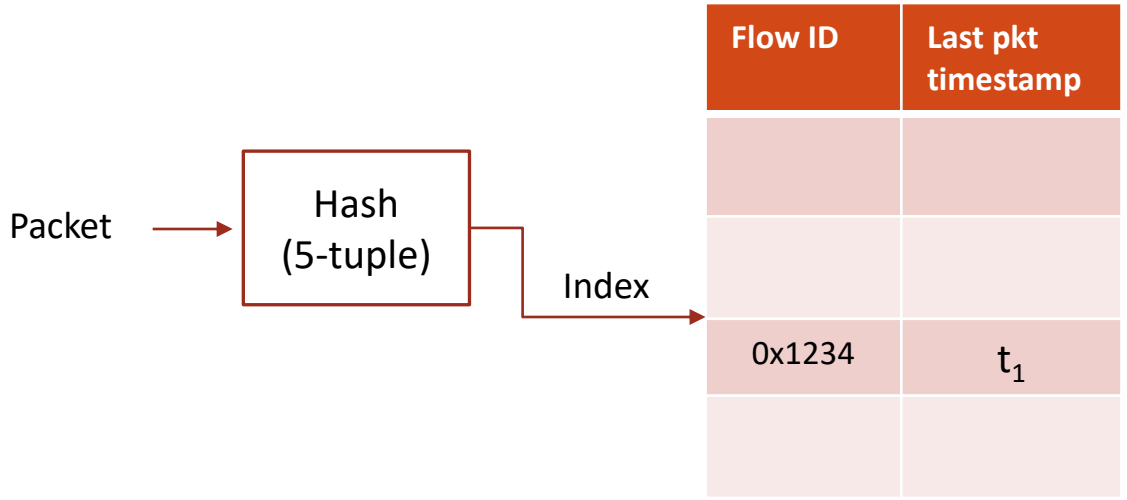
Hashing in P4

- The Interarrival time (IAT) is the time between two consecutive packets belonging to the **same flow**
- A flow can be identified by its 5-tuple fields:
  - Source IP address
  - Destination IP address
  - Source port
  - Destination port
  - Protocol

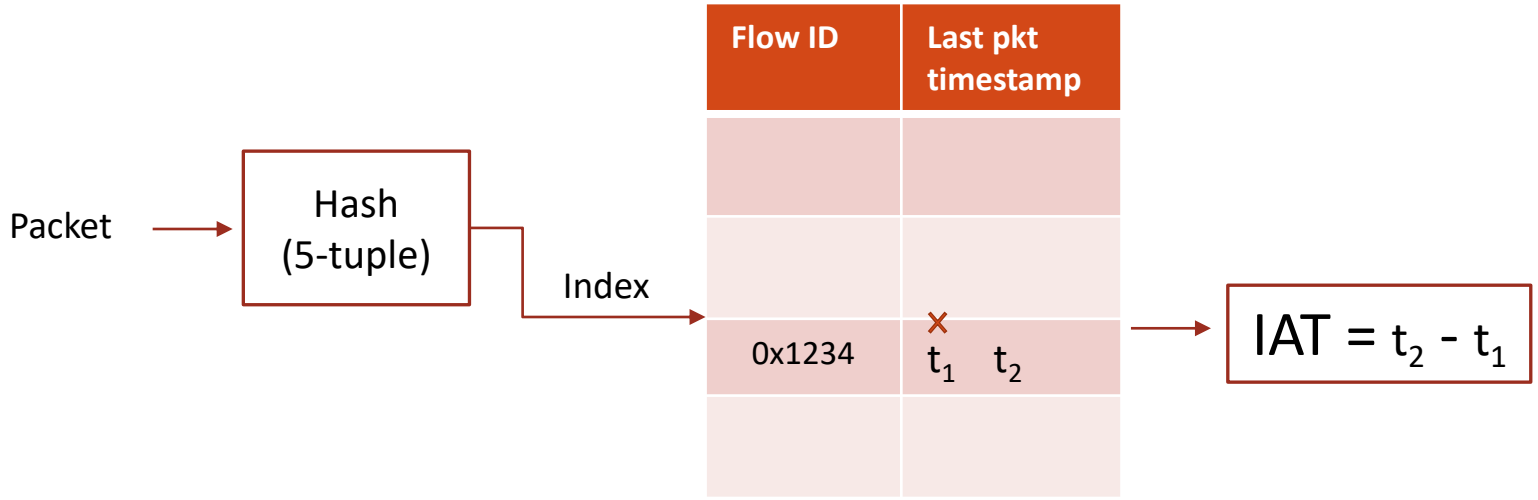
IAT Calculation in P4



IAT Calculation in P4



IAT Calculation in P4

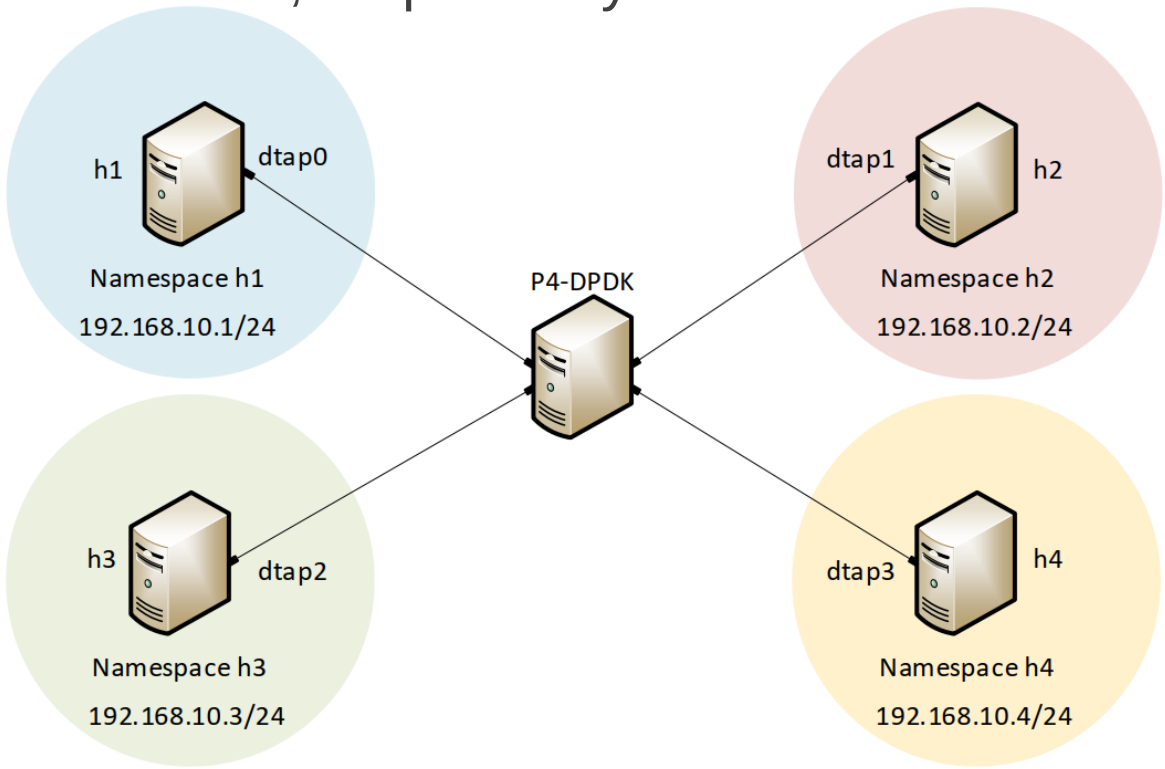


Lab Topology and Objectives

- Four network namespaces, h1, h2, h3 and h4 are linked to the the P4-DPDK pipeline
- The hosts h1 and h3 send packets with a custom header (interarrival)
- A flow is identified by the source and destination IP of the packet
- The P4-DPDK pipeline computes the IAT and inserts its value into the custom header
- Hosts h2 and h4 receive packets from hosts h1 and h3, respectively
- The IATs are shown on hosts h2 and h4

- Header:

interarrival
IPv4
Ethernet



Accessing the Platform

- **URL:** https://netlab.cec.sc.edu/
- **Username:** <Email address used for registration>
- **Temporary Password:** nsf-2025