OVERVIEW

• Introduction
  – DPIF
  – Miniflow Extract
  – Recirculation

• Enabling AVX-512 Recirculation
  – For DPIF
  – For MFEX
  – Benefits of AVX-512 Recirculation

• Validation of AVX-512 Recirculation
DPIF AND MFEX

- DPIF - DataPath InterFace
  - Connects MFEX, lookup and action blocks
- MFEX – MiniFlow EXtract
  - Parses the packet
• What is recirculation?
  – Packets traverse OVS datapath multiple times
  – Used in tunnel decap and conntrack
• Tunnel decap carries extra metadata
  – Makes 2\textsuperscript{nd} pass DPIF different
ENABLING AVX-512 INNER DPIF

• DPIF changes
  – Skip metadata initialization
  – Add inner DPIF stats

• Maintainable DPIFs
  – Common AVX-512 DPIF functionality
  – Avoid code duplication
ENABLING AVX-512 INNER MFEX

• Add support for extra data in Miniflow
  – Packet metadata from outer packet
  – Recirculation ID

![Diagram](image)
BENEFITS OF AVX-512 RECIRCULATION

• Faster packet batching with AVX-512
  – Even faster in the worst case (multi-flow)

• Faster packet parsing
  – Recirculated packets can have larger miniflows
  – Faster with wider registers
VALIDATION OF AVX-512 INNER RECIRC

- Both are validated like outer AVX-512 impls
- Use AutoValidator approach for MFEX
- Use OVS unit tests for DPIF
  - Set AVX-512 inner DPIF on at compile time
Code for 2.18!

Patches will be submitted to the mailing list for review and merge

Reviews & Comments welcomed
Thank You!
Questions?

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