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## TC SW Datapath: A Performance Analysis

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Currently the Linux kernel implements two distinct datapaths for Open vSwitch: the `ovskdp` and the `TC DP`. The latter has been added recently mainly to allow HW offload, while the former is usually preferred for SW based forwarding due to functional and performance reasons.

We evaluate both datapaths in a typical forwarding scenario - the PVP test - using the `perf` tool to identify bottlenecks in the `TC SW dp`. While similar steps usually incur in similar costs, the `TC SW DP` requires an additional, per packet, `skb_clone`, due to a `TC actions` constraint.

We propose to extend the existing `act` infrastructure, leveraging the `ACT_REDIRECT` action and the `bpf redirect` code, to allow clone-free forwarding from the `mirred` action and then re-evaluate the datapaths performances: the gap is then almost already closed.

Nevertheless, `TC SW` performance can be further improved by completing the `RCU`-ification of the `TC actions` and expanding the recent `listification` infrastructure to the `TC (ingress) hook`. We plan also to compare the `TC/SW` datapath with a custom `eBPF` program implementing the equivalent flow set to tag a reference value for the target performances.

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