Thread Modes

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Supported Thread Modes VPP16.09

VPP can work in 4 different modes

1. single-thread
2. multi-thread with worker threads only
3. ~~multithread with io and workers threads~~ (deprecated in VPP 16.09)
4. ~~multi-thread with main thread doing IO and workers thread~~ (deprecated in VPP 16.09)

Cannot use vpp_lite with multiple threads, vpp_lite buffer manager is not thread safe.

The vpp main thread manipulates fib tables. In a single-core case, the main thread is also responsible for processing packets. These activities are mutually exclusive by construction.

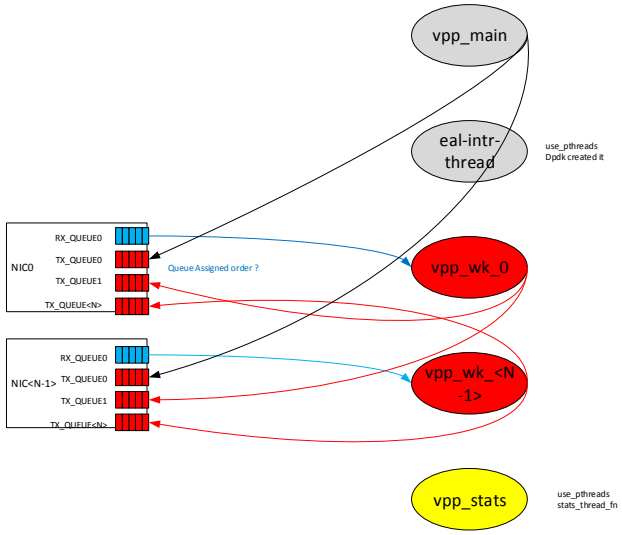
In a multi-core case, the main thread does not process packets. It simply builds tables. Absent other arrangements, assume that packets are being processed 100% of the time by worker threads.

The forces of physics involved in adding/deleting ip6 FIB entries are easily understood by setting a breakpoint in ip6_add_del_route_t_handler(...) in .../src/vnet/ip/ip_api.c and walking the path.

Mode 2

VPP16.09

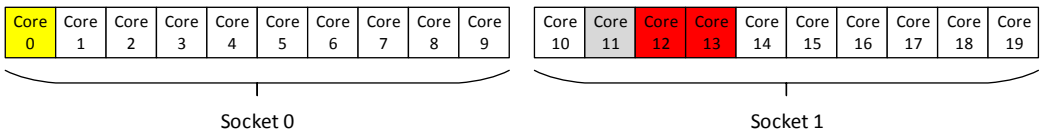
Main thread + worker threads



Core Pinning

VPP16.09

For example




```
DBGvpp# show threads
ID     Name                Type        LWP     lcore  Core   Socket State
0      vpp_main                        25187   11     1      1      wait
1      vpp_wk_0            workers     25193   12     2      1      running
2      vpp_wk_1            workers     25194   13     3      1      running
3                          stats       25196
```

Core Pinning(cont') VPP16.09

```
[root@localhost ~]# taskset -a -p 4655
pid 4655's current affinity mask: 800
pid 4656's current affinity mask: 800
pid 4657's current affinity mask: 1000
pid 4658's current affinity mask: 2000
pid 4659's current affinity mask: 1

[root@localhost bin]# top -H -p 4655
<etc>
 PID USER      PR  NI    VIRT    RES    SHR S %CPU %MEM     TIME+ COMMAND
 4658 root     20   0 3806760  48036   6108 R 99.7  0.1  33:09.36 vpp_wk_1
 4657 root     20   0 3806760  48036   6108 R 99.3  0.1  33:09.34 vpp_wk_0
 4655 root     20   0 3806760  48036   6108 S  0.0  0.1   0:20.34 vpp_main
 4656 root     20   0 3806760  48036   6108 S  0.0  0.1   0:00.00 eal-intr-thread
 4659 root     20   0 3806760  48036   6108 S  0.0  0.1   0:00.00 vpp_stats
```