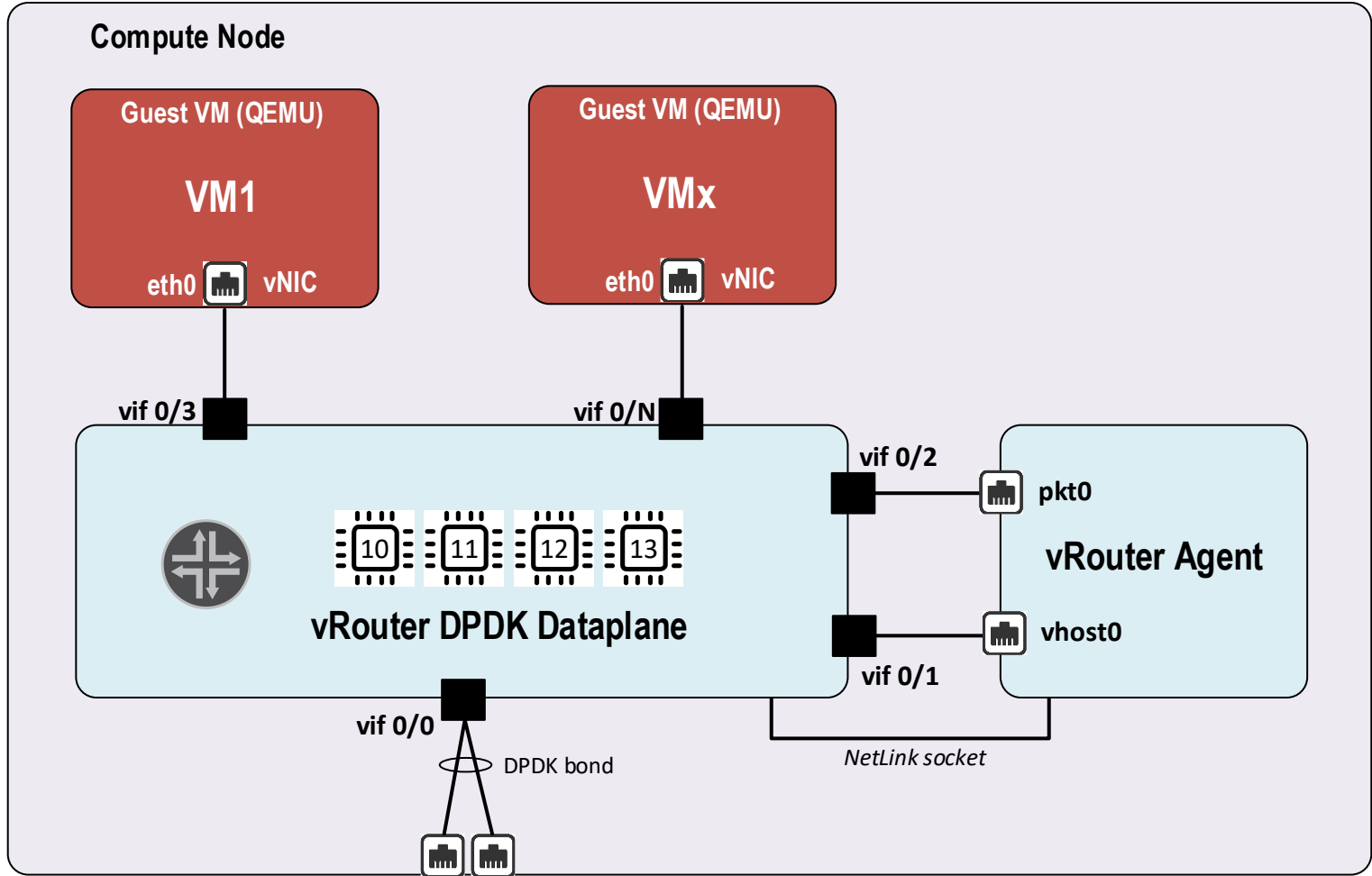


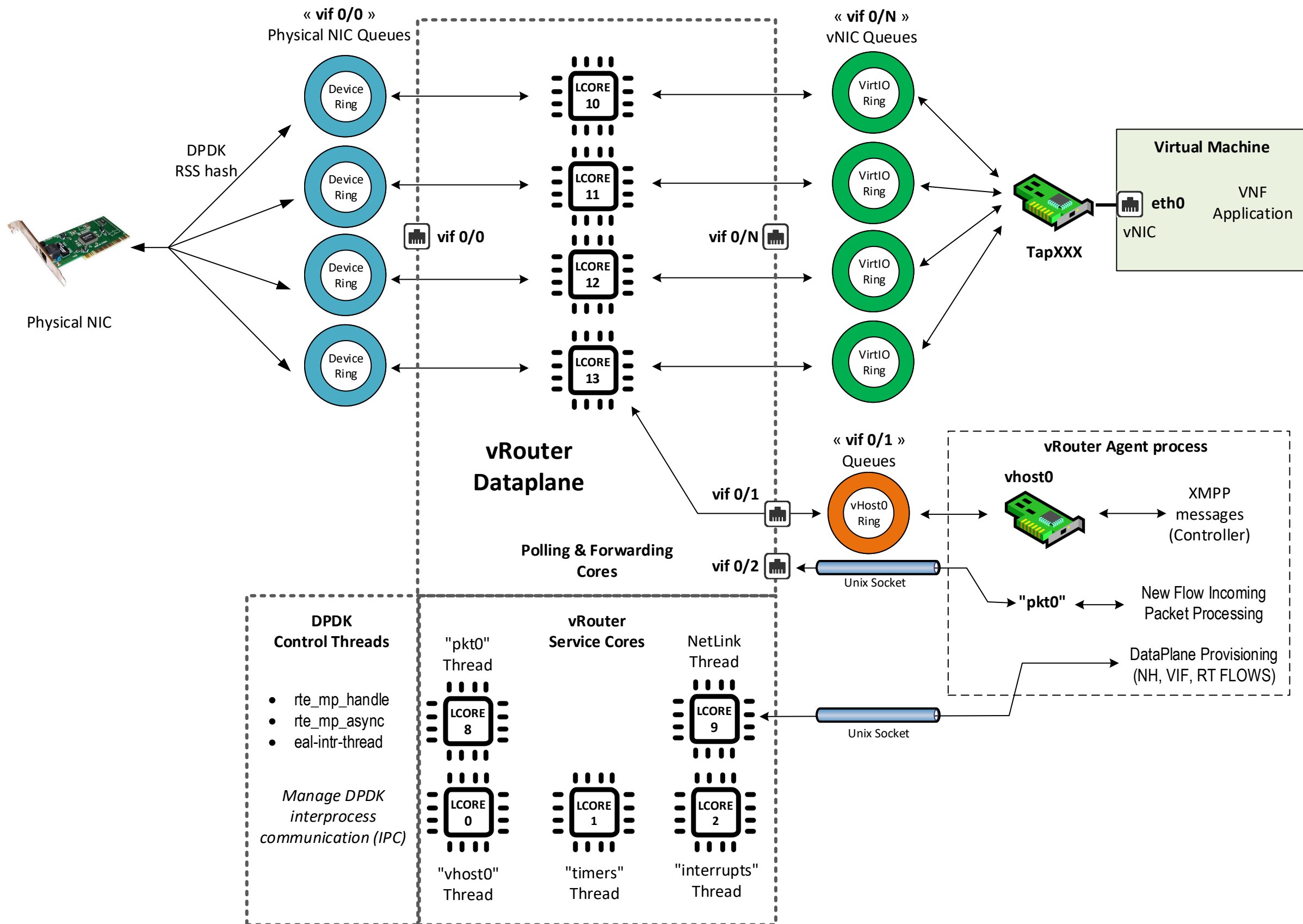
Title: vrouter overview

version: 1.0

date: 25/03/2020



Title: vRouter interfaces overview	
version: 1.0	date: 27/03/2020

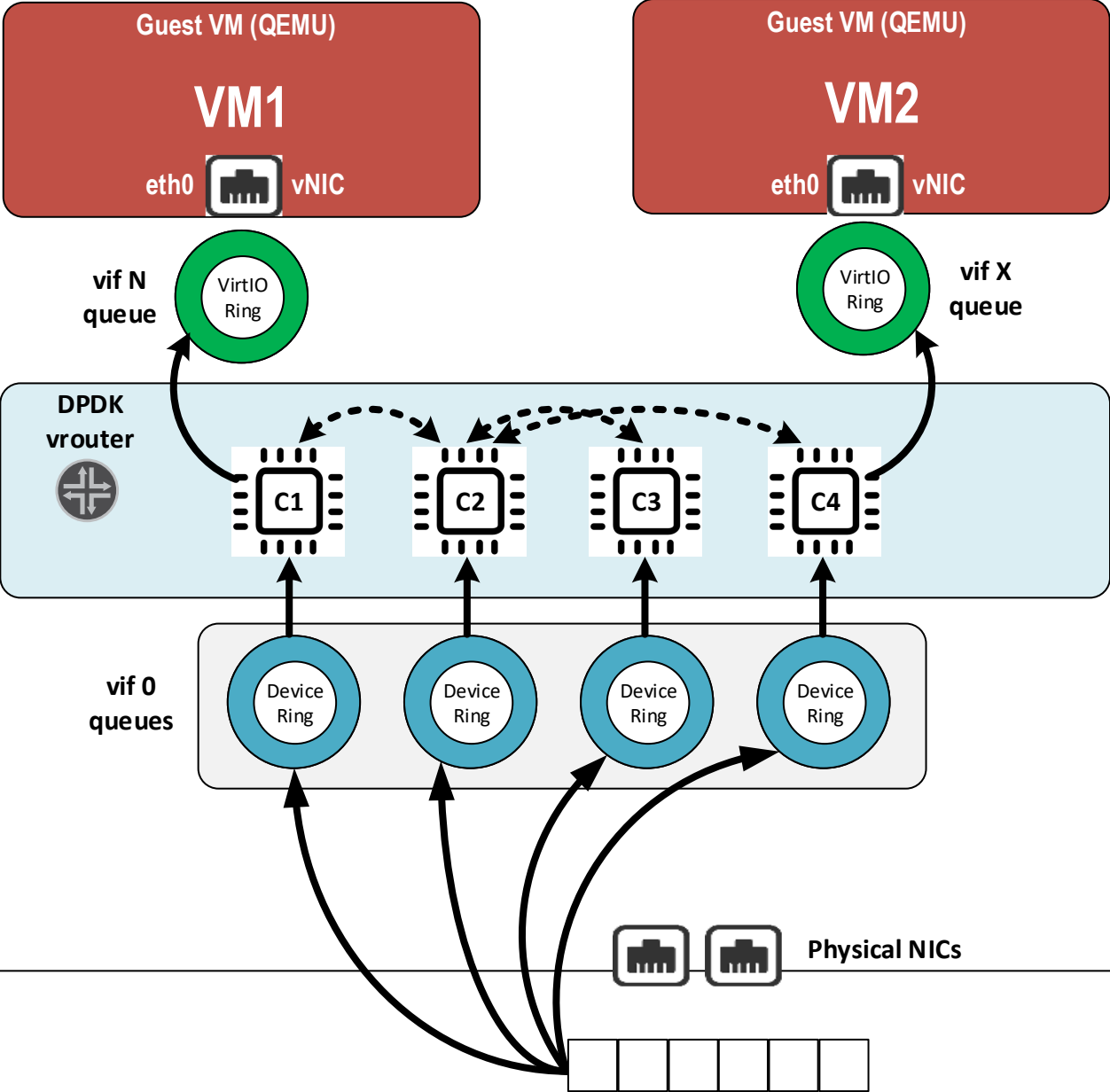


Title: vRouter Internal Architecture

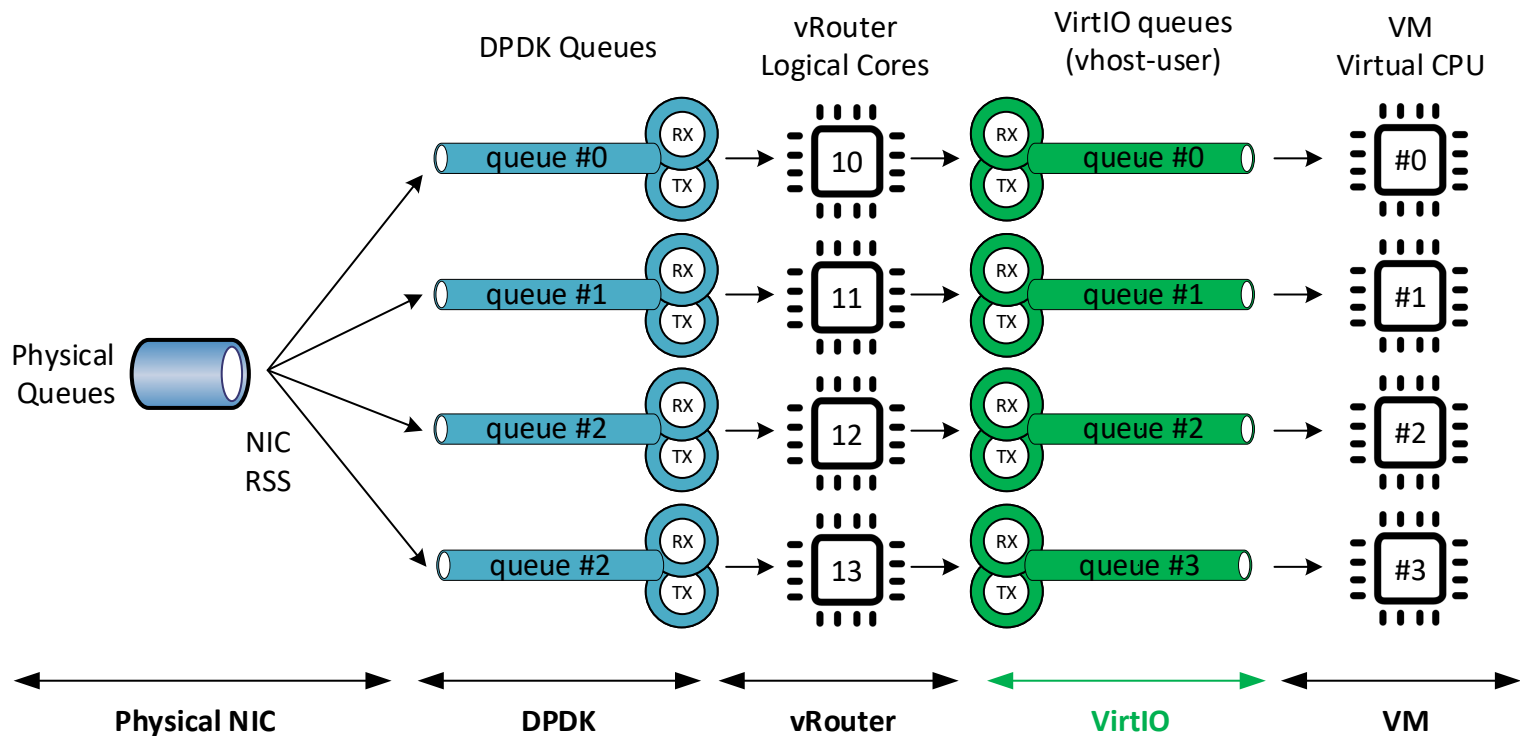
version: 1.0

date: 27/03/2020

Compute Node



Title: DPDK Packet Processing Overview	
version: 1.0	date: 25/03/2020



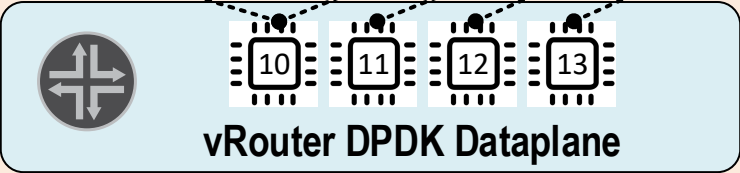
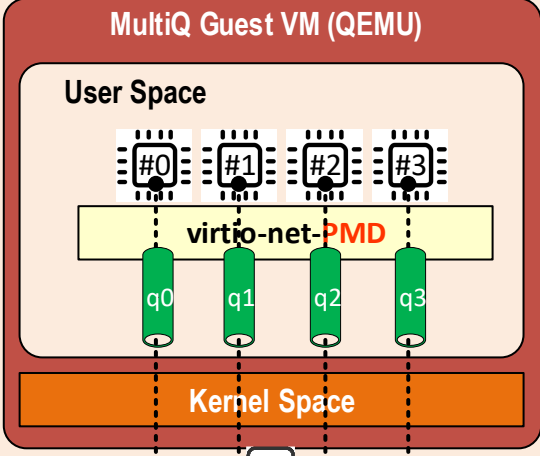
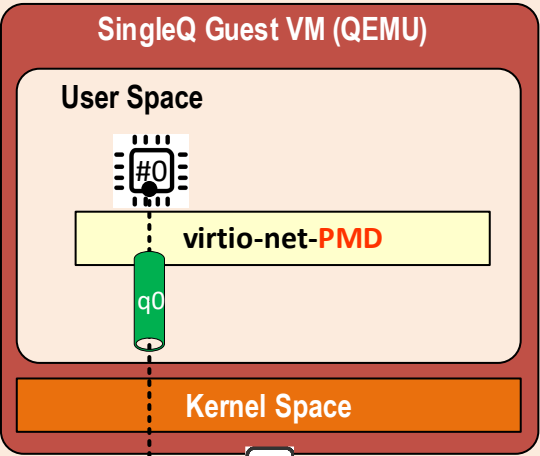
Title: DPDK End to End Packet Processing

version: 1.0

date: 27/03/2020

Compute Node

User Space

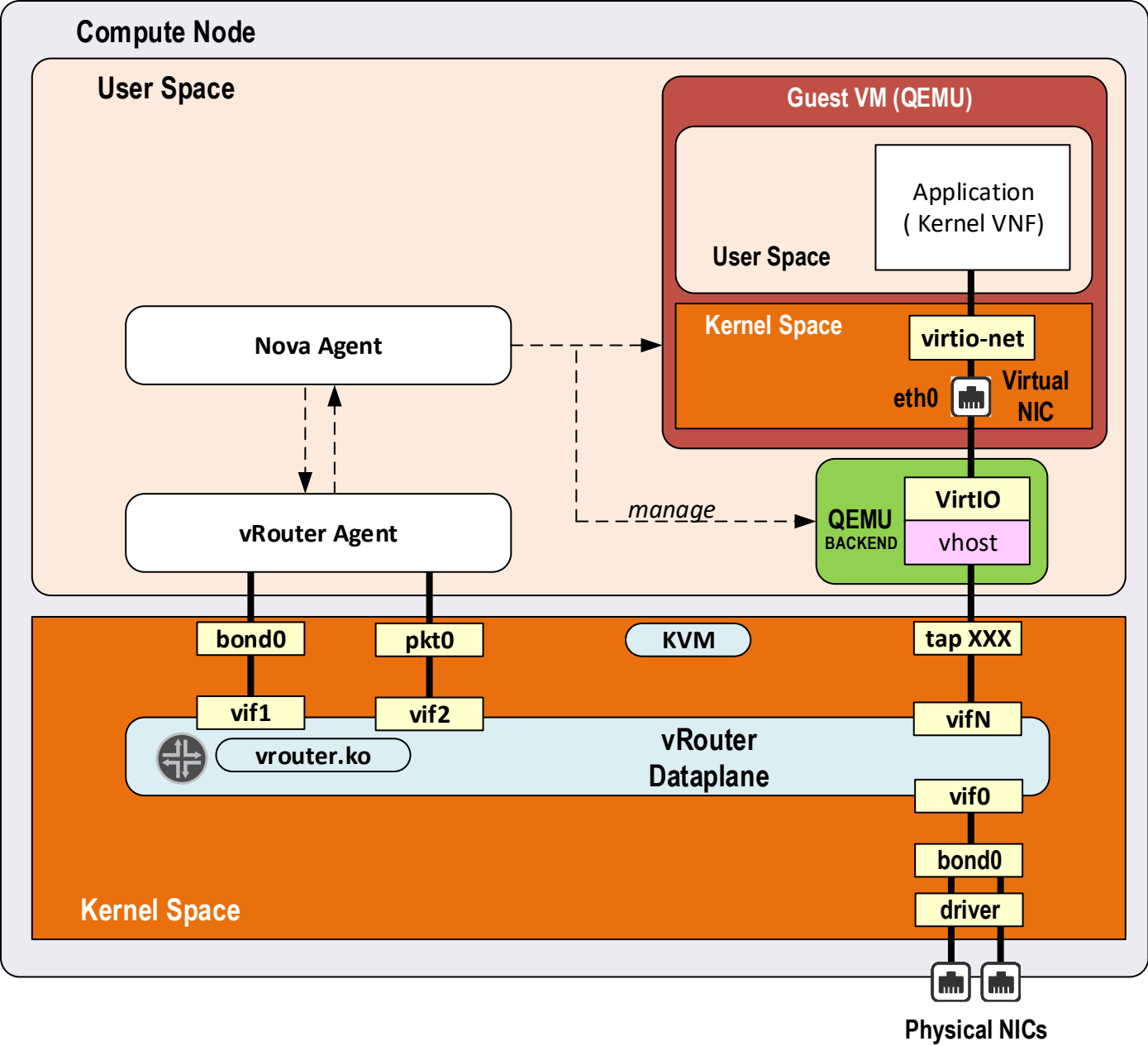


Physical NICs

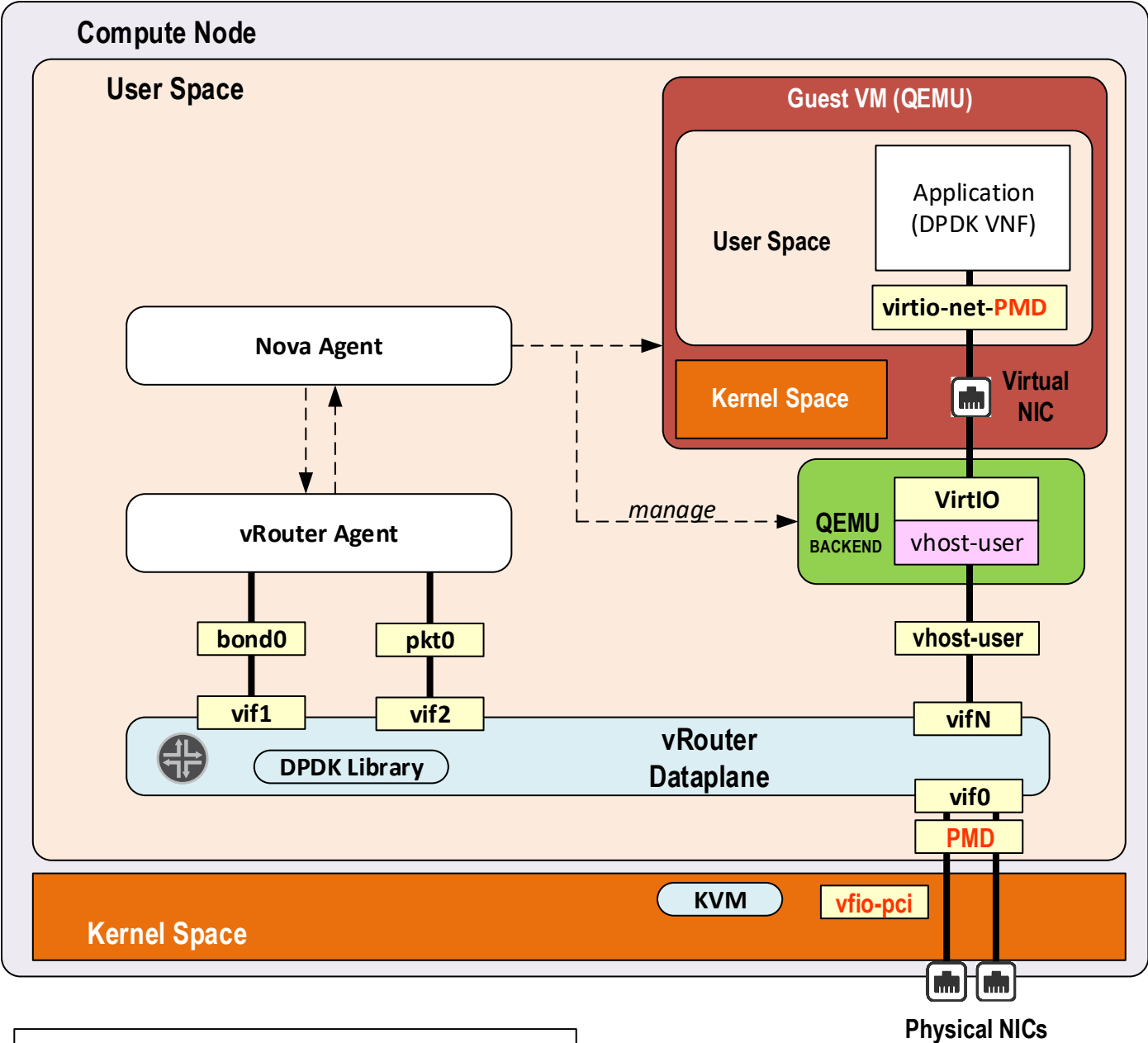
Title: SingleQ versus MultiQ VNF

version: 1.0

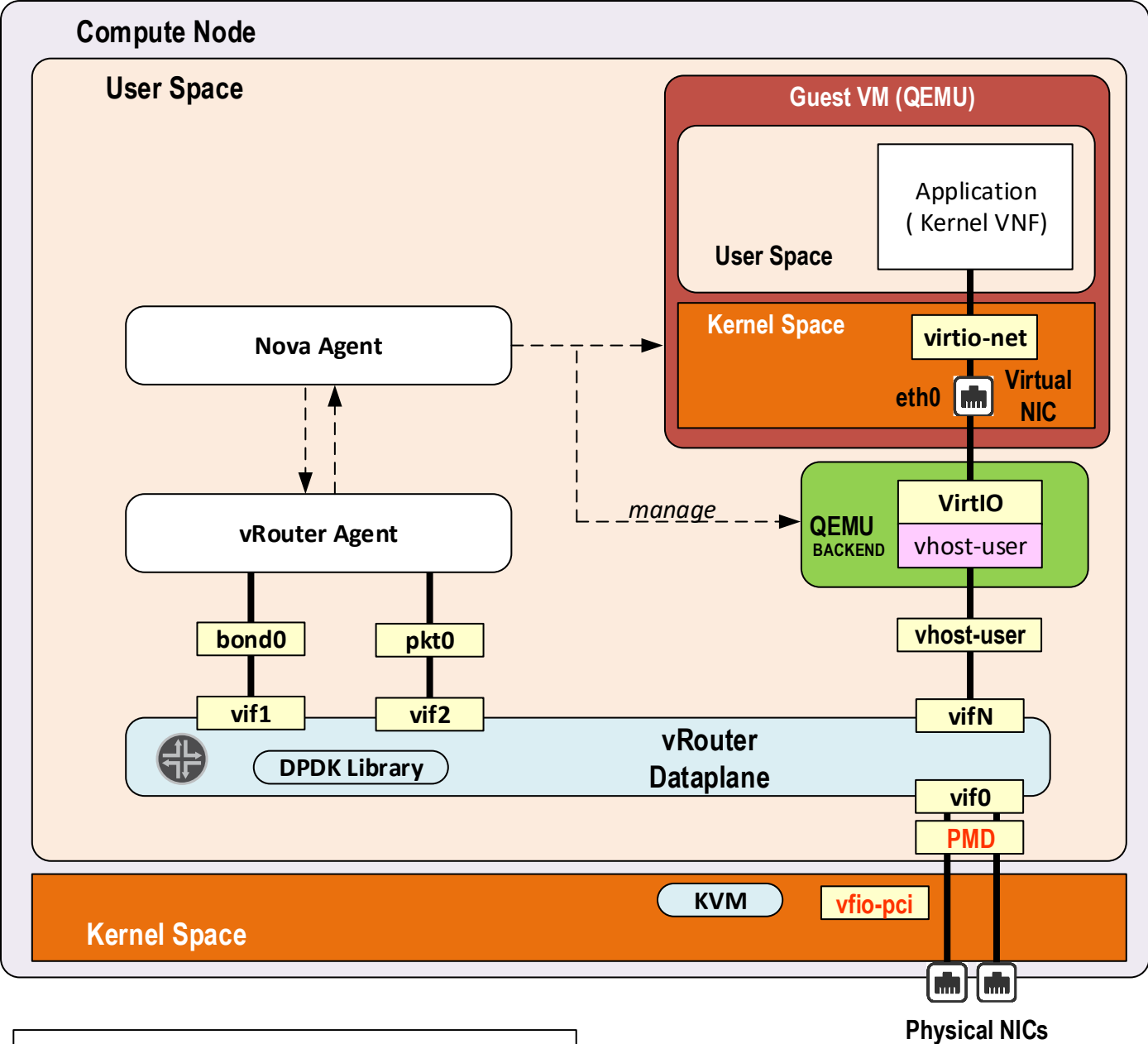
date: 27/03/2020



Title: Kernel vRouter details	
version: 1.0	date: 25/03/2020



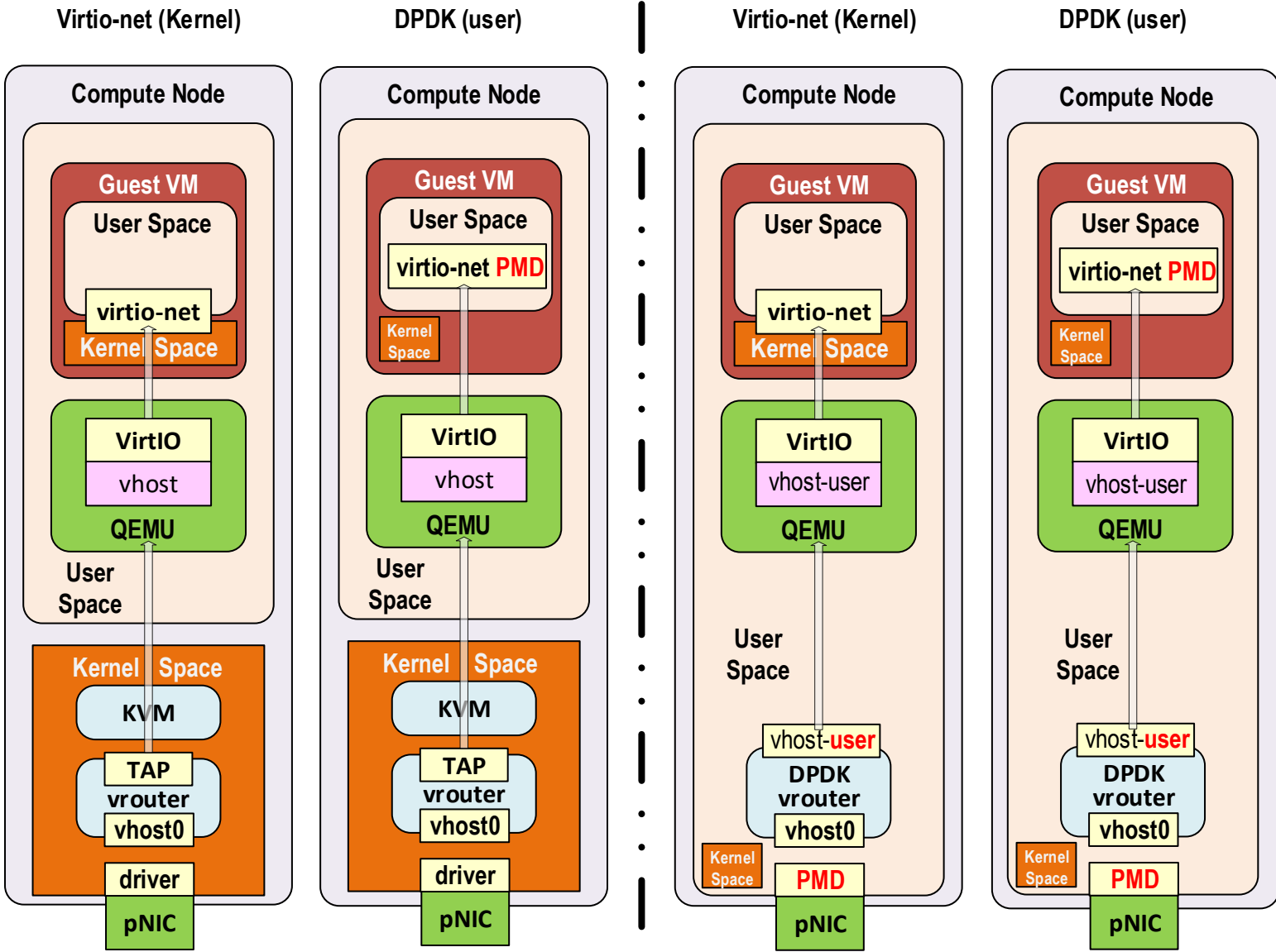
Title: DPDK vRouter details (DPDK App)	
version: 1.0	date: 25/03/2020

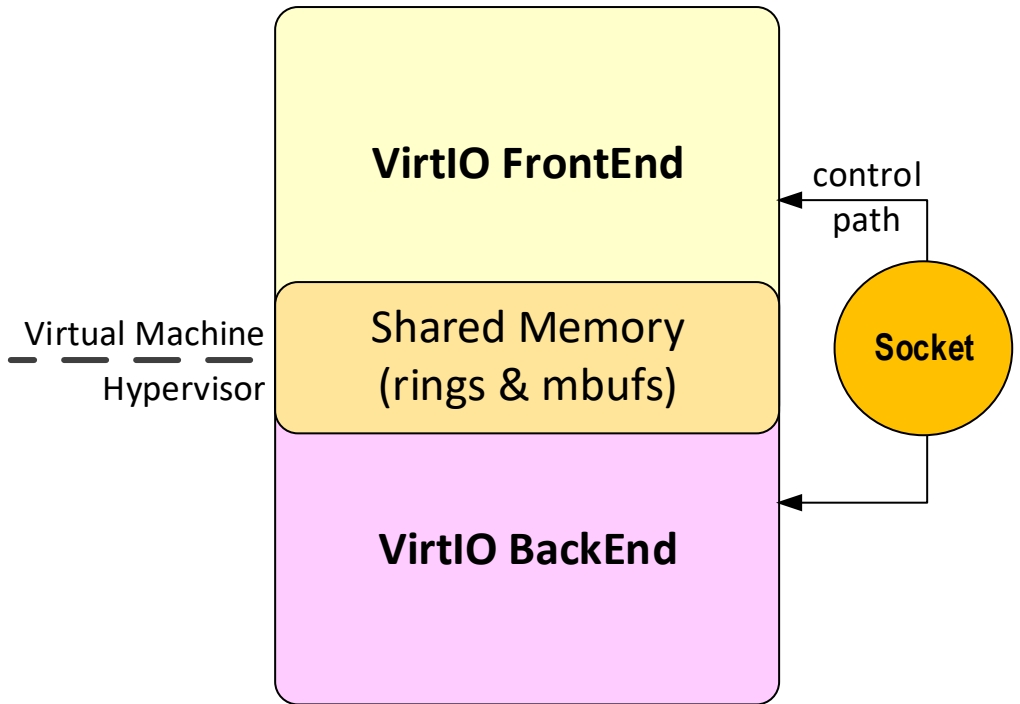


Title: DPDK vRouter details (Kernel App)	
version: 1.0	date: 25/03/2020

Kernel Mode
vRouter

DPDK
vRouter





Title: VirtIO overview	
version: 1.0	date: 25/03/2020

Compute Node

User Space

Shared Memory

TX
Ring

RX
Ring

Mempool

virtio (backend)

vHost-user (server)

vifN

vRouter
Dataplane

IOCTL

socket

Guest VM (QEMU)

Kernel Space

eth0



Virtual
NIC

virtio-net driver
(virtio frontend)

vHost-user (client)

ioevent FD

IRQ FD

Kernel Space

cuse

kvm.ko

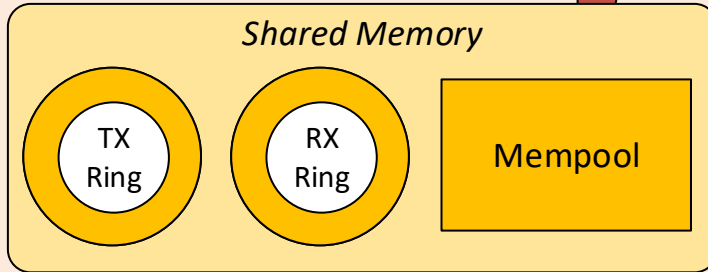
VirtIO details (Kernel App)

version: 1.0

date: 25/03/2020

Compute Node

User Space



virtio (backend)

vHost-user (server)

vifN

vRouter
Dataplane

socket

Guest VM (QEMU)

virtio-net **PMD**
(virtio frontend)

eth0



Virtual
NIC

Kernel Space

vHost-user (client)

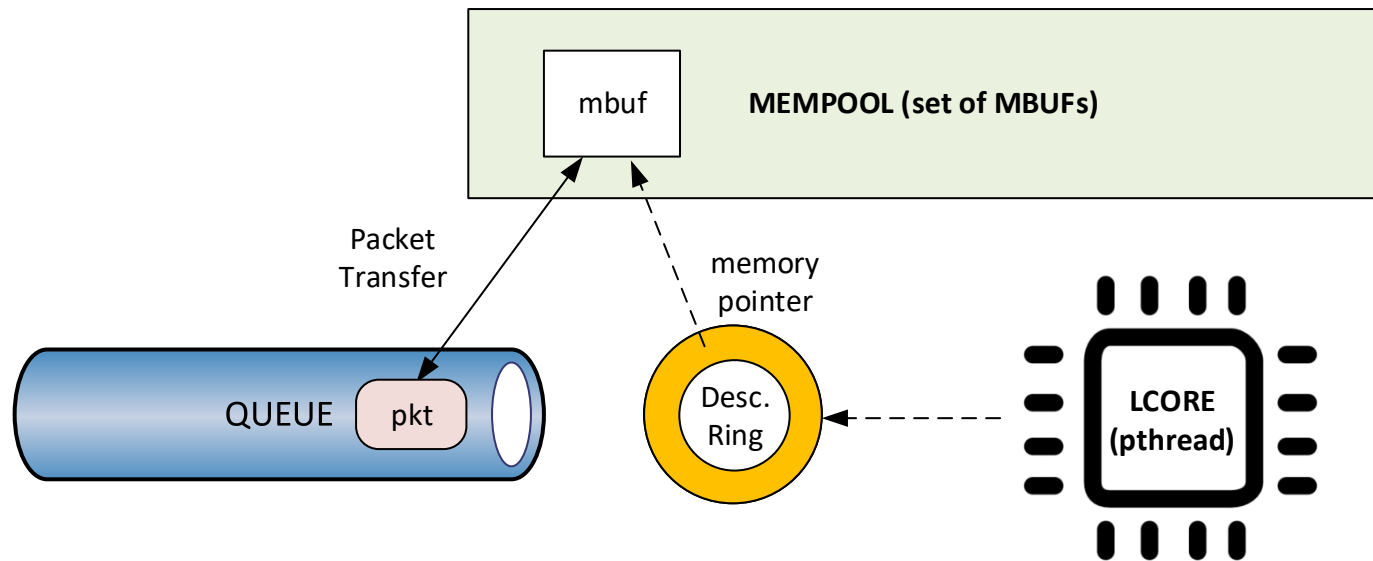
Kernel Space

kvm.ko

VirtIO details (DPDK App)

version: 1.0

date: 25/03/2020



Title: DPDK High Level Components

version: 1.0

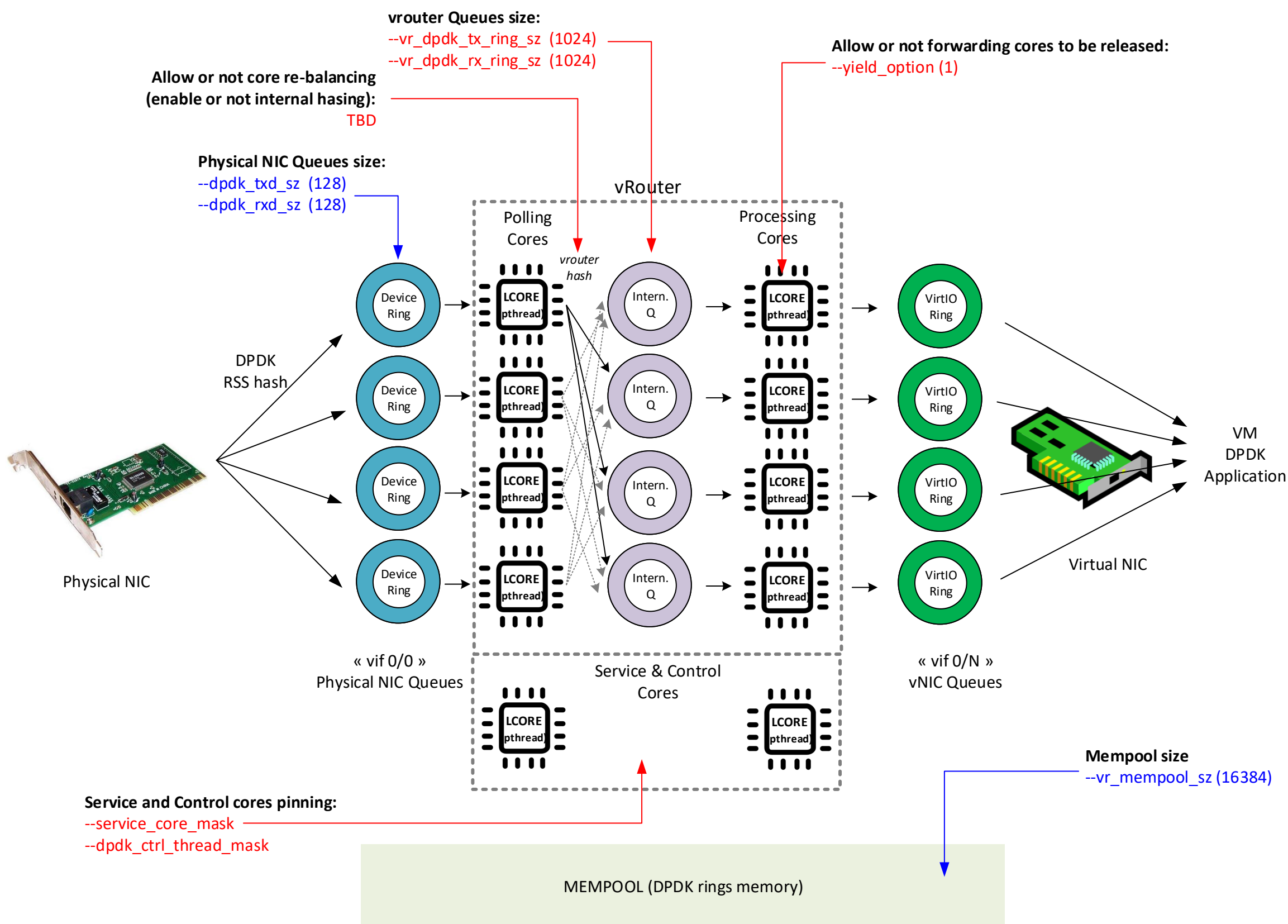
date: 25/03/2020

Allow or not core re-balancing
(enable or not internal hasing):
TBD

vrouter Queues size:
--vr_dpdk_tx_ring_sz (1024)
--vr_dpdk_rx_ring_sz (1024)

Allow or not forwarding cores to be released:
--yield_option (1)

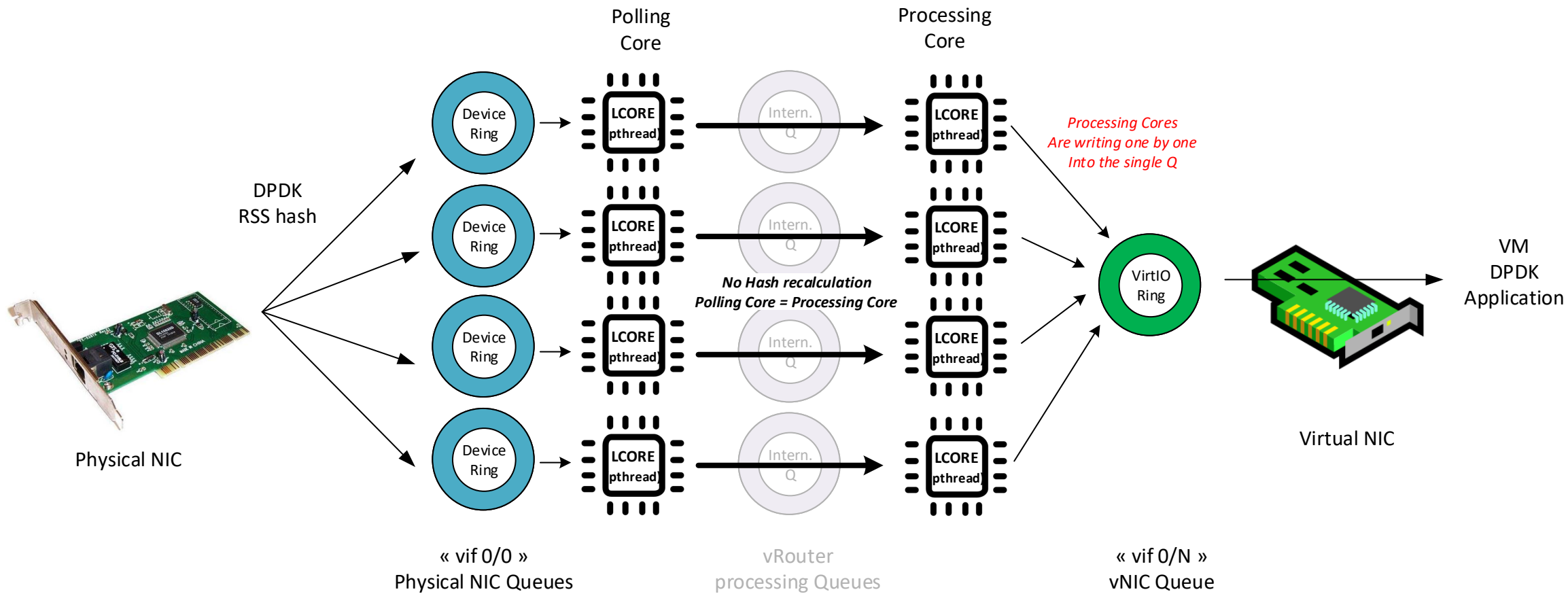
Physical NIC Queues size:
--dpdk_txd_sz (128)
--dpdk_rxd_sz (128)



Title: vRouter Architecture

version: 1.0

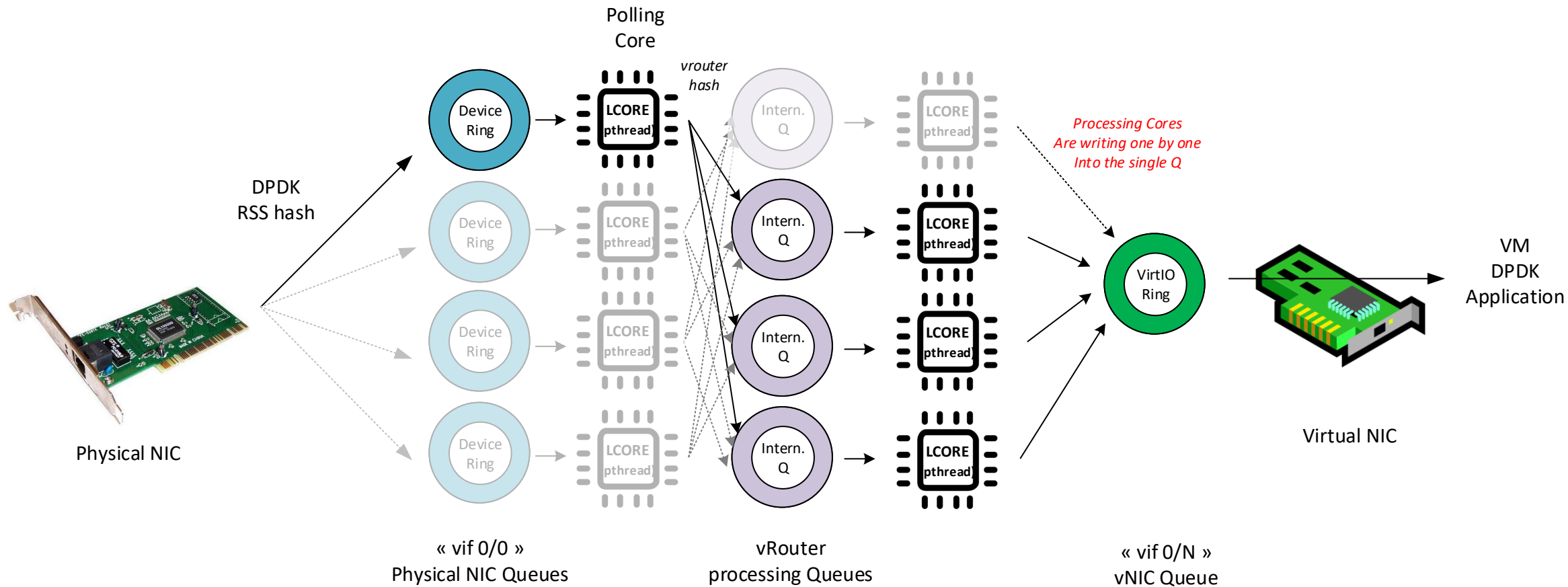
date: 25/03/2020



Title: UDP to SingleQ

version: 1.0

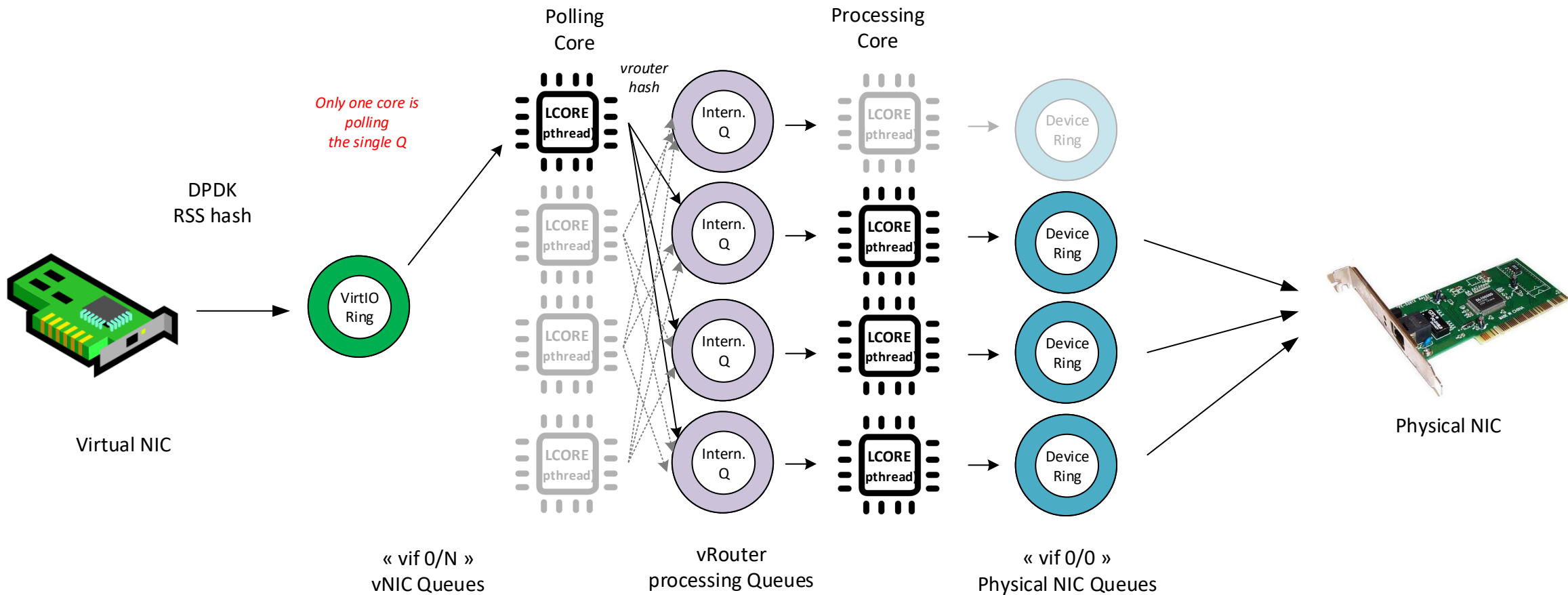
date: 25/03/2020



Title: GRE to SingleQ

version: 1.0

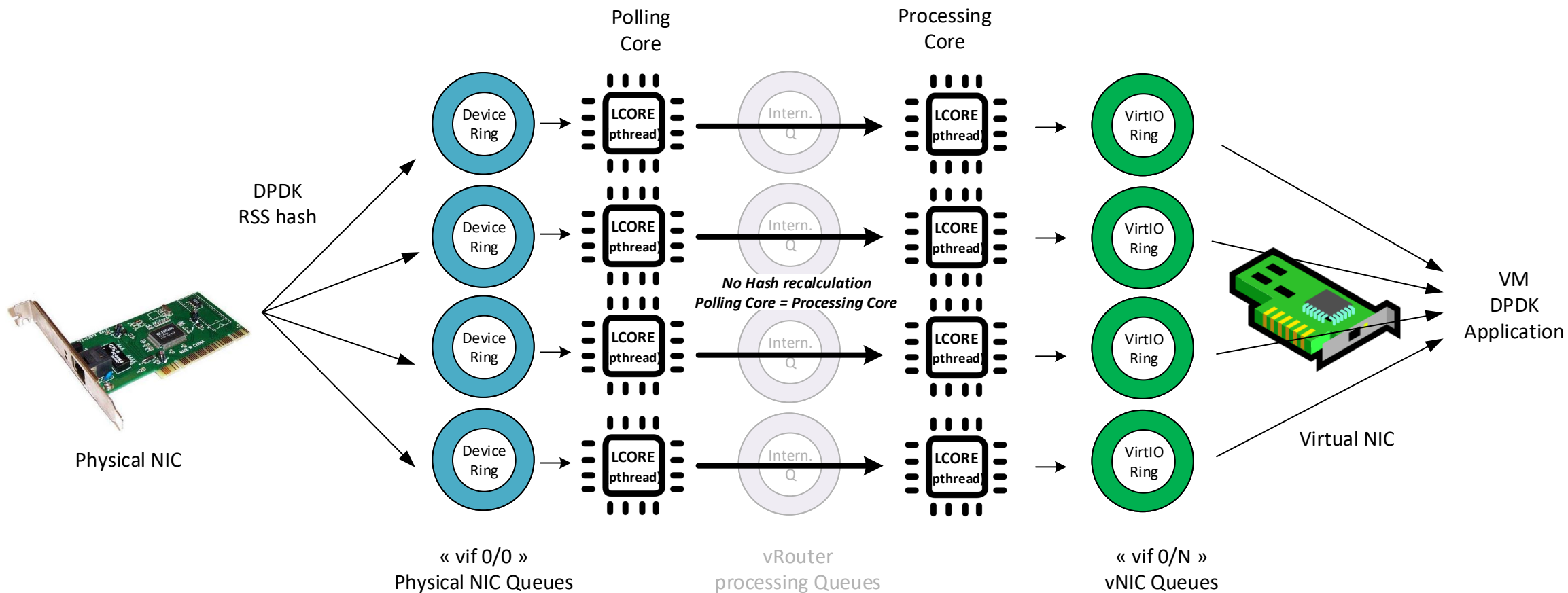
date: 25/03/2020



Title: SingleQ to Underlay

version: 1.0

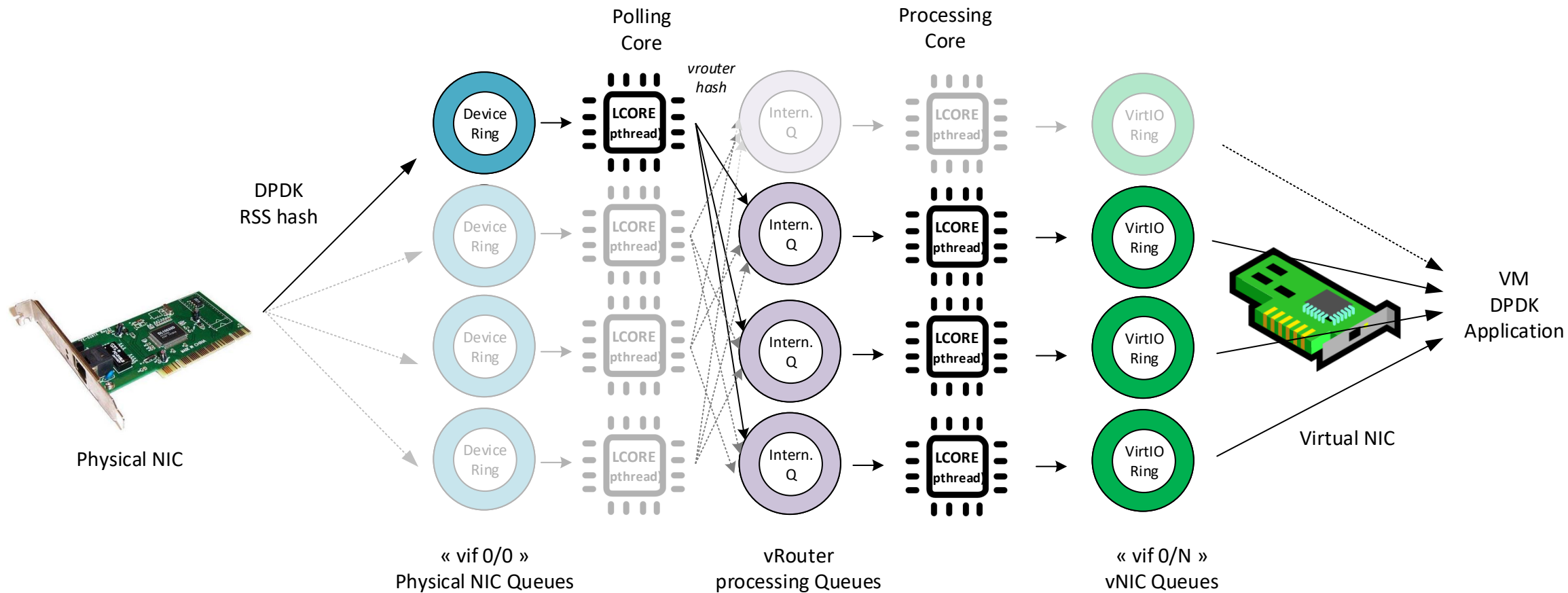
date: 25/03/2020



Title: UDP to MultiQ

version: 1.0

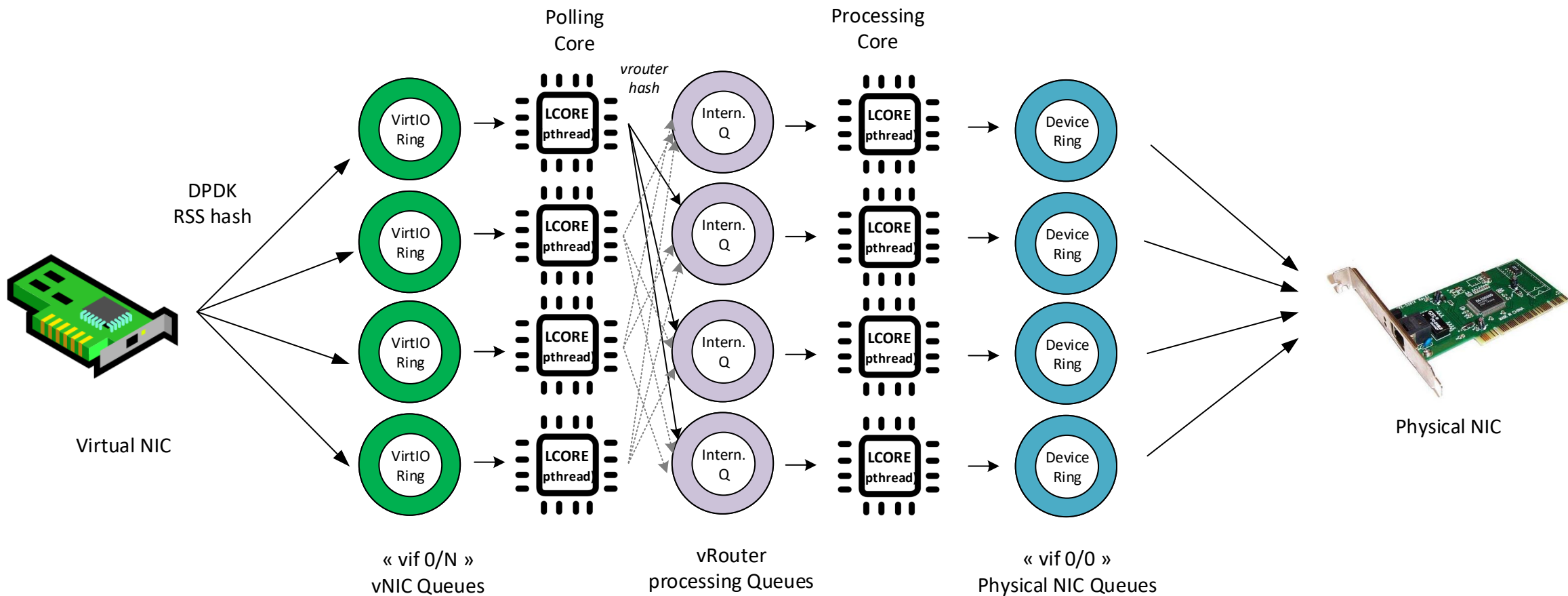
date: 25/03/2020



Title: GRE to MultiQ

version: 1.0

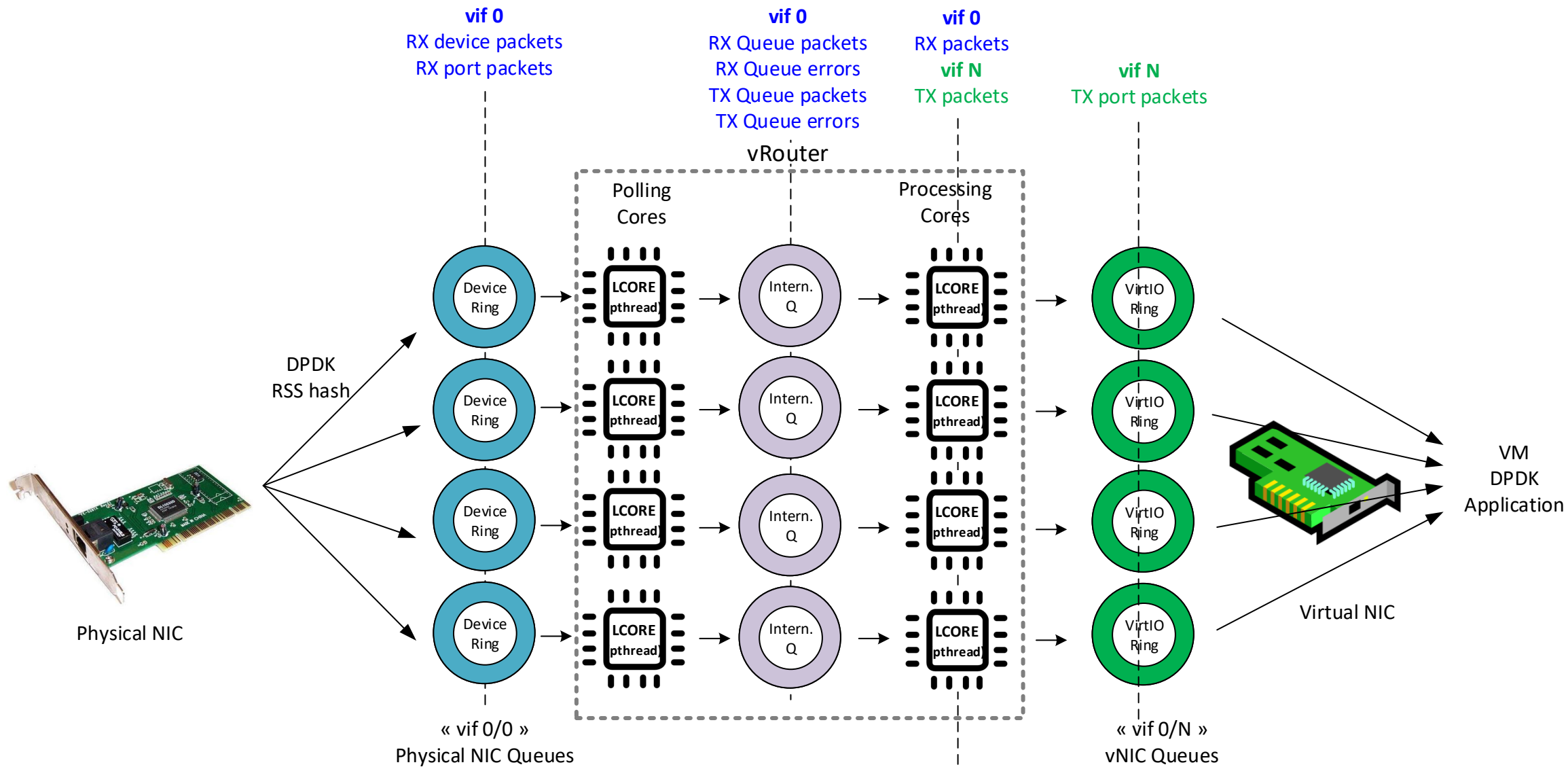
date: 25/03/2020



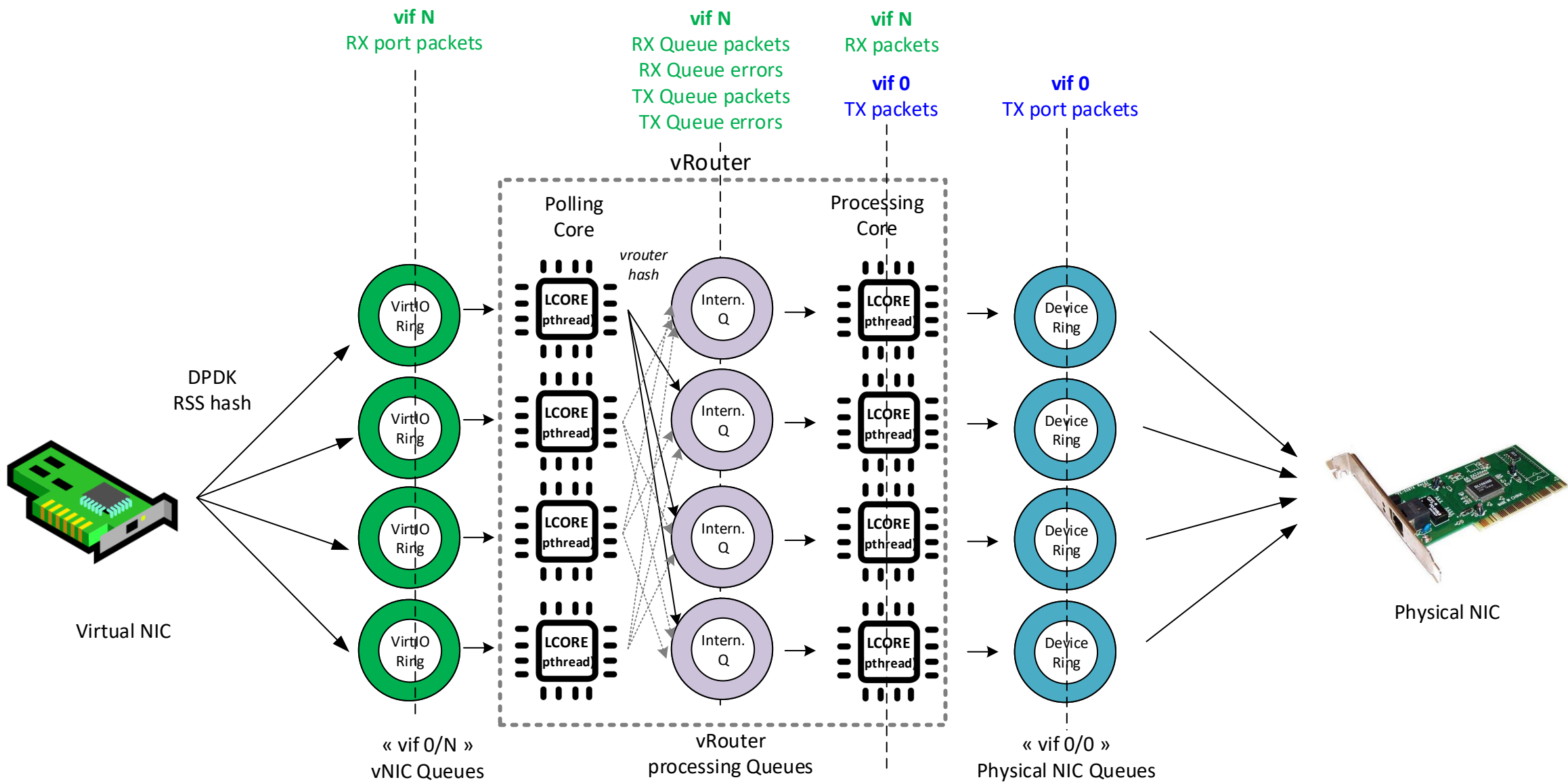
Title: MultiQ to Underlay

version: 1.0

date: 25/03/2020



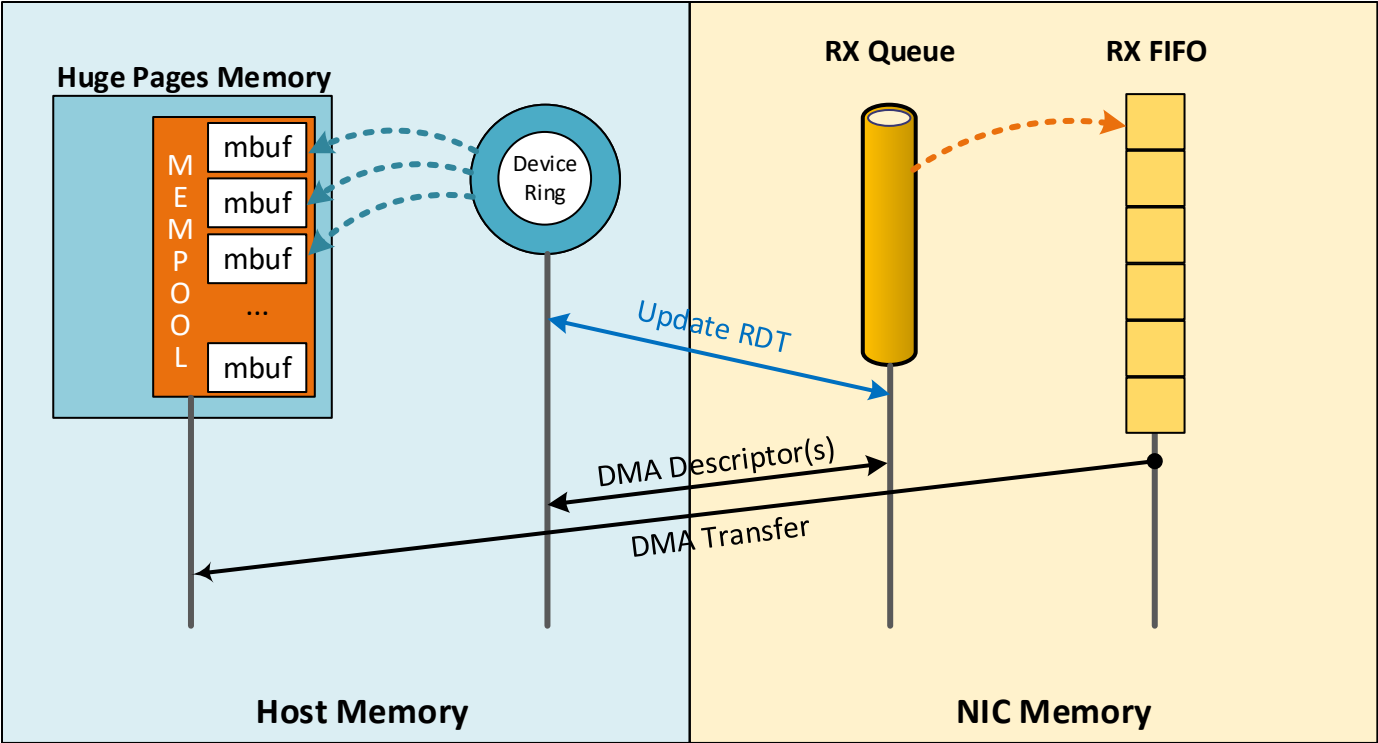
Title: vif counters (phys to virt)	
version: 1.0	date: 25/03/2020



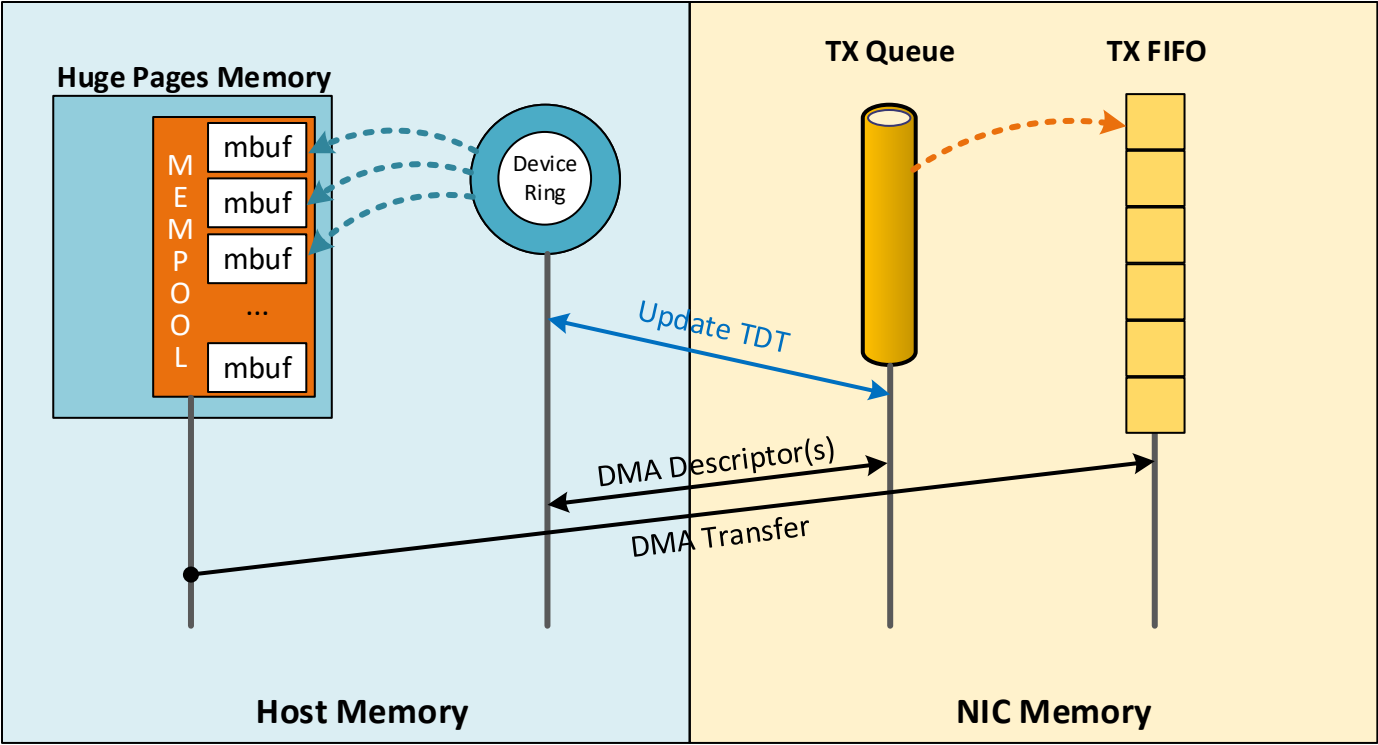
Title: vif counters (virt to phys)

version: 1.0

date: 25/03/2020

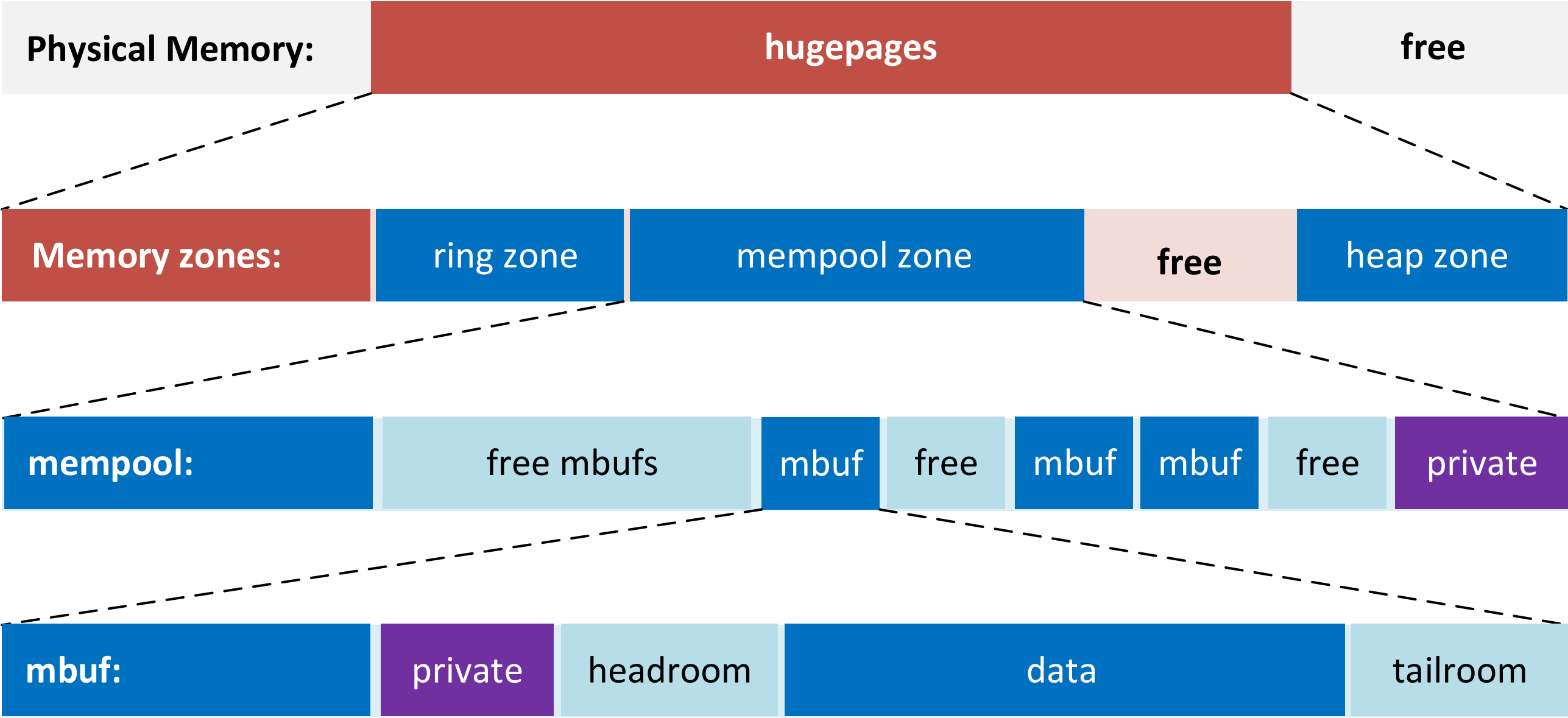


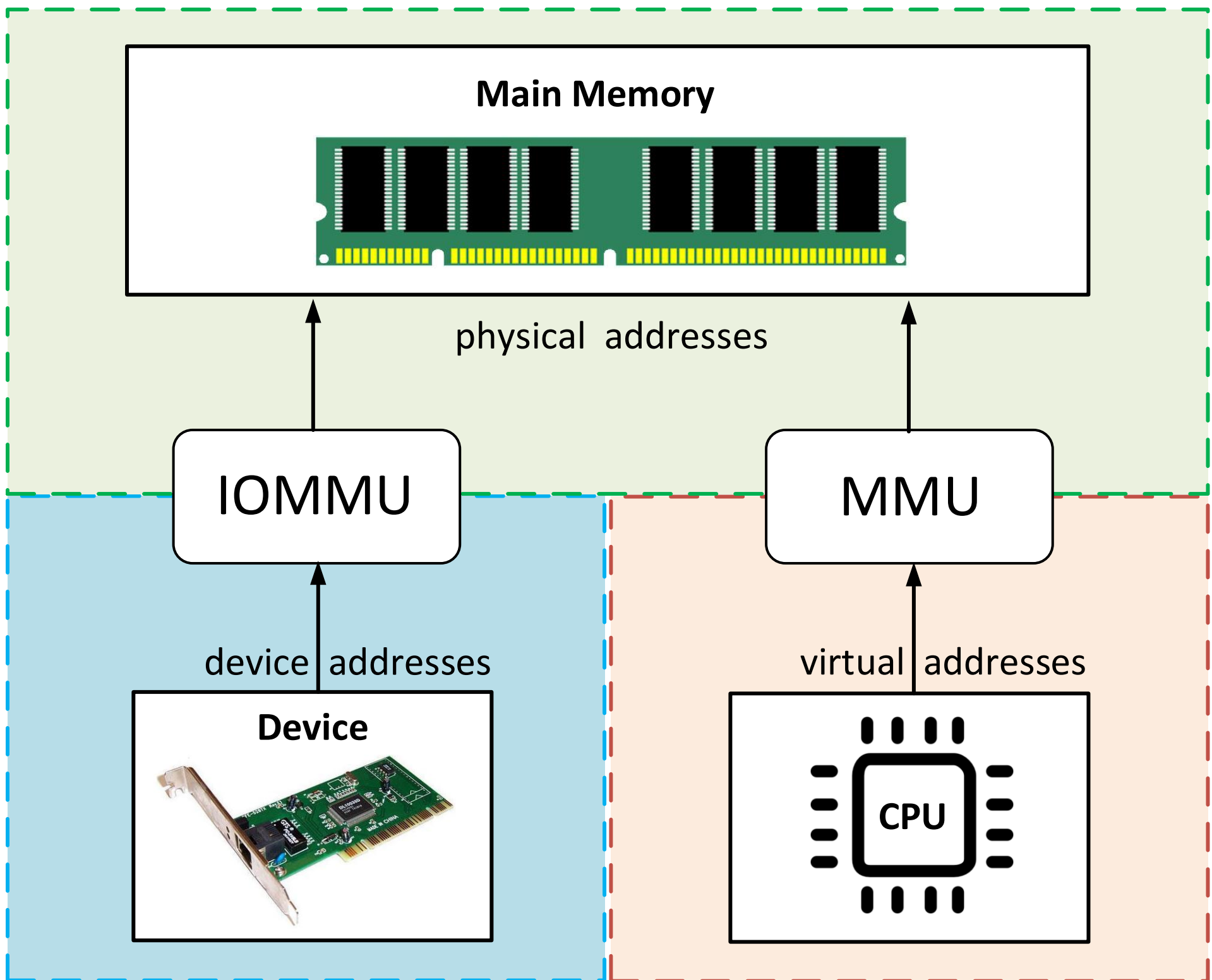
Title: pNIC incoming packet	
version: 1.0	date: 25/03/2020



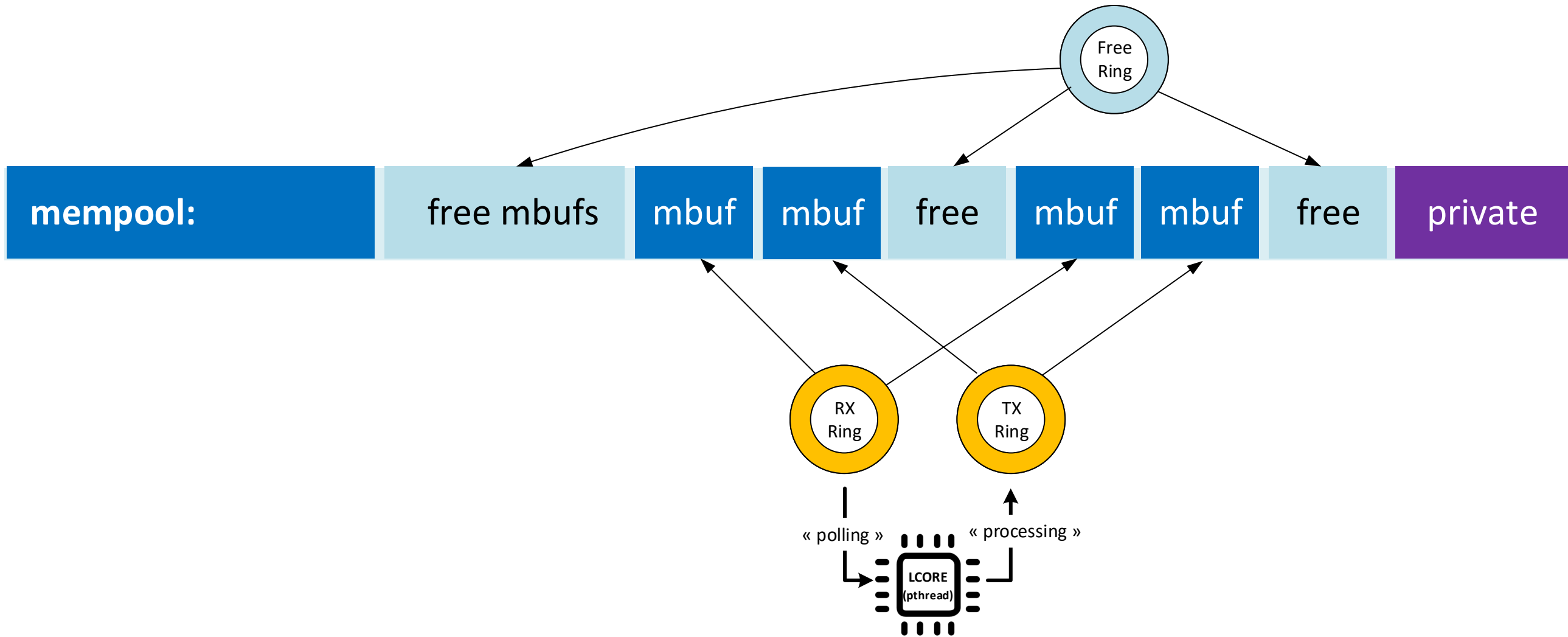
RDT: Transmit Descriptor Tail

Title: pNIC outgoing packet	
version: 1.0	date: 25/03/2020

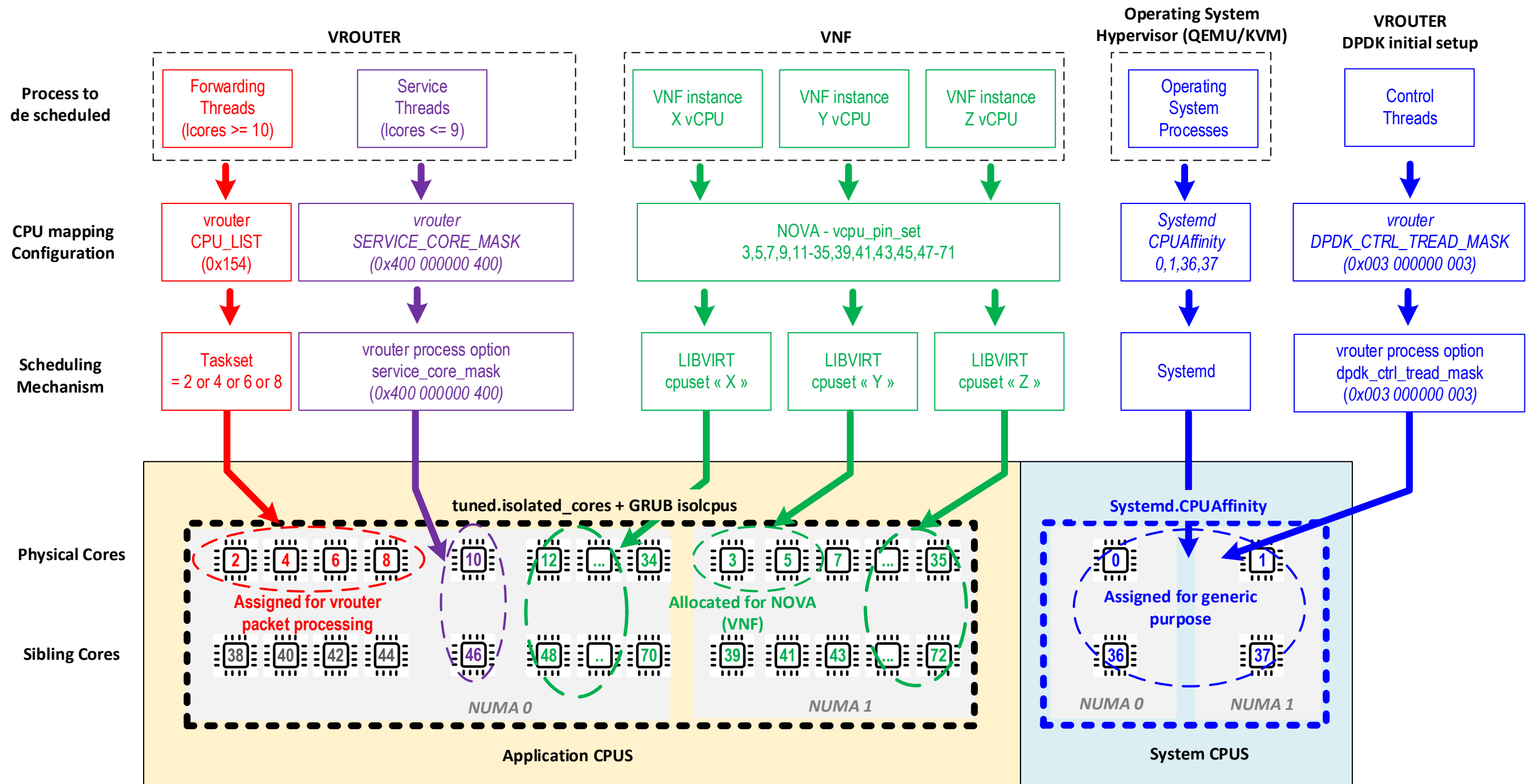


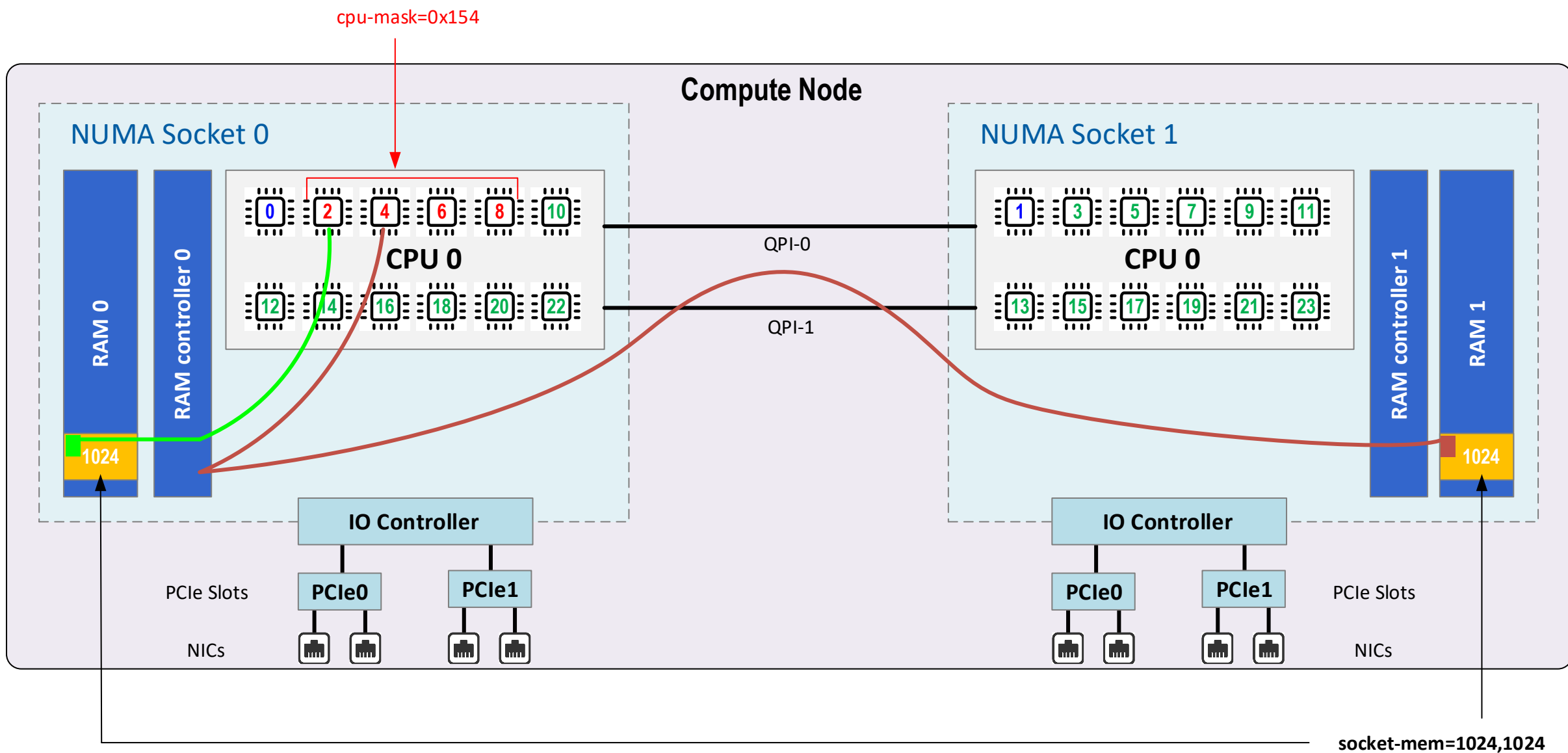


Memory Addressing	
version: 1.0	date: 27/03/2020



Packets Processing and Memory	
version: 1.0	date: 25/03/2020





vRouter DPDK PMD allocated CPUs

VM allocated CPUs

Host OS allocated CPUs



vRouter memory access shortest path

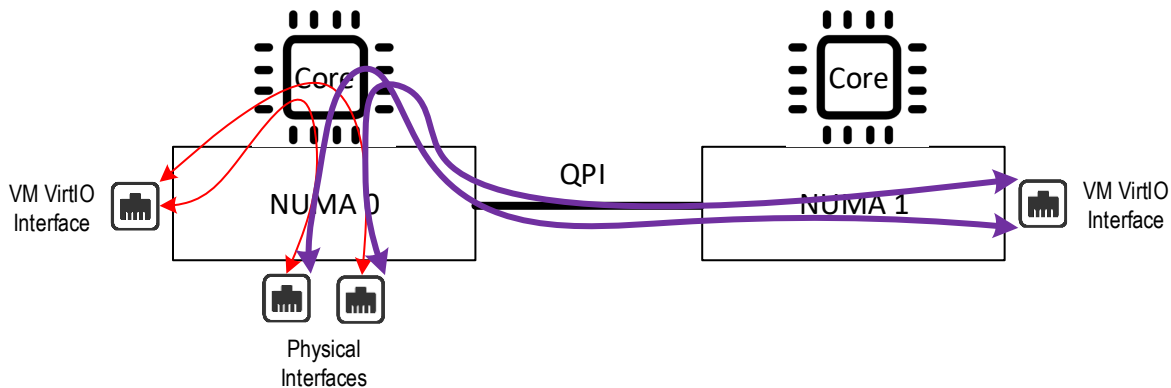
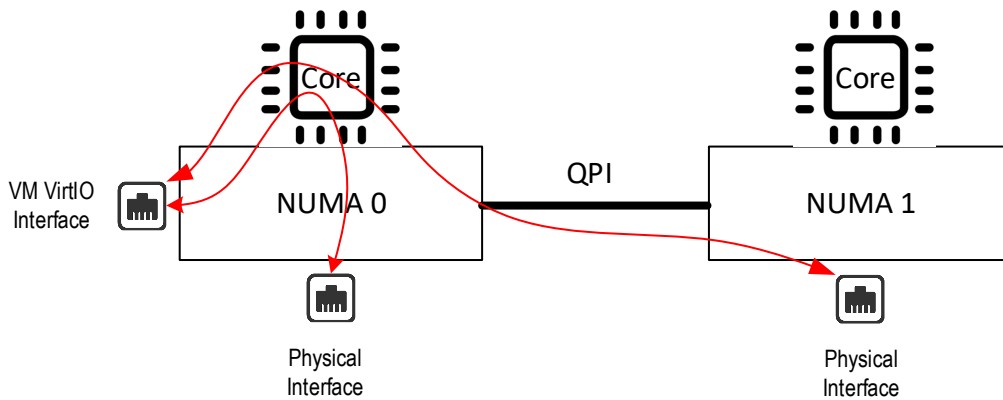


vRouter memory access longer path

Title: vRouter Memory Access and NUMA

version: 1.0

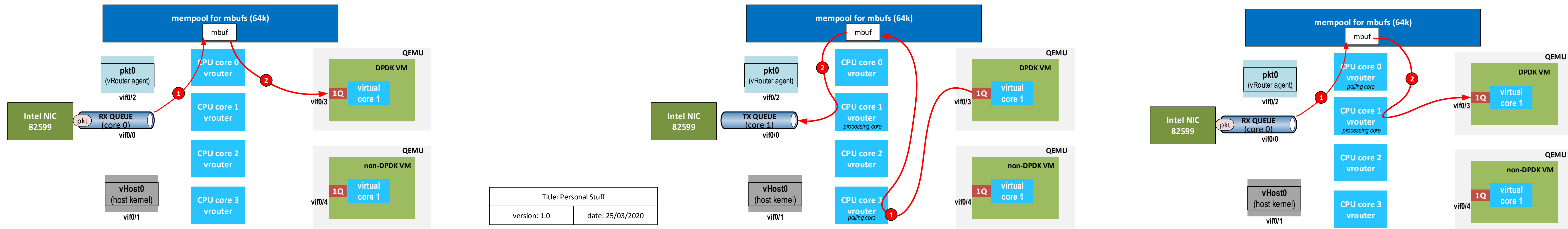
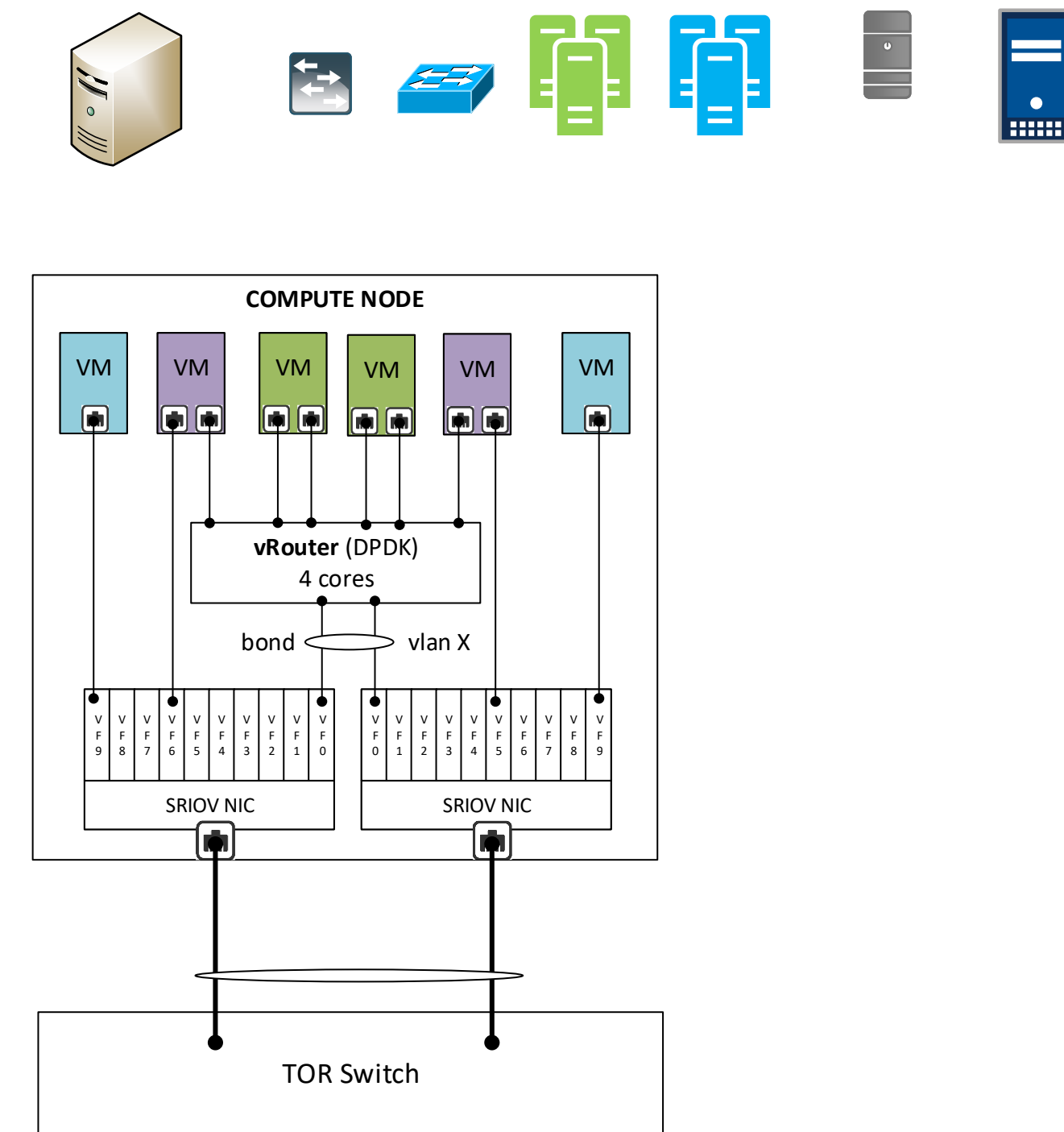
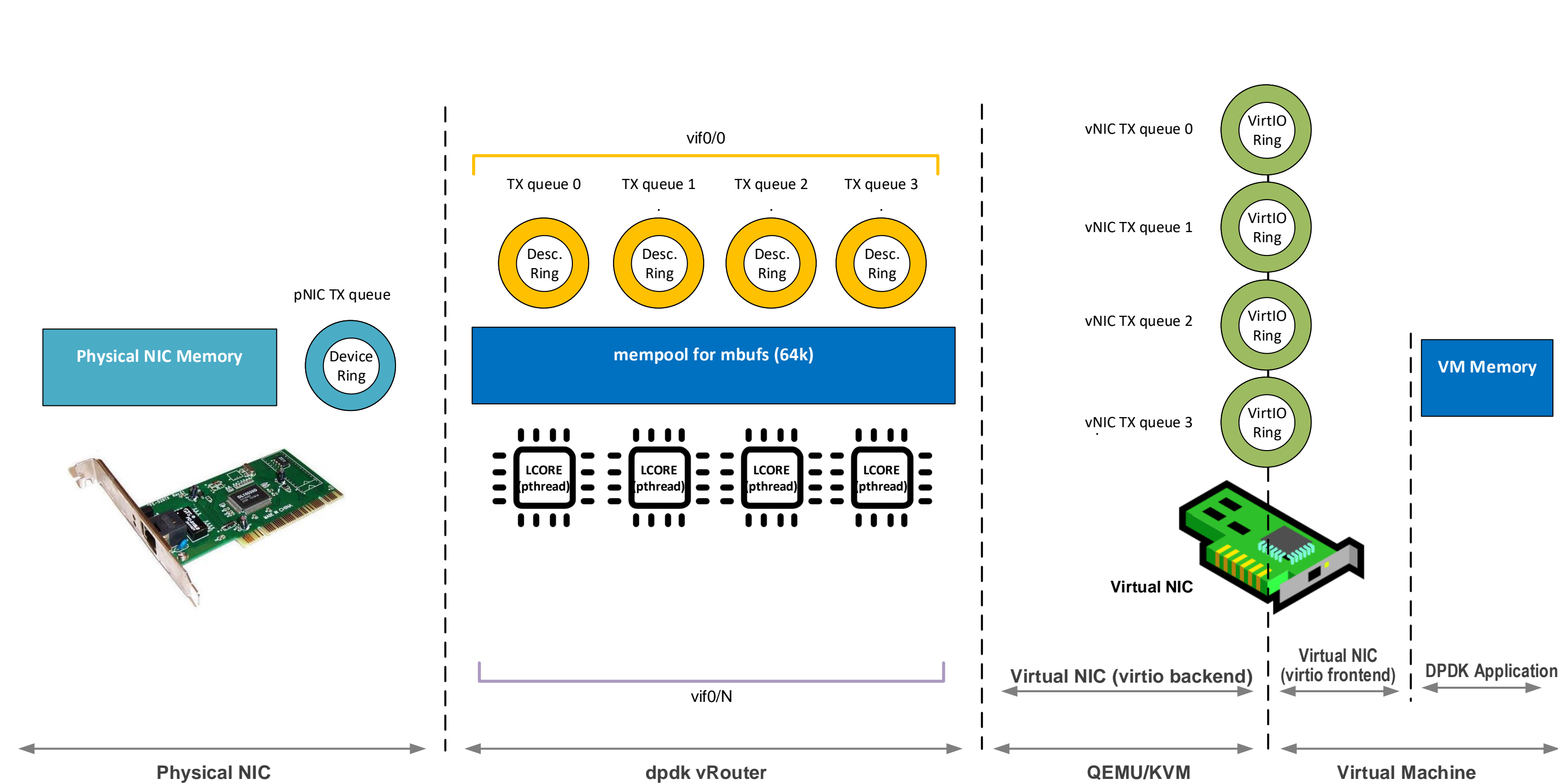
date: 27/03/2020



Title: NUMA concern

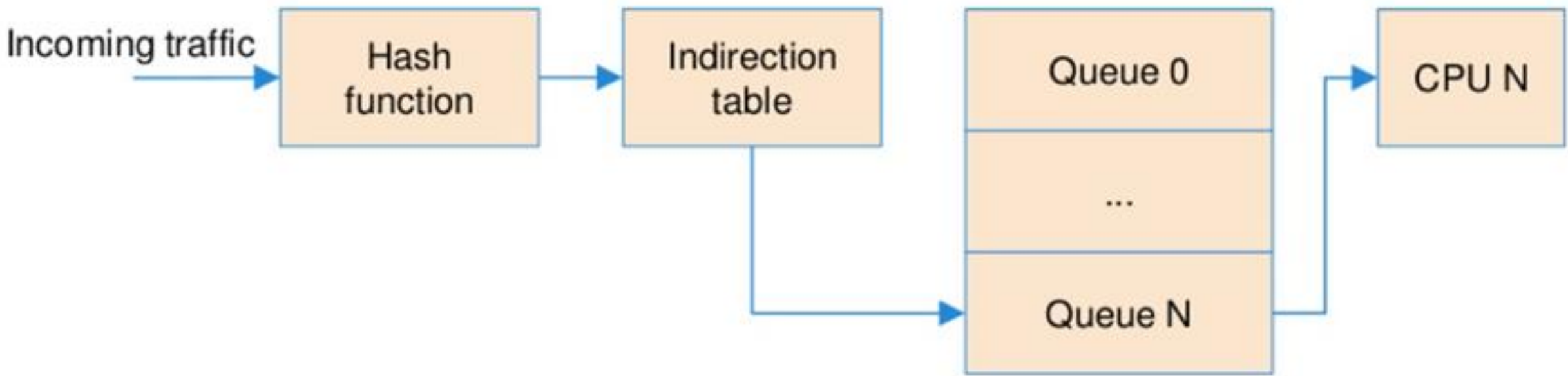
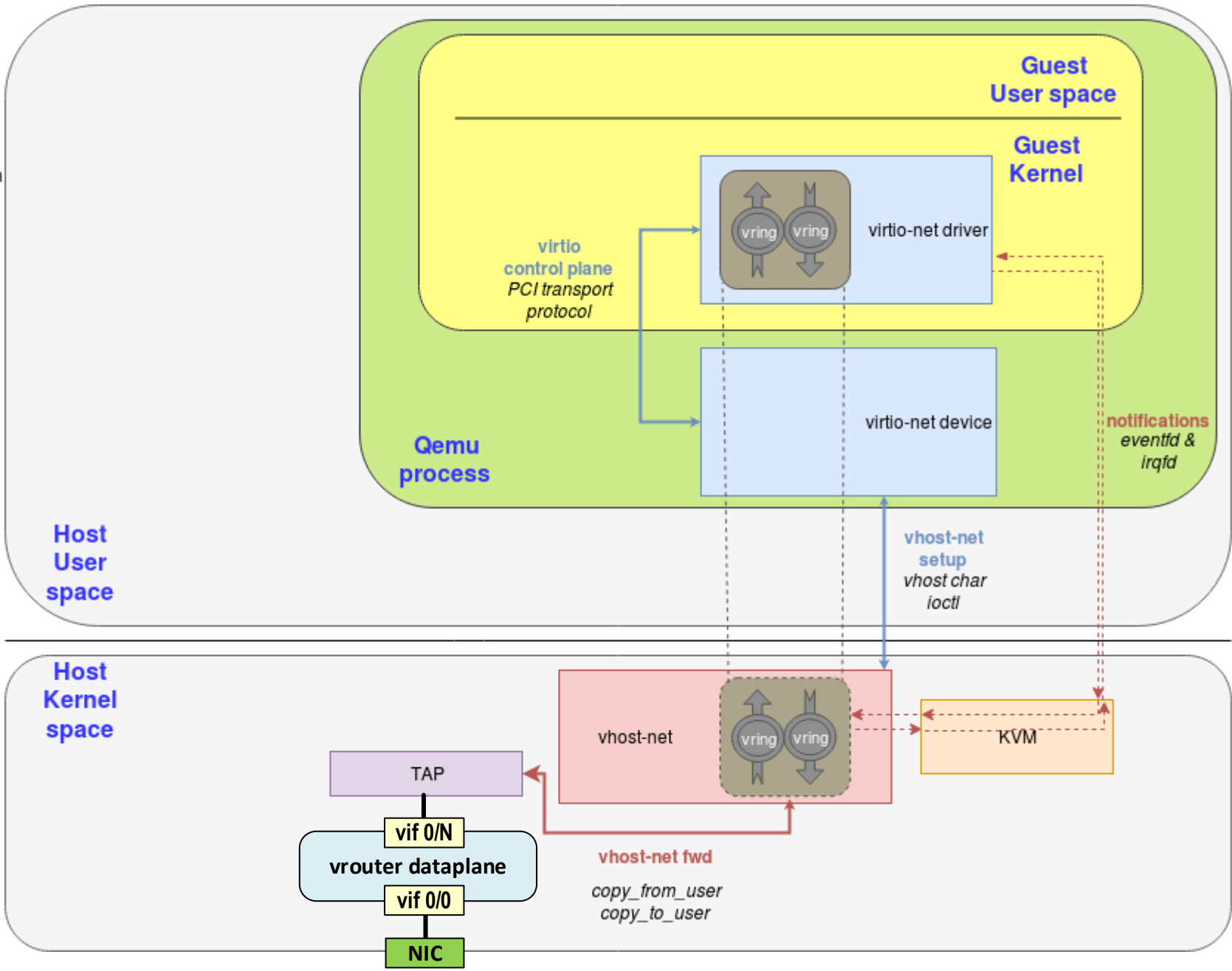
version: 1.0

date: 25/03/2020



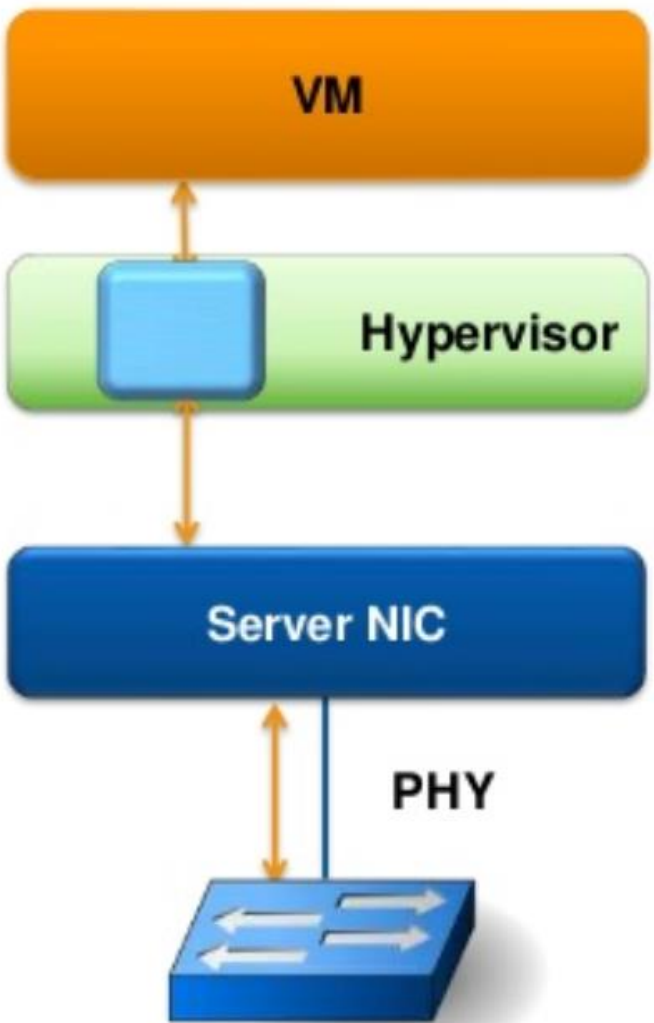
Title: Personal Stuff	
version: 1.0	date: 25/03/2020

Symbol	Meaning
	virtio data path element
	non-virtio data path element
	virtio control path element
	port
	virtio shared memory
	data path
	interrupts / notifications
	control path

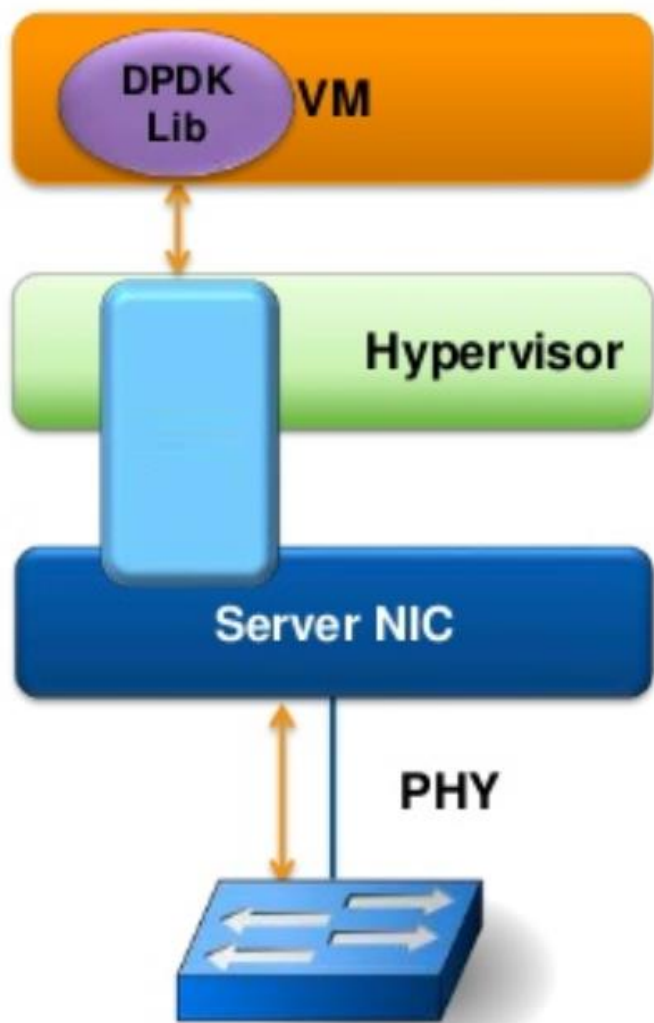


Title: Stuff (no source)	
version: 1.0	date: 25/03/2020

KERNEL MODE



DPDK MODE



SRIOV (vrouter bypassed)

