- What is a Raw Ethernet Queue Pair
- Packet Capture
- Direct User space packet
- Offloading Multicast streams to user space
WHAT IS A RAW ETHERNET QUEUE PAIR

- A queue pair like available for normal Infiniband traffic.
  - UD only

- Ability to send and receive Raw Ethernet Frames
  - No IP stack. Just the raw hardware and the acceleration functionality provided by the Ethernet portion of the NIC.
  - No software overhead through kernel processing

- Ethernet does not support connections in hardware like Infiniband
  - Hardware support for connections missing
  - User space code must provide additional logic to compensate
RAW QPS FOR PACKET CAPTURE
Queue pair is opened for receive only.

- Interface in promiscuous mode
- Ability to audit all packets on a port
- Timestamping
- FCS checksum

- Low overhead reception in user space. Ability to capture at line rate for 10G and 1G.
- Ability to inspect packets that violate checksums and/or other requirements that are usually rejected by the network stack or hardware.
- Can be the basis for network diagnostic functionality.
SENDING RAW FRAMES
CUSTOM ETHERNET FRAMES

- Ability to format a frame in user space
- Allows specialized frames with unusual fields set.
- Helps debugging network devices.
- Full control…
- Finally the OS is no longer in the way.
MULTI CAST KERNEL BYPASS
- Regular network stack of Linux does its job (and handles the traffic with its regular slowness)
- Select multicast groups are forwarded to user space bypassing kernel processing.
- Redirection of select multicast groups to queue pairs created by the RDMA application in user space.
THANK YOU

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