Event Adapters - Interfacing Devices to Eventdev

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Outline

- Event Adapters
- Ethernet Rx Event Adapter
- Crypto Adapter
- Timer Adapter
- Dynamic Load Balancing provides Efficient Core Utilization
- “Ordered” scheduling takes care of preserving order across cores
- “Atomic” scheduling avoids need for SW synchronization
Event Adapter Motivation

- Configuration of HW Dependent Device to Eventdev Data Flows
- SW based data flow can be common code

- Event Adapters
  - Common set of APIs
    - Eventdev PMD callbacks for HW path configuration
  - Implementation of SW based data flow
Event Adapter Types

- Ethernet Rx
- Crypto
- Timer
- Event Adapter instance associated with Event Device
- Eth Rx & Crypto Adapter Instance can handle multiple Ethdev/Cryptodevs (across HW & SW transfer mechanisms)
Service Cores allow DPDK component to run on lcores with minimal application changes.

- Event adapter uses a Service Core for SW based transfers.
- Application configures Service Core mapping.
Ethernet Rx Adapter Usage

- Configure Ethdev, Eventdev
- Create Adapter Instance
- Add Rx Queues and Event Info to Adapter
- Configure Service Core Mapping (if required)
- Start Adapter
Event queue mapping is per Crypto QP

SW implementation also supports per-mbuf Event Information
Crypto Adapter (RFC) Enqueue Mode

- Better performance for “Closed System” Event Devs
- Doesn’t have the risk of dropping an event

- RTE_OP_FORWARD v/s RTE_OP_NEW
Timer Adapter (RFC)

- Configure Eventdev
- Create Adapter Instance
- Configure Service Core (if SW adapter)
- Start Adapter
- Arm Timers
Event Adapter Status

- Ethernet Rx Adapter available in 17.11 (special thanks to Jerin Jacob for his contributions)
  - Includes Cavium & NXP eventdev PMD support
- Timer Adapter, working on RFC feedback
- Crypto Adapter RFC posted
Questions?

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