

This Quarter's Highlights Include:

[DPDK Summit Asia 2016](#)
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DPDK Summit, Asia 2016



Our first DPDK event of the year, DPDK Summit Asia 2016, will be held in Shanghai on May 18th. The event will have a strong technical focus and is targeted at data plane developers in the PRC and Asia-Pacific regions. The agenda will be published shortly and will include presentations on the use of DPDK for communication and networking workloads, as well as software optimization techniques. Presentations will be delivered mostly in Mandarin, but real-time translation into English will be available.

Registration for the Asia event is now open via the [DPDK Summit website](#).

Planning is in progress for other DPDK events later in the year. Details haven't been finalized yet, but we're currently looking at the following:

- DPDK Summit USA, probably in San Jose on August 10th/11th.
- Userspace 2016 (open source community event targeted at software developers), in Dublin, probably on October 20th/21st.

Further details will follow when these plans have been finalized.

Useful Links

[Open source website](#)
[Mailing lists](#)
[Documentation](#)
[Roadmap](#)
[Latest stable release \(2.2\)](#)
[DPDK Summit events](#)

Upcoming Events

DPDK Summit Asia 2016 will take place in Shanghai on May 18th. Registration is now open via the [DPDK Summit website](#).

Planning is in progress for this year's US DPDK Summit and for the Userspace event in Dublin, and details will be announced soon.

[DPDK 16.04 New Features](#) webinar, April 14th.

DPDK Webinars

[Accelerate Your Cloud Enterprise with Data Plane Development Kit \(DPDK\)](#)

[DPDK 101: Introduction to Data Plane Development Kit](#)

[Data Plane Development Kit - Sample Applications and New Features Deep Dive](#)

[DPDK 2.2 New Features](#)

[Open vSwitch with DPDK in OVS 2.4.0](#)

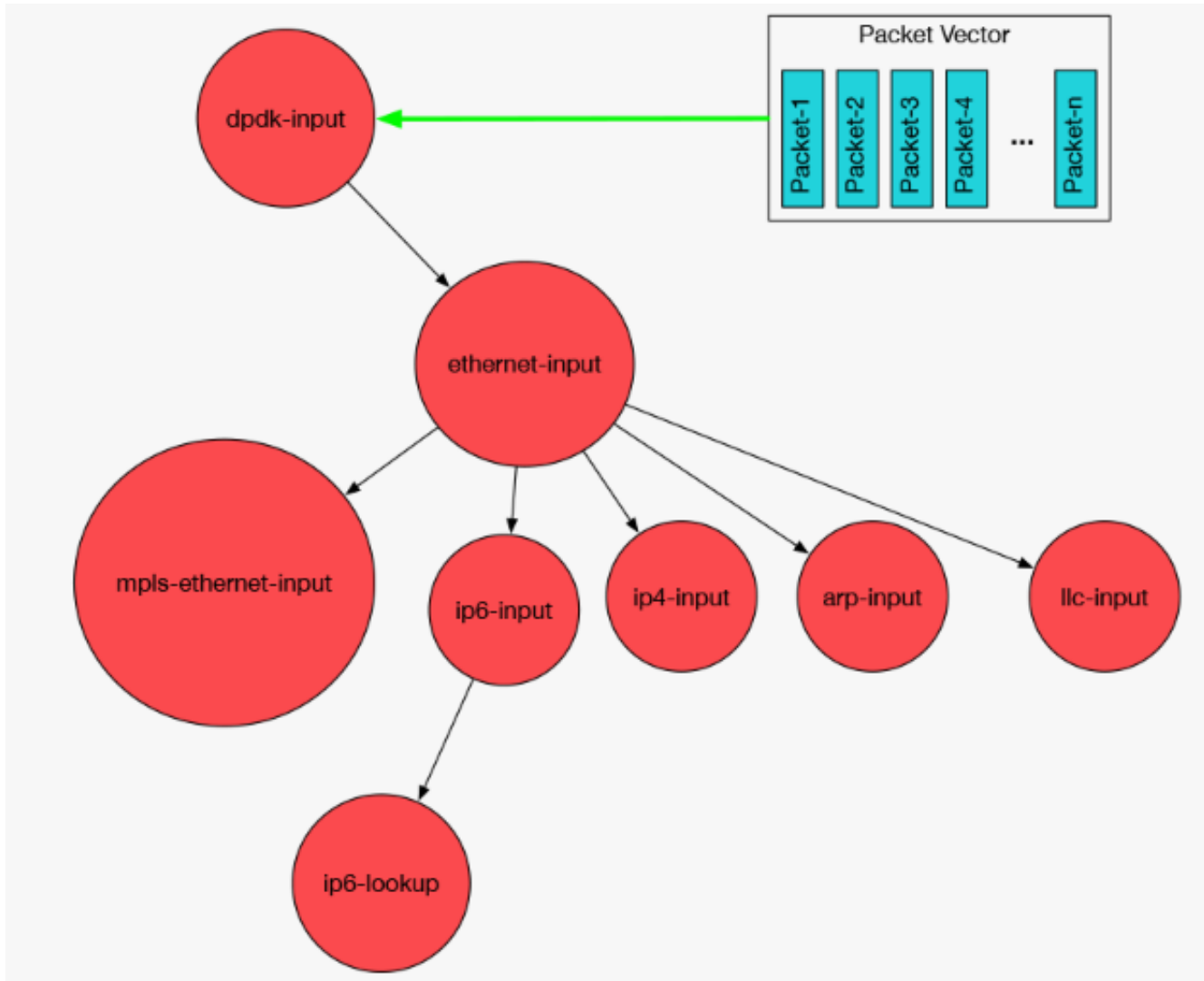
[Enabling the Storage Transformation with SPDK](#)

[Intel Software Defined Infrastructure: Tips, Tricks and Tools for Network Design and Optimization](#)

Creation of Fast Data Open Source Project

On February 11th, the Linux Foundation announced the creation of a new open source project called [Fast Data](#). Built on DPDK, FD.io is a collection of sub-projects which provide a modular, extensible user-space I/O framework that supports rapid development of high-throughput, low-latency and resource-efficient I/O services.

The main component of FD.io is known as Vector Packet Processing (VPP). VPP takes a vector of input packets from the network I/O layer (DPDK), and then processes those through a series of graph nodes, as shown in the example below.



These graph nodes can be configured to build a variety of packet processing applications, including a vRouter/vSwitch. See the [FD.io Technology page](#) for more details.

Release 16.07 Roadmap

The [Intel roadmap for the 16.07 release](#), which is targeted for release in July, was recently published on dpdk.org. The main features that are targeted for this release are:

- **Virtualization Enhancements:** Vhost/Virtio Performance Loopback Utility, Virtio Code Refactoring for Rx/TX Split, Virtio Descriptor Index Update.
- **Virtio in Containers:** Support will be added for virtio in containers (see <http://dpdk.org/ml/archives/dev/2016-February/032786.html>). Multi-queue support will also be added.
- **Intel® Ethernet Controller XL710 Family (I40E) Enhancements:** Support for VXLAN-GPE with NSH, Floating VEB
- **Cryptodev Enhancements:** Software Implementation of the KASUMI Algorithm, Bit-Level Support for SNOW 3G
- **NFV Enhancements:** Automatic VF Reset From PF (i40e/ixgbe), XStats Enhancements, Keep-Alive Enhancements, Live Migration for SRIOV
- **IPsec Sample App Enhancements:** Support for IPv6 and Transport Mode.

- **Packet Capture Framework:** In 16.04, there was lots of discussion on requirements for tcpdump support in DPDK (see <http://dpdk.org/ml/archives/dev/2016-March/035592.html>). For 16.07, we plan to submit a packet capture framework which will support hooks for filtering capabilities such as BPF.
- **External Mempool Manager:** This was originally submitted for 16.04 but had to be deferred due to ABI changes. See <http://dpdk.org/ml/archives/dev/2016-March/035107.html> for details.

A DPDK 16.04 New Features webinar is scheduled for April 14th.

Release 16.04 Progress

Release 16.04 remains on schedule for delivery in April. A [third Release Candidate](#) has been built and is currently undergoing testing.

The major features for the release are listed on the public roadmap page. These include:

- **Cryptodev Enhancements:** Support for hardware and software implementations of the SNOW 3G algorithm, addition of an Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI) GCM PMD to support AES-128 GCM operations, addition of a NULL crypto PMD to facilitate testing, discovery mechanism to determine capabilities of crypto PMDs.
- **IPsec Sample Application:** A sample application has been added which shows how DPDK and the new cryptodev API can be used to implement an IPsec Security Gateway.
- **Live Migration for Vhost-User:** Supports live migration of VMs using vhost-user.
- **Virtio/Vhost Enhancements:** Virtio 1.0 support, vhost software TSO, vhost/virtio performance tuning.
- **Container Enhancements:** Hugetlbfs mount point size, cgroup resource awareness, enable short-lived DPDK applications.
- **Intel® Ethernet Controller XL710 Family (I40E) Enhancements:** Flow Director filtering based on TOS, Protocol and TTL, Ethertype configuration for QinQ support, VEB switching, IPGRE support, set VF MAC address, enable PCIe extended tag using DPDK interfaces, notify VF of PF reset, Virtual Machine Device Queues (VMDQ) DCB mode.
- **Packet Framework (Edge Router Use Case):** Support for load balancing within a pipeline, CPU utilization measurements within a pipeline, improvements for the functional pipelines, tables and ports, performance tuning.
- **Intel® Ethernet Multi-host Controller FM10000 Family (FM10K) Enhancements:** FTAG-based forwarding, interrupt mode, performance tuning.
- **Cache Allocation Technology (CAT) Sample Application:** A sample application has been created which shows how Intel's Cache Allocation Technology (CAT) can be used with DPDK.
- **Increase Next Hops for LPM (IPv4):** The number of next hops for IPv4 LPM was previously limited to 256. This will be extended to 24 bits to allow a greater number of next hops.

This is also the first release to use the new Ubuntu-based numbering scheme.

DPDK Technical Board Established

Following extensive discussions amongst the DPDK open source community, a DPDK Technical Board has been established to provide technical guidance and oversight for the project. Details of the scope and purpose of the board are available on the [dpdk.org website](#).

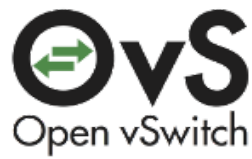
Members of the board are: Bruce Richardson, Jerin Jacob, Konstantin Ananyev, Olivier Matz, Panu Matilainen, Stephen Hemminger, Thomas Monjalon.

Ecosystem Updates



In their press release announcing the availability of RHEL 7.2, "[Red Hat Drives Networking, Linux Container Innovation in Latest Version of Red Hat Enterprise Linux 7](#)", Red Hat highlighted the inclusion of DPDK, and the added flexibility provided by the "Bifurcated Driver" approach which allows traffic to be split between DPDK applications and the Linux kernel in a more efficient way:

"Inclusion of the Data Plane Development Kit (DPDK), which makes it possible to rapidly develop low-latency and high throughput custom applications capable of direct packet processing in user space for NFV and other use cases... The introduction of a new bifurcated driver allows for both types of applications (DPDK-enabled and traditional-network enabled) to be hosted on the same system thus consolidating physical hardware."



[Open vSwitch 2.5](#) was released recently and includes several DPDK-related enhancements, including:

- DPDK release 2.2 support
- vHost Multi-Queue support: Increases bandwidth for the vHost-User path to a guest, enabling better performance scaling
- Extended DPDK vHost statistics

* Other names and brands may be claimed as the property of others.

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