DPDK Community Update

Jim St. Leger
Software Product Line Manager
Intel Corporation
DPDK Open Source Project

Packet I/O acceleration on Intel Arch, ARM & Power8

Number of Commits: >4,400
Number of Contributors: ~250
Lines of Code: 1.6M
Combined Person Years: 465
Community Investment: $25.6M

Source: BlackDuck’s OpenHub.net
A Truly Open Community

CPUs
- Intel
- IBM
- POWER 8

TILE-Gx

ARM v7/v8

DPDK Early

DPDK 2.0

DPDK 2.1

DPDK 2.2

DPDK 16.04

DPDK 16.07

NICs
- ENIC
- CISCO
- Intel
- MLX4
- FM10K
- Broadcom
- BNX2X
- NFP-6xxx
- NETRONOME
- ENA
- QLogic
- QEDE (WIP)

- IMc
- MLX5
- szedata2
- liberouter
- Mellanox
Community Growth

http://dpdk.org/browse/dpdk/refs/

~30% from PRC
Active Community Contributors*

* Based on patches submitted for 16.04 release
## Your Path to Community Leadership

<table>
<thead>
<tr>
<th>Name</th>
<th>Company</th>
<th>12 Month Commits</th>
<th>All Time Commits</th>
<th>First Commit</th>
<th>Last Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wenzhuo Lu</td>
<td>intel</td>
<td>163</td>
<td>163</td>
<td>11 months</td>
<td>20 days</td>
</tr>
<tr>
<td>Thomas Monjalon</td>
<td>6wind</td>
<td>156</td>
<td>340</td>
<td>almost 4 years</td>
<td>8 days</td>
</tr>
<tr>
<td>Helin Zhang</td>
<td>intel</td>
<td>117</td>
<td>202</td>
<td>almost 2 years</td>
<td>about 2 months</td>
</tr>
<tr>
<td>Stephen Hemminger</td>
<td>BROCADE</td>
<td>112</td>
<td>209</td>
<td>almost 3 years</td>
<td>28 days</td>
</tr>
<tr>
<td>Jingjing Wu</td>
<td>intel</td>
<td>108</td>
<td>177</td>
<td>almost 2 years</td>
<td>23 days</td>
</tr>
<tr>
<td>Pablo de Lara</td>
<td>intel</td>
<td>101</td>
<td>150</td>
<td>almost 2 years</td>
<td>17 days</td>
</tr>
<tr>
<td>John McNamara</td>
<td>intel</td>
<td>59</td>
<td>74</td>
<td>about 1 year</td>
<td>16 days</td>
</tr>
<tr>
<td>Bernard Iremonger</td>
<td>intel</td>
<td>57</td>
<td>68</td>
<td>over 1 year</td>
<td>about 1 month</td>
</tr>
<tr>
<td>Adrien Mazarguil</td>
<td>6wind</td>
<td>52</td>
<td>67</td>
<td>over 3 years</td>
<td>21 days</td>
</tr>
<tr>
<td>Yuanhan Liu</td>
<td>intel</td>
<td>51</td>
<td>51</td>
<td>8 months</td>
<td>22 days</td>
</tr>
</tbody>
</table>

- **Top Committer**
- **11 Months**
- **Maintainer**
- **8 Months**

Wenzhuo Lu 陆文卓

Yuanhan Liu 刘远汉
DPDK releases use the Ubuntu numbering scheme of YY.MM. Frequency and dates of releases will be fixed from 2017 onwards.
How to contribute

• Producer vs Consumer (Lead or follow)
• Start out small; establish creditability
• Clean code, get maintainer attention
  – Ping if lack of comments
  – Be Patient, Follow up, Revisions
• Complex change requires design discussion
• Many revisions are expected
• Join community calls, IRC, Summits

Please Get Involved in DPDK.org
FAST DATA
Open Source Data Plane
Packet Processing Project

Jim St. Leger
Software Marketing Manager
Intel
@JimStLeger
Open Networking Ecosystem Overview

- Application Layer / App Server
- VM/VIM Management Systems
- Orchestration
- Network Controller
- Operating Systems
- Data Plane Services
  - Packet Processing
  - Network IO
- Hardware
Fast Data Project Objectives

Create a platform that enables Data Plane Services that are:

1. High performant
2. Modular and extensible
3. Open source
4. Interoperable
5. Multivendor

The Fast Data Project (FD.io)
Relentlessly focused on data IO speed and efficiency for more flexible and scalable networks and storage.
Fast Data Basics

Cisco’s Vector Packet Processing (VPP)
## VPP Feature Summary

<table>
<thead>
<tr>
<th>IPv4/IPv6</th>
<th>IPv4</th>
<th>IPv6</th>
<th>L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>14+ MPPS, single core</td>
<td>GRE, MPLS-GRE, NSH-GRE, VXLAN</td>
<td>Neighbor discovery</td>
<td>VLAN Support</td>
</tr>
<tr>
<td>Multimillion entry FIBs</td>
<td>IPSEC</td>
<td>Router Advertisement</td>
<td>Single/ Double tag</td>
</tr>
<tr>
<td>Source RPF</td>
<td>DHCP client/proxy</td>
<td>DHCPv6 Proxy</td>
<td>L2 forwarding with</td>
</tr>
<tr>
<td>Thousands of VRFs</td>
<td></td>
<td>L2TPv3</td>
<td>EFP/BridgeDomain concepts</td>
</tr>
<tr>
<td>Controlled cross-VRF lookups</td>
<td></td>
<td>Segment Routing</td>
<td>VTR – push/pop/Translate</td>
</tr>
<tr>
<td>Multipath – ECMP and Unequal Cost</td>
<td></td>
<td>MAP/LW46 – IPv4aas</td>
<td>(1:1,1:2, 2:1,2:2)</td>
</tr>
<tr>
<td>Multiple million Classifiers – Arbitrary N-tuple</td>
<td></td>
<td>iOAM</td>
<td>Mac Learning – default limit of 50k addresses</td>
</tr>
<tr>
<td>VLAN Support – Single/Double tag</td>
<td></td>
<td></td>
<td>Bridging – Split-horizon group support/EFP Filtering</td>
</tr>
<tr>
<td><strong>Counters for everything</strong></td>
<td></td>
<td></td>
<td>Proxy Arp</td>
</tr>
<tr>
<td>Mandatory Input Checks:</td>
<td></td>
<td></td>
<td>Arp termination</td>
</tr>
<tr>
<td>TTL expiration</td>
<td></td>
<td></td>
<td>IRB – BVI Support with</td>
</tr>
<tr>
<td>header checksum</td>
<td></td>
<td></td>
<td>RouterMac assignment</td>
</tr>
<tr>
<td>L2 length &lt; IP length</td>
<td></td>
<td></td>
<td>Flooding</td>
</tr>
<tr>
<td>ARP resolution/snooping</td>
<td></td>
<td></td>
<td>Input ACLs</td>
</tr>
<tr>
<td>ARP proxy</td>
<td></td>
<td></td>
<td>Interface cross-connect</td>
</tr>
</tbody>
</table>

- **Mandatory Input Checks:**
  - TTL expiration
  - header checksum
  - L2 length < IP length
  - ARP resolution/snooping
  - ARP proxy

- **Counters for everything**

- **MPLS**
  - MPLS-o-Ethernet – Deep label stacks supported

- **IPv6**
  - Neighbor discovery
  - Router Advertisement
  - DHCPv6 Proxy
  - L2TPv3
  - Segment Routing
  - MAP/LW46 – IPv4aas
  - iOAM
FD.io Project Membership

Platinum
- CISCO
- Ericsson
- Intel

Gold
- WIND
- HUAWEI
- Mesosphere

Silver
- Brocade
- Comcast
- Inocybe
- Plumgrid
- Red Hat

FD.io membership status as of 11 Feb 2016
FD.io Projects

- Vector Packet Processing (VPP)
- Continuous System Integration and Testing (CSIT)
- Honeycomb
- NSH-based Service Function Chaining (NSH SFC)
- Overlay Network Engine (ONE)

*Not yet TSC-approved OPNFV project*
FD.io Projects

• Vector Packet Processing (VPP)
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*Not yet TSC-approved OPNFV project*

**OPNFV project contributing**
Call For Action

• Download the code: https://fd.io/community
• Test the code yourself
• Subscribe to the developer lists
• Participate in the discussions
• Contribute to the project
Thank You