DPDK Community Survey Results

John McNamara - Intel
DPDK US Summit - San Jose - 2017
Second DPDK community wide survey

Survey was open from September - October 2017

32 Questions in 4 sections
1. Usage
2. Roadmap and Performance
3. Patch submissions and Support Tools
4. Documentation

190 participants (149 last year)

80% self-identify as Developers
Main issues from last year

- Release support (need for Stable Releases, LTS). 😊 Now in place.
- Documentation - certain aspects. 😊 Improvements.
- Performance bottlenecks seen in certain areas. 😊 Improvements.
- Need for a continuous integration and test environment. 😊 Initial phase in place.
Which of the following best describes your role?

- Consultants
- Researchers
- Academics
- R&D
- CTO

Bar chart showing:
- Software Dev/Eng: Highest percentage
- Architect
- Project Manager
- Product Marketing
- Validation/Test
- Sales Engineer
- Other
Which type of organization are you associated with?

- NIC company
- Semiconductor company
- Silicon company
- Network operator
- Telecoms

![Pie chart showing the distribution of organizations]

- Independent Software vendor (ISV), 28%
- Original Equipment Manufacturer (OEM), 23%
- Cloud Service Provider, 12%
- Professional services, 8%
- Academia, 8%
- System Integrator, 6%
- Other, 14%
DPDK Community Survey

Usage
What types of applications are you building with DPDK

- Network Appliances
- Software Defined Wide Area Network (SD-WAN)
- Customer Premises Equipment (CPE)
- Virtual Customer Premises Equipment (vCPE)
- Radio Access Networks (RAN)
- Cloud Radio Access Networks (CRAN)
- FlexRAN
- Mobile Edge Cloud (MEC)
- Other

Open vSwitch
SR-IOV management
Switches
LTE EPC
Software defined storage cluster
Core
Traffic generation
Telco - Session Border Controller
QoS and DPI
Financial trading
BRAS
All of these categories
What other open source projects do you use with DPDK?

- Click/FastClick
- FD.io/VPP
- Hyperscan
- In house projects
- Libevent
- Libuinet
- OVS plus others
- Open Data Plane
- VFD
- Warp17
Which DPDK version(s) do you use?
How do you plan to use DPDK 16.11 LTS?
Do you use DPDK with Virtualization or Containers?

- Neither, 28%
- Virtualization, 30%
- Containers, 4%
- Both, 38%

Do you use DPDK with SRIOV or Virtio/vHost?

- Neither, 27%
- SRIOV, 13%
- Virtio/vhost, 17%
- Both, 42%
Which parts of DPDK do you use currently?

- PMDs: -5%
- EAL: -1%
- vhost/virtio: 6%
- Cryptodev: 9%
- QoS: 12%
- Packet Framework: 16%
- Classification (Hash, LPM, ACL): 9%
- Packet Distribution/Balancing: 8%
- KNI: 0%
- Multi-Process: 0%
- Eventdev: 0%
### Which PMDs do you use?

<table>
<thead>
<tr>
<th>PMD</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>IXGBE</td>
<td>73%</td>
</tr>
<tr>
<td>I40E</td>
<td>56%</td>
</tr>
<tr>
<td>VIRTIO</td>
<td>49%</td>
</tr>
<tr>
<td>VHOST</td>
<td>35%</td>
</tr>
<tr>
<td>E1000</td>
<td>34%</td>
</tr>
<tr>
<td>PCAP</td>
<td>23%</td>
</tr>
<tr>
<td>MLX5</td>
<td>21%</td>
</tr>
<tr>
<td>VMXNET3</td>
<td>20%</td>
</tr>
<tr>
<td>MLX4</td>
<td>19%</td>
</tr>
<tr>
<td>RING</td>
<td>19%</td>
</tr>
<tr>
<td>KNI</td>
<td>17%</td>
</tr>
<tr>
<td>TAP</td>
<td>15%</td>
</tr>
<tr>
<td>AF_PACKET</td>
<td>14%</td>
</tr>
<tr>
<td>ENIC</td>
<td>9%</td>
</tr>
<tr>
<td>AESNI_GCM</td>
<td>8%</td>
</tr>
<tr>
<td>AESNI_MB</td>
<td>8%</td>
</tr>
<tr>
<td>ENA</td>
<td>8%</td>
</tr>
<tr>
<td>FM10K</td>
<td>8%</td>
</tr>
<tr>
<td>NULL</td>
<td>8%</td>
</tr>
<tr>
<td>QAT</td>
<td>8%</td>
</tr>
<tr>
<td>SCHEDULER</td>
<td>8%</td>
</tr>
<tr>
<td>BONDING</td>
<td>7%</td>
</tr>
<tr>
<td>DPAA2</td>
<td>7%</td>
</tr>
<tr>
<td>OPENSSL</td>
<td>7%</td>
</tr>
<tr>
<td>ARMV8</td>
<td>6%</td>
</tr>
<tr>
<td>BNXT</td>
<td>5%</td>
</tr>
<tr>
<td>DPAA2_SEC</td>
<td>5%</td>
</tr>
<tr>
<td>BNX2X</td>
<td>4%</td>
</tr>
<tr>
<td>FAILSAFE</td>
<td>4%</td>
</tr>
<tr>
<td>NULL</td>
<td>4%</td>
</tr>
<tr>
<td>THUNDERX</td>
<td>4%</td>
</tr>
<tr>
<td>CXGBE</td>
<td>3%</td>
</tr>
<tr>
<td>LIQUIDIO</td>
<td>3%</td>
</tr>
<tr>
<td>AVP</td>
<td>2%</td>
</tr>
<tr>
<td>NFP</td>
<td>2%</td>
</tr>
<tr>
<td>QEDE</td>
<td>2%</td>
</tr>
<tr>
<td>SFC</td>
<td>2%</td>
</tr>
<tr>
<td>ARK</td>
<td>2%</td>
</tr>
<tr>
<td>KASUMI</td>
<td>2%</td>
</tr>
<tr>
<td>SZEDATA2</td>
<td>1%</td>
</tr>
<tr>
<td>XENVIRT</td>
<td>1%</td>
</tr>
<tr>
<td>SNOW3G</td>
<td>0%</td>
</tr>
<tr>
<td>ZUC</td>
<td>0%</td>
</tr>
</tbody>
</table>
What are the most common Operating Systems do you use?
Main respondents were developers - but not only
- People stay up to date with the latest versions
- 16.11 LTS is popular with participants who want stability
- DPDK used in lots of different applications: SD-WAN, CPE, vCPE, RAN, CRAN, FlexRAN, MEC, BRAS
- Virtio/vHost is a popular interface
DPDK Community Survey Features
Which parts of DPDK do you think need to be improved the most?

- Debugging
- Documentation
- Performance Lab
- Usability of the APIs
- Hardware Support
- Continuous Integration
- Build System
- EAL integration with APPs
- Support for specific OS
DPDK Community Survey

Patch Submission and Support Tools
Are there aspects of submitting a patch which could be improved?

- Use Github
- Use Gerrit
- Improve review time
Do you do more or less community reviews than patch submissions?

- Send more patches than review
- Review more patches than send
To which component do you contribute most to in DPDK?
How important is having a continuous integration and testing environment?
Most people like the current Kernel Style patch system
Of those who don't most would prefer GitHub
A continuous test environment is very important to people
How would you rate the quality of the DPDK Documentation?
What parts of DPDK documentation do you use?
In what format you would like to have information about features in DPDK?
Overall Summary
Overall Summary

- 190 participants
- 95% said that DPDK is meeting their business requirements
- There is a wide range of usage
- Virtio/vHost increasing in popularity
- A continuous test environment is very important to people

Thanks to everyone who participated!
Questions?

John McNamara
john.mcnamara@intel.com
No license (express or implied, by estoppel or otherwise) to any intellectual property rights is granted by this document.

Intel disclaims all express and implied warranties, including without limitation, the implied warranties of merchantability, fitness for a particular purpose, and non-infringement, as well as any warranty arising from course of performance, course of dealing, or usage in trade.

This document contains information on products, services and/or processes in development. All information provided here is subject to change without notice. Contact your Intel representative to obtain the latest forecast, schedule, specifications and roadmaps.

Intel technologies’ features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at intel.com.

© 2017 Intel Corporation. Intel, the Intel logo, Intel. Experience What’s Inside, and the Intel. Experience What’s Inside logo are trademarks of Intel. Corporation in the U.S. and/or other countries.

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