DPDK COMMUNITY SURVEY
AUGUST 2016

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Network Platforms Group

DPDK US SUMMIT
SAN JOSE

CONTEXT

- First community-wide mailing list survey conducted

- Survey

  - Opened: July 28th 2016, Closed: August 4th 2016

  - 34 questions, several multi-select

  - 4 main sections: (1) Usage, (2) Roadmap & Performance, (3) Submissions & Support, (4) Tools & Documentation

- Participants

  - DPDK developers, users, and announce mailing lists

  - **149** participants, with an **85%** completion rate

  - ~40% of participants contributed patches to a recent release

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AGENDA

- EXECUTIVE SUMMARY

- SURVEY RESULTS

- KEY TAKEAWAYS

- NEXT STEPS

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EXECUTIVE SUMMARY

DPDK

✓ The Good

- **96%** OF PARTICIPANTS SAID THAT DPDK WAS MEETING THEIR REQUIREMENTS

- ROADMAP COMMUNICATIONS

- PATCH SUBMISSIONS PROCESS

- RELEASE CADENCE

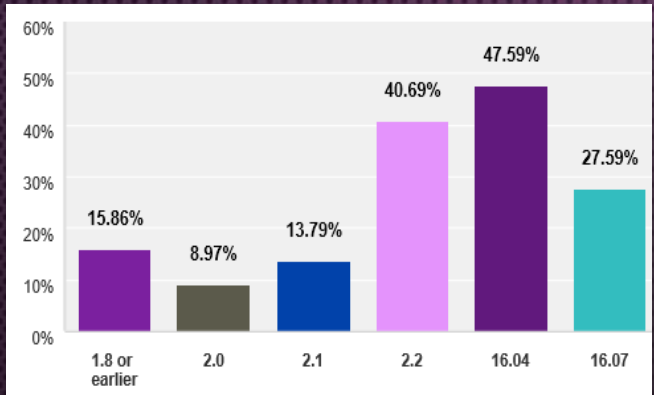- ENGAGED COMMUNITY ☺

✗ The Improvements

- RELEASE SUPPORT (STABLE RELEASES, LTS)

- DOCUMENTATION – CERTAIN ASPECTS

- NO SPECIFIC HOTSPOTS BUT PERFORMANCE BOTTLENECKS SEEN IN CERTAIN AREAS

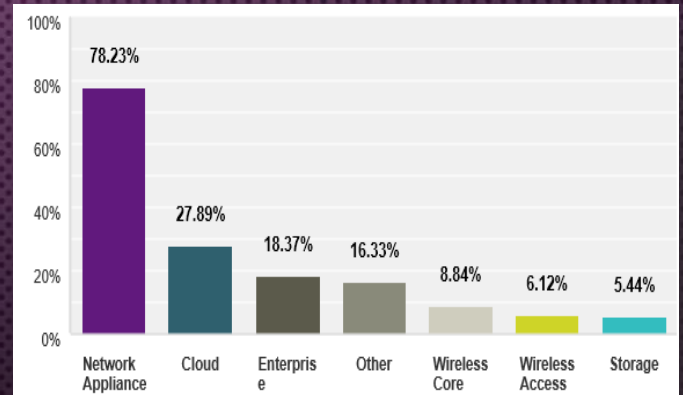- NEED FOR A CONTINUOUS INTEGRATION AND TEST ENVIRONMENT

DPDK 16.04 is the most used release

Most widely used in:

Lack of stability is the main reason cited for not upgrading to newer versions
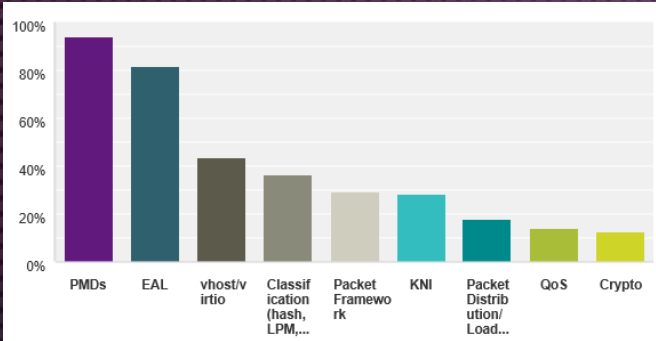
70% of participants are using **DPDK with Virtualisation or Containers**.

Virtualisation usage is **split evenly between SR-IOV and vhost/virtio**

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USAGE, CONT'D

The **most commonly used parts** are:

Most Used PMD's

- IXGBE
- IGB
- I40e
- Virtio
- vHost
- VMXNET3
- PCAP
- MLX4

Top 3 CPU architecture used:

1. X86
2. ARMv8
3. Power8

Top 3 other open-source projects used with DPDK:

1. Open vSwitch
2. OpenStack
3. Hyperscan

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ROADMAP
INCLUDING IMPROVEMENT AREAS

DPDK
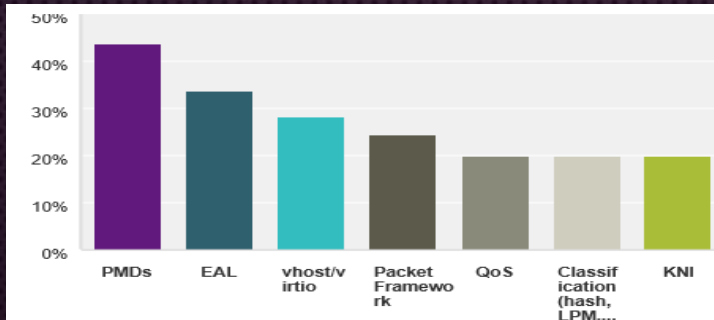
67% are aware of the **DPDK roadmap**

82% believe **it's communicated at the right time**.

68% are satisfied with the level of detail provided on the roadmap

DPDK will have four releases in 2017.

69% believe this is the **right release cadence**

Areas of **DPDK which need to be improved:**

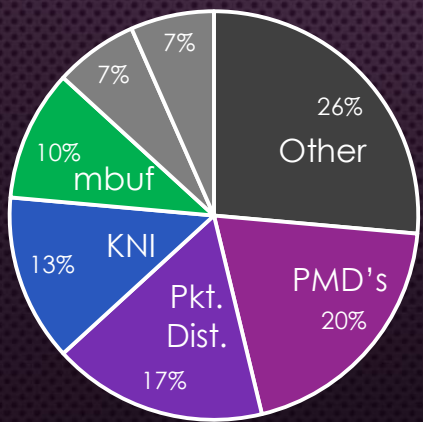**Top other areas for Improvement** mentioned for the DPDK roadmap were:

1. Release support
2. Documentation updates
3. Testing
4. KNI
5. Memory

PERFORMANCE

SUBMISSIONS

DPDK

75% of participants **rated performance as being very important** to them

30% pointed out possible **performance bottlenecks** in DPDK…
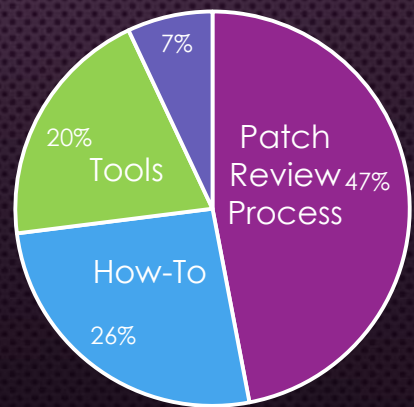
37% of participants **had contributed to a recent DPDK release** (since 2.1)

Of those, **75% are satisfied** with the patch submission process

Suggested Improvement Areas:

Performance pie chart:
- Other 26%
- PMD's 20%
- Pkt. Dist. 17%
- KNI 13%
- mbuf 10%
- 7%
- 7%

Submissions pie chart:
- Patch Review Process 47%
- How-To 26%
- Tools 20%
- 7%

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RELEASE SUPPORT

TEST

DPDK

Importance of Long Term Support (2 years)

Not Important	Slightly Important	Neutral	Important	Very Important
			63%	
8.13%	6.50%	21.95%	40.65%	22.76%
10	8	27	50	28

Importance of having a stable release
(back-ported fixes for each release cycle)

Not Important	Slightly Important	Neutral	Important	Very Important
			69%	
7.26%	8.06%	16.13%	39.52%	29.03%
9	10	20	49	36

Importance of ABI compatibility

Not Important	Slightly Important	Neutral	Important	Very Important
			40%	
23.53%	10.92%	26.89%	24.37%	14.29%
28	13	32	29	17

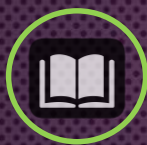Only **18%** of participants **run the DPDK Unit Test Framework**.

Less than **10% have added tests to it**

36% are aware of the **Automated Test Suite**…but of those only **40% have plans to use it in future.**

Importance of a Continuous Integration & Test Environment

Not Important	Slightly Important	Neutral	Important	Very Important
			75%	
1.64%	3.28%	18.85%	41.80%	34.43%
2	4	23	51	42

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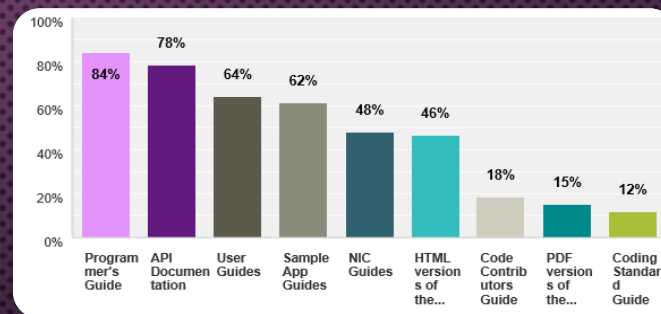
DOCUMENTATION

85% of participants had **not contributed** to the documentation:

Quality of DPDK Documentation

Poor	Below Average	Average	Good	Excellent
1.61% 2	5.65% 7	37.10% 46	51.61% 64	4.03% 5

55%

The **most used parts of DPDK documentation** are:

Chart values:
- Programmer's Guide: 84%
- API Documentation: 78%
- User Guides: 64%
- Sample App Guides: 62%
- NIC Guides: 48%
- HTML versions of the...: 46%
- Code Contributors Guide: 18%
- PDF versions of the...: 15%
- Coding Standard Guide: 12%

Main Improvement Suggestions:

- Removal of **outdated** information – particularly in Programmers Guide

- A **way to go back in version history** (e.g. API documentation for previous versions)

- More detailed information on the **PMD's** and **performance tuning**

- **'DPDK for Dummies'** – add more high-level overview diagrams, etc.

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OVERALL...IS DPDK MEETING YOUR REQUIREMENTS?

Choice	Response %	Response #
Yes	96%	119
No	4%	5

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KEY TAKEAWAYS

The partially obscured bullet points read:

- The Good
- Release cadence
- Engaged community ☺

- The bad / areas to improve
- (..., LTS)
- ... projects
- ... performance
- Bottlenecks seen in certain areas
- Need for a Continuous integration and test environment

Discussion
- Show of hands as to who responded to the survey?
- Do the survey results resonate?
- Are you surprised by any of the results?
- Is there something you expected to see that didn't appear?
- Any general comments/feedback?

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NEXT STEPS & HELP NEEDED

- Collate and release the results to the open-source community

- Hold a community call to review the main findings

- Further discussion with the DPDK development community @ DPDK User-space event in Dublin in October '16

- Please sign up to one of the mailing lists HTTP://DPDK.ORG/ML

- Next survey will be sent in 6 months – **PLEASE RESPOND!**

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