OpenSFS Survey March 2019 Results

Background

A survey was developed and finalized during LWG meetings early in 2019. The intention was to collect information about Lustre usage across the community as input into the OpenSFS long-term support strategy.
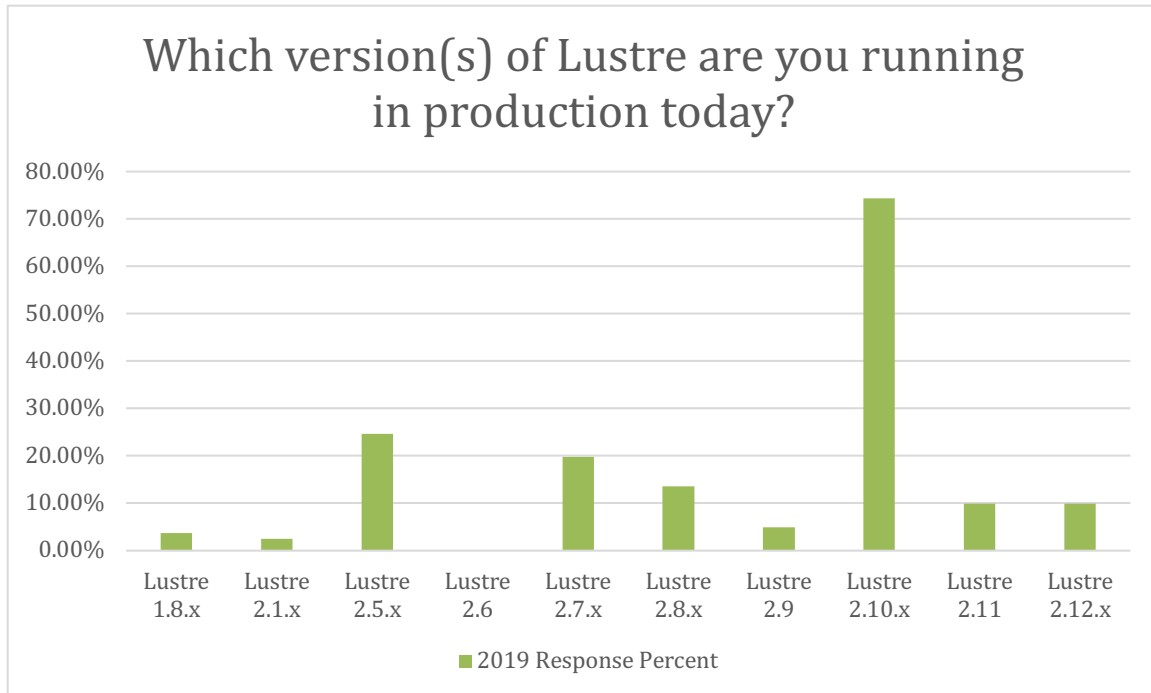
Key Findings

- 82 respondents completed the survey compared to 110 in 2018, 70 in 2017, 97 in 2016, 89 in 2015, 76 in 2014, 73 in 2013 and 90 in 2012
- The Lustre 2.10.x LTS releases are the most widely used releases in production
- Ldiskfs storage accounts for about two thirds of the total capacity declared in the survey

Detailed Findings

1. Which version(s) of Lustre are you running in production today?

This question allowed multiple selections so the sum can exceed the total number of respondents.

Which version(s) of Lustre are you running in production today?		
Answer Options	Response Percent	Response Count
Lustre 1.8.x	3.70%	3
Lustre 2.1.x	2.47%	2
Lustre 2.5.x	24.69%	20
Lustre 2.6	0%	0
Lustre 2.7.x	19.75%	16
Lustre 2.8	13.58%	11
Lustre 2.9	4.94%	4
Lustre 2.10.x	74.07%	60
Lustre 2.11	9.88%	8
Lustre 2.12.x	9.88%	8
	answered question	81
	skipped question	1

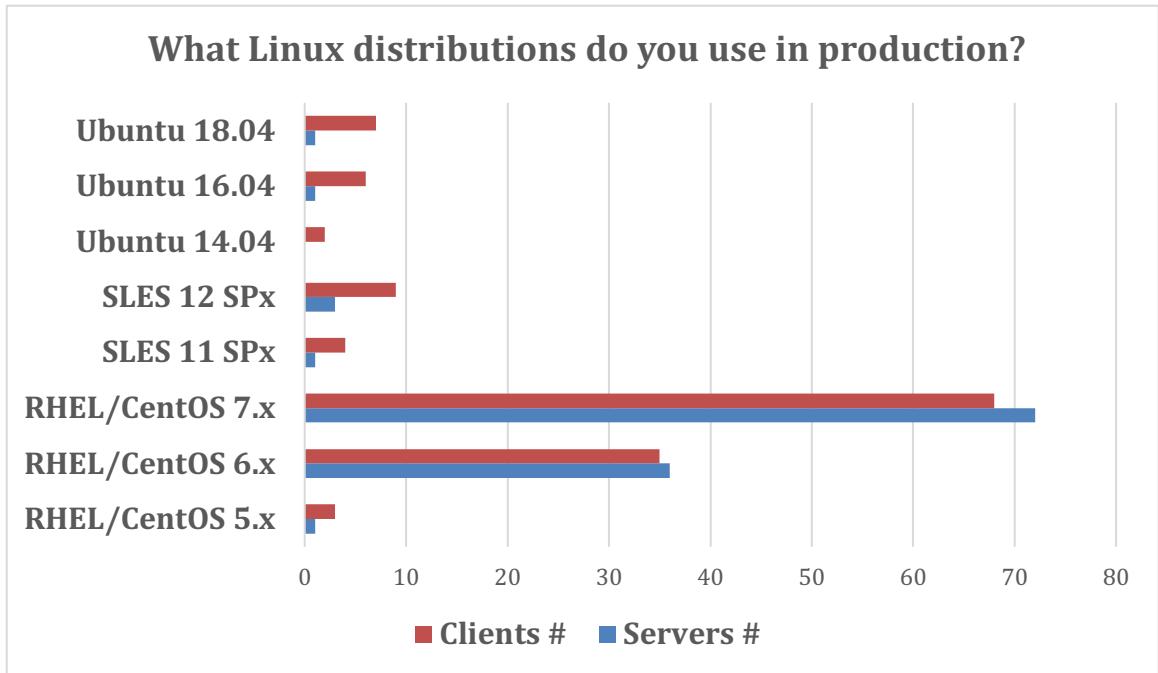## Which version(s) of Lustre are you running in production today?

2. What Linux distribution(s) do you use?

This question allowed multiple selections so the sum can exceed the total number of respondents.

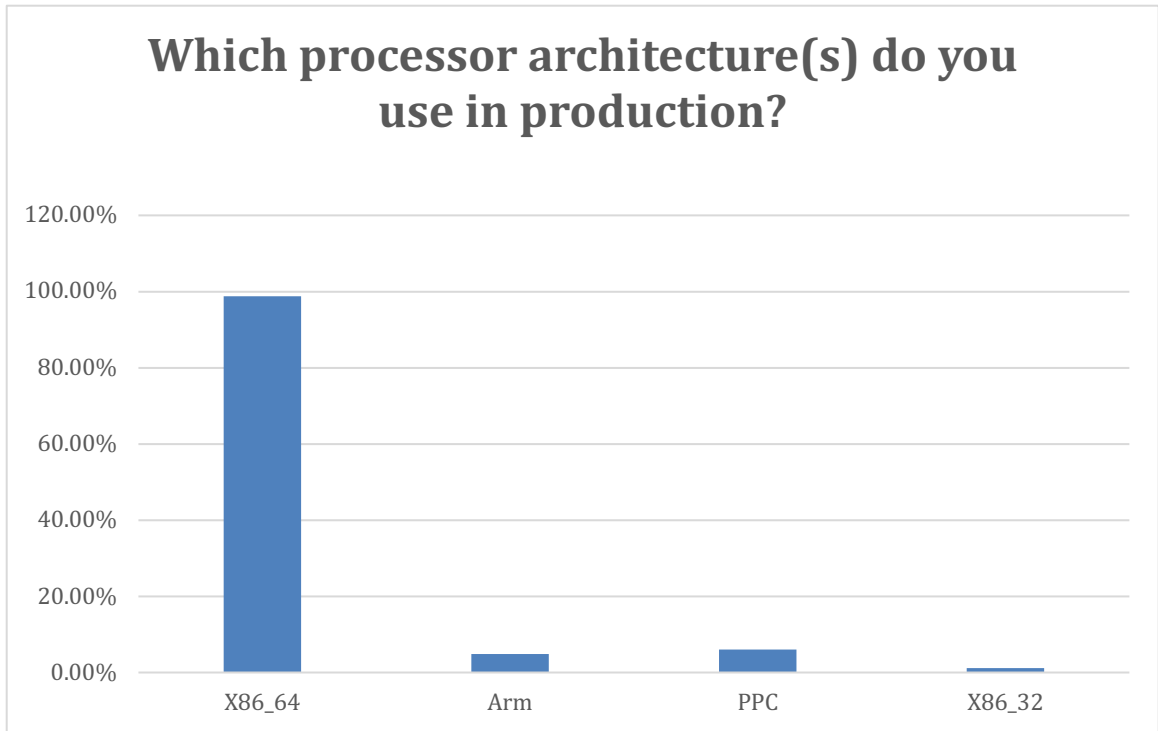|	Servers #	Clients #	Servers %	Clients %
RHEL/CentOS 5.x	1	3	1.23%	3.70%
RHEL/CentOS 6.x	36	35	44.44%	43.21%
RHEL/CentOS 7.x	72	68	88.89%	83.95%
SLES 11 SPx	1	4	1.23%	4.94%
SLES 12 SPx	3	9	3.70%	11.11%
Ubuntu 14.04	0	2	0.00%	2.47%
Ubuntu 16.04	1	6	1.23%	7.41%
Ubuntu 18.04	1	7	1.23%	8.64%

Other options indicated –2 Debian, 1 Amazon Linux. 81 completed this question, 1 skipped

What Linux distributions do you use in production?

Legend: ■ Clients #   ■ Servers #

3. Which processor architectures do you use in production?

This question allowed multiple selections so the sum can exceed the total number of respondents.

Processor	%	Count
X86_64	98.78%	81
Arm	4.88%	4
PPC	6.10%	5
X86_32	1.22%	1

Which processor architecture(s) do you use in production?
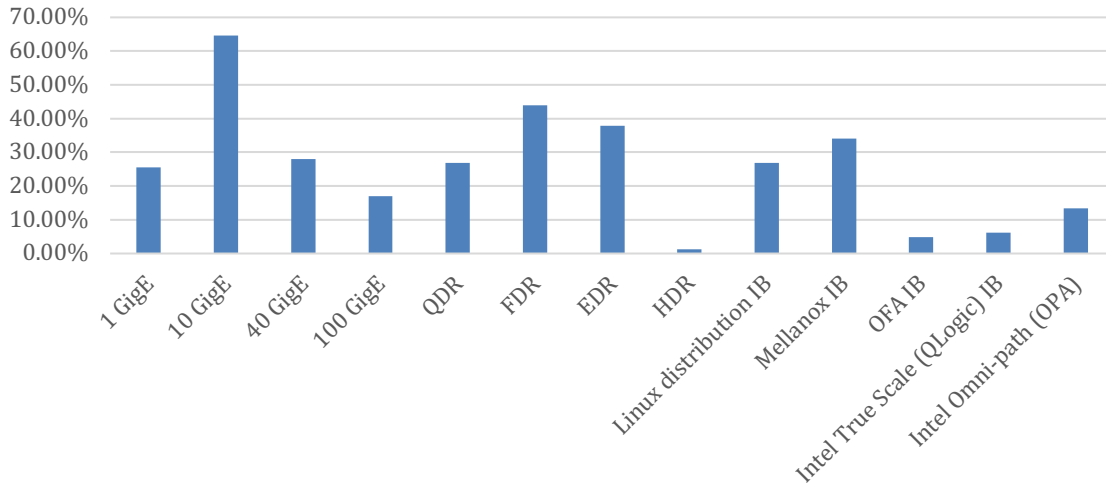

4. Which kind of networks do you use with Lustre within your organization?

This question allowed multiple selections so the sum can exceed the total number of respondents.

Answer Options	Response Percent	Response Count
1 GigE	25.61%	21
10 GigE	64.63%	53
40 GigE	28.05%	23
100 GigE	17.07%	14
QDR	26.83%	22
FDR	43.90%	36
EDR	37.80%	31
HDR	1.22%	1
Linux distribution IB	26.83%	22
Mellanox IB	34.15%	28
OFA IB	4.88%	4
Intel True Scale (QLogic) IB	6.10%	5
Intel Omni-path (OPA)	13.41%	11
answered question		82
skipped question		0

Which kind of networks do you use with Lustre within your organization?

5. What best describes your level of interest in the following recent Lustre features?

Answer Options	Use in production	Will use within year	Testing /Evaluating	Feature not ready yet	May use in future	No interest	Response Count
Data on MDT	6	10	20	5	29	8	78
DNE (Remote Directories)	10	6	11	2	27	8	70
DNE (Striped Directories)	7	5	15	1	32	13	73
File Level Redundancy	3	10	9	3	45	7	77
HSM	8	4	16	1	27	20	76
IML	7	1	7	3	24	25	67
LFSCK (lctl)	27	7	8	3	21	6	72
Multi-Rail LNet	9	9	10	1	31	15	75
Progressive File Layouts	10	10	20	3	29	3	75
Project Quotas	12	23	13	8	16	6	78
ZFS	40	5	10	2	19	5	81
					answered question		82
					skipped question		0

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6. Which feature(s) would you like to see in upcoming versions of Lustre?

This question permitted free text answers and there was great diversity in the answers. There was no apparent pattern of support for any particular features. As in past years, a number of features already available were mentioned suggesting either further work is needed or the respondent works through a vendor using an older release.
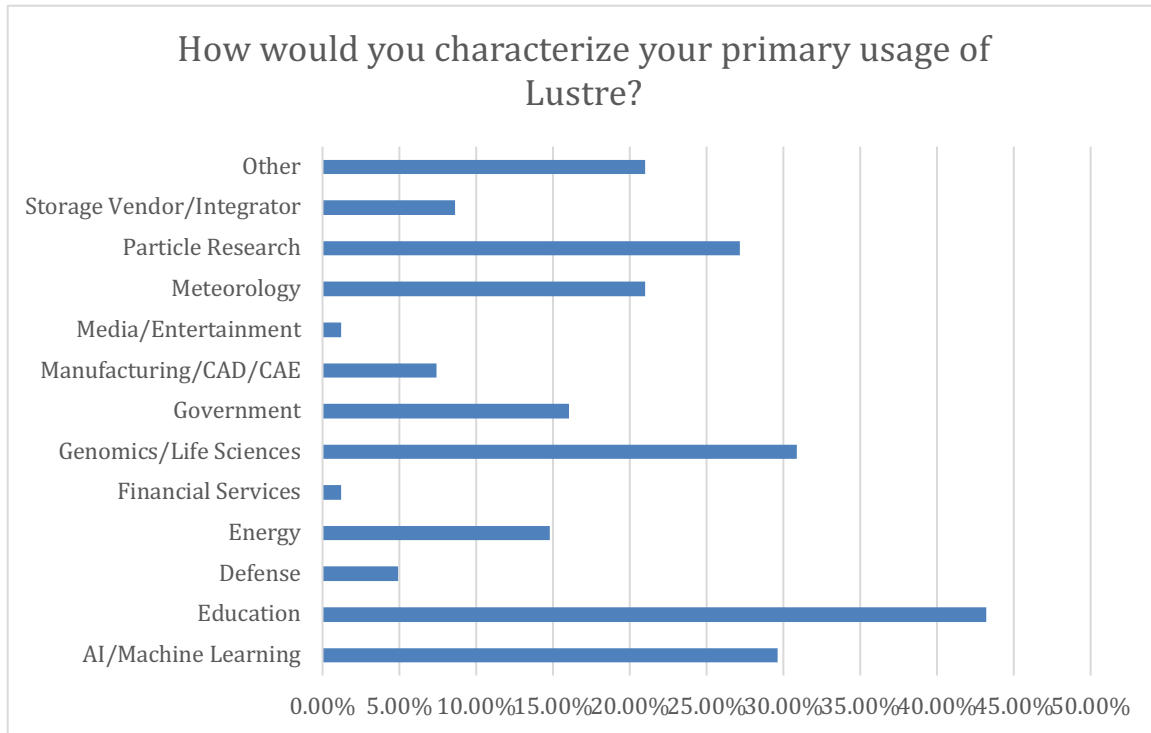
40 respondents skipped this question

7. Which organization do you represent?

66 Answered this question; 16 skipped it.

8. Which categories best describes your organization's usage of Lustre?

This question allowed multiple selections so the sum can exceed the total number of respondents.

Answer Options	Response Percent	Response Count
AI/Machine Learning	29.63%	24
Education	43.21%	35
Defense	4.94%	4
Energy	14.81%	12
Financial Services	1.23%	1
Genomics/Life Sciences	30.86%	25
Government	16.05%	13
Manufacturing/CAD/CAE	7.41%	6
Media/Entertainment	1.23%	1
Meteorology	20.99%	17
Particle Research	27.16	22
Storage Vendor/Integrator	8.64%	7
Other	20.99%	17
answered question		81
skipped question		1

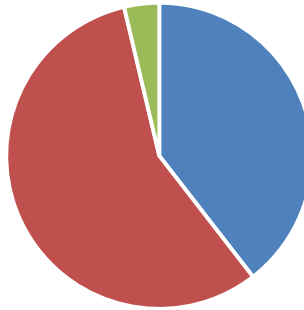How would you characterize your primary usage of Lustre?

The Other category suggested that Radio Astronomy and that the Meteorology category should be extended to include Climate Research.

9. What best describes your Lustre support situation?

This only permitted a single selection so the sum of respondents should equal the total number of respondents.

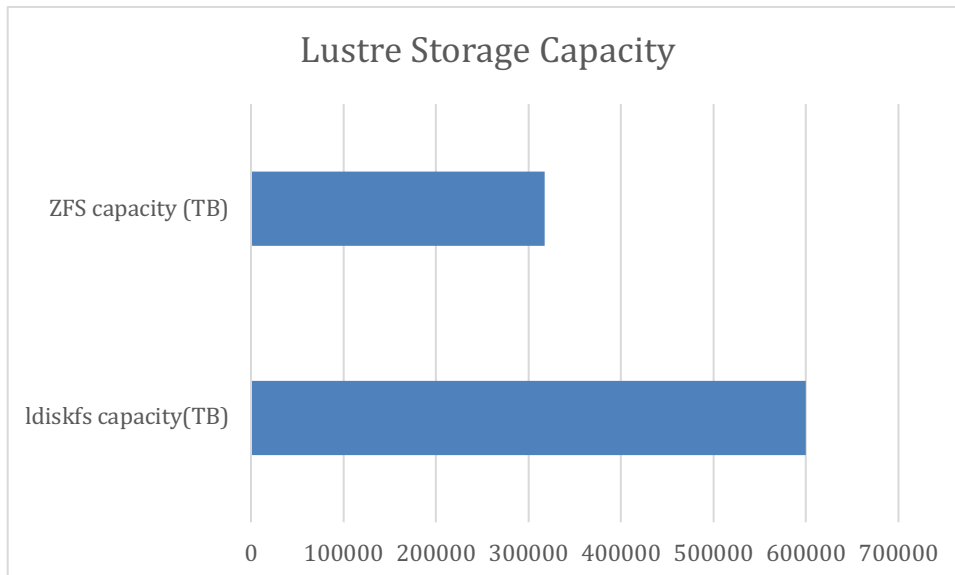| Answer Options	Response Percent	Response Count
We have formal Lustre support arrangements in place with another organization	39.51%	32
We self-support	56.79%	46
We offer support to others	3.70%	3
	answered question	81
	skipped question	1

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What best describes your Lustre support situation?

- We have formal Lustre support arrangements in place with another organization
- We self-support
- We offer support to others

10. <u>What is the total amount of Lustre storage that you have?</u>

	Total	Responses	Average
Number of filesystems	344	74	5
ldiskfs capacity(TB)	599523	69	8689
ZFS capacity (TB)	317535	63	5040
Number of MDTs	835	71	12
Number of OSTs	15303	72	213
Number of Clients	194049	70	2772
Number of Routers	1484	67	22

Lustre Storage Capacity

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8 respondents skipped this question.