

OpenStack Community Activity Report  
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We would like to thank the effort of the following people their effort to provide feedback and validation process.

Finally, this report would not exist without the effort of the people involved in the development of the OpenStack Activity Board, Grimoire toolset and the feedback of the people in the development mailing list of the OpenStack Foundation.

## Executive Summary

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# Chapter 1

## Overview of the Project

### 1.1 General Activity

A more detailed information about the community activity ...

Data source	Activity 365 days	Change (wrt to prev. 365 days)
Gits	51905 commits	34%
Tickets	11455 closed tickets	44%
Mailing Lists	42649 sent emails	33%
Gerrit	55924 submitted reviews	40%
Askbot	5753 posted questions	76%
IRC	1898640 messages	134%

Table 1.1: Activity during the last 365 days and its evolution

Focusing on the development activity,

Integrated Project	Commits
neutron	611
sahara	166
ceilometer	150
horizon	265
heat	330
nova	700
trove	61
swift	77
glance	122
cinder	236
keystone	170

Table 1.2: Last quarter integrated projects number of commits

## 1.2 Development and Conversations

Regarding to the community, developers are divided into three main sets, core, regular and occasional<sup>1</sup>.

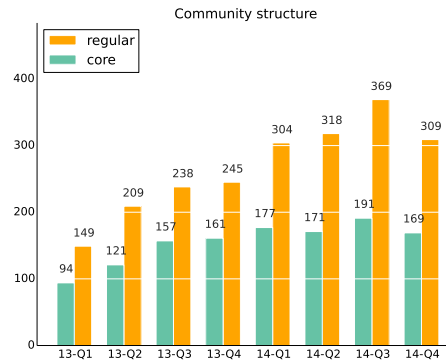


Figure 1.1: Evolution of the last 8 quarters of the core, regular and occasional developers (Git activity)

<sup>1</sup>Contributing developers are characterized as core, regular and occasional depending on their activity in the git repositories. The classification is built by sorting contributors by their total number of commits; we sum the total commits per each individual contributors: the individuals whose commits sum up to 80% of the total number of commits in the quarter are the core contributors in that quarter. The regular contributors are those whose commits sum up to 95% of the total. The others are the occasional contributors.

Period	Core	Regular	Occasional
13-Q1	94	149	250
13-Q2	121	209	291
13-Q3	157	238	390
13-Q4	161	245	366
14-Q1	177	304	488
14-Q2	171	318	453
14-Q3	191	369	584
14-Q4	169	309	409

Table 1.3: Characterization of developers by their total contribution to the OpenStack projects

The mean number of developers per month

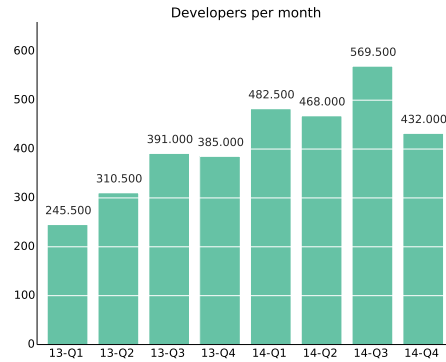


Figure 1.2: Number of developers per month in mean for each quarter

The main organizations<sup>2</sup> participating in the development are listed in the table below, per project<sup>3</sup>.

<sup>2</sup>The details about affiliation between individual contributors and employer is derived from: information provided by the individuals in their Foundation membership data, guessed from corporate email addresses and from manual corrections.

<sup>3</sup>Integrated projects consist of the projects identified as integrated by the Programs yaml file available at <http://git.openstack.org/cgit/openstack/governance/tree/reference/programs.yaml> at the moment of this analysis



Integrated project	Top 1 (commits)	Top 2 (commits)
neutron	Red Hat (174)	Bit Switch Networks (95)
sahara	Mirantis (84)	Red Hat (33)
ceilometer	IBM (35)	Mirantis (29)
horizon	Red Hat (52)	IBM (44)
heat	Red Hat (114)	Mirantis (59)
nova	IBM (214)	Red Hat (89)
trove	Rackspace (14)	Tesora (14)
swift	SwiftStack (18)	Rackspace (15)
glance	HP (30)	NTT (16)
cinder	IBM (22)	NetApp (22)
keystone	IBM (83)	Red Hat (25)

Table 1.4: Organizations leading the development integrated projects during the last quarter

The most active developers for each of the integrated projects are listed in the following table.

Integrated project	Top Contributor	Commits
neutron	Kevin Benton	95
sahara	Sergey Reshetnyak	30
ceilometer	Gordon Chung	24
horizon	Akihiro MOTOKI	28
heat	Steven Hardy	45
nova	garyk	62
trove	Amrith Kumar	8
swift	Samuel Merritt	12
glance	Stuart McLaren	15
cinder	John Griffith	19
keystone	Brant Knudson	33

Table 1.5: Top developers in commits per integrated project during the last quarter

The most popular email threads

### 1.3 Efficiency

Two metrics have been identified to measure efficiency: the review efficiency index (REI) and the Time to Merge. REI is measured as the number of

closed (merged or abandoned) changesets out of the submitted changesets in a given period. Time to Merge is measured as the time since a review is submitted until this is closed. Typical BMI values in the OpenStack Integrated projects rounds a 0.75, what indicates that for 100 opened changesets in a period, the community closes 75. Besides, the median Time to Merge is of 7.82, having an increase from the previous period.

Integrated project	Reviews Efficiency	Time to Merge (median)
neutron	0.69	5.75 days
sahara	0.9	2.02 days
ceilometer	0.8	3.28 days
horizon	0.66	3.16 days
heat	0.74	4.12 days
nova	0.64	10.8 days
trove	0.74	10.4 days
swift	0.64	2.73 days
glance	0.65	7.97 days
cinder	0.77	2.83 days
keystone	0.61	5.9 days

Table 1.6: Closed changesets out of opened changesets and median Time to Merge in Gerrit

## Chapter 2

# Per Project break down

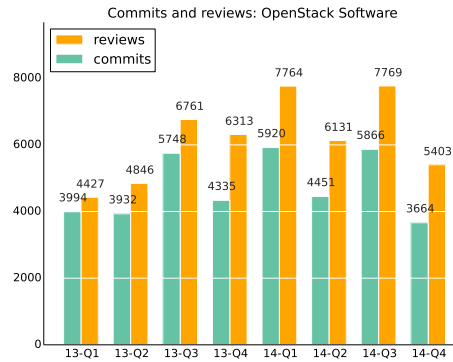
This chapter aims at providing a detailed report on the activity of the OpenStack Foundation projects. This is mainly focused on the activity per project as defined, stressing the point on the 'integrated' projects.

Each of the projects is divided into three sections and provides information from the last eight quarters.:

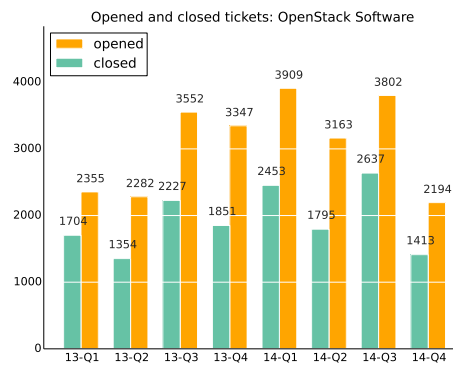
- activity: centered in the following metrics: commits from git activity, submitted, merge and abandoned reviews from the review system and opened and closed tickets from the issue tracking system.
- community: active core reviewers in gerrit, active authors in Git and top ten developers and top ten organizations contributing to the development in the last quarter. of each project.
- process: efficiency closing changesets, Time to Merge (mean and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.

## 2.1 Overall OpenStack Programs

**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.

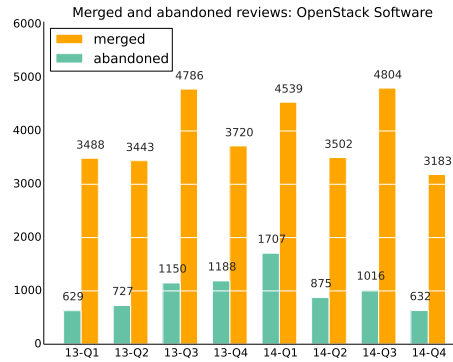


Period	Commits	Reviews
13-Q1	3994	4427
13-Q2	3932	4846
13-Q3	5748	6761
13-Q4	4335	6313
14-Q1	5920	7764
14-Q2	4451	6131
14-Q3	5866	7769
14-Q4	3664	5403



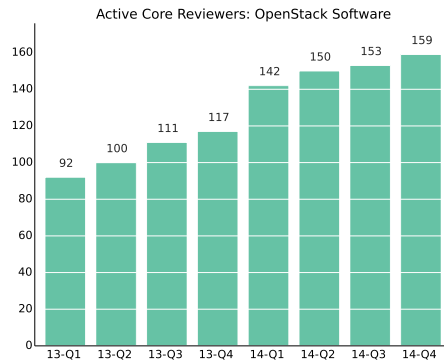
Period	Closed	Opened
13-Q1	1704	2355
13-Q2	1354	2282
13-Q3	2227	3552
13-Q4	1851	3347
14-Q1	2453	3909
14-Q2	1795	3163
14-Q3	2637	3802
14-Q4	1413	2194

## 2.1. OVERALL OPENSTACK PROGRAMS

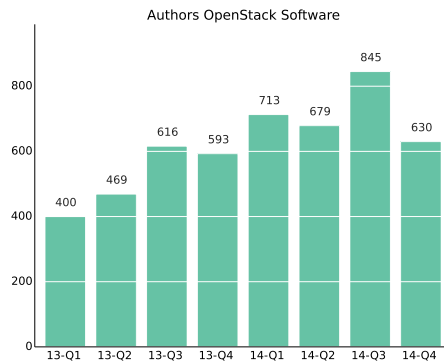


Period	Merged	Abandoned
13-Q1	3488	629
13-Q2	3443	727
13-Q3	4786	1150
13-Q4	3720	1188
14-Q1	4539	1707
14-Q2	3502	875
14-Q3	4804	1016
14-Q4	3183	632

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	92
13-Q2	100
13-Q3	111
13-Q4	117
14-Q1	142
14-Q2	150
14-Q3	153
14-Q4	159

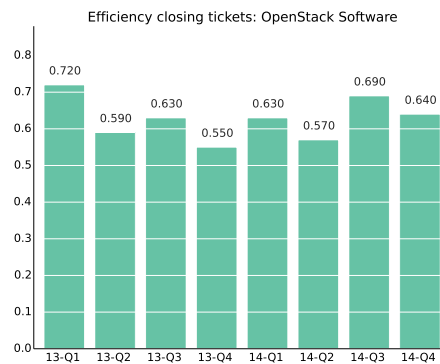


Period	Authors
13-Q1	400
13-Q2	469
13-Q3	616
13-Q4	593
14-Q1	713
14-Q2	679
14-Q3	845
14-Q4	630

Commit (s)	Author
96	Kevin Benton
85	garyk
64	Russell Bryant
55	Mark McClain
54	Brant Knudson
50	Steven Hardy
44	Angus Lees
40	Ihar Hrachyshka
39	Flavio Percoco
39	Jeremy Stanley

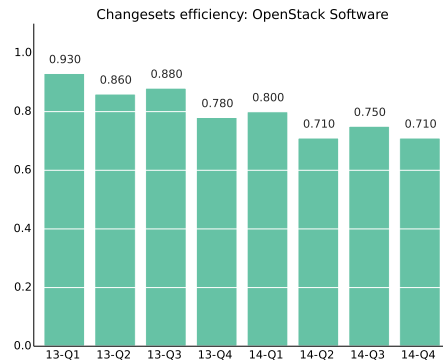
Commit (s)	Organizations
723	Red Hat
526	IBM
392	Mirantis
295	HP
186	Rackspace
121	VMware
96	Bit Switch Networks
94	Huawei
85	NEC
85	Radware

**Process:** Efficiency closing changesets and tickets, time to review (mean and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.

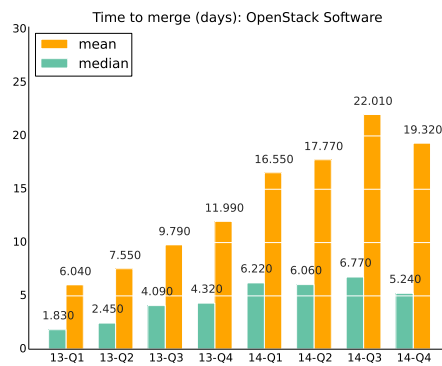


Period	Closed/Opened
13-Q1	0.72
13-Q2	0.59
13-Q3	0.63
13-Q4	0.55
14-Q1	0.63
14-Q2	0.57
14-Q3	0.69
14-Q4	0.64

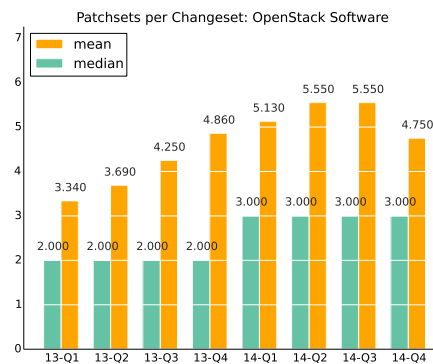
## 2.1. OVERALL OPENSTACK PROGRAMS



Period	Closed/Opened
13-Q1	0.93
13-Q2	0.86
13-Q3	0.88
13-Q4	0.78
14-Q1	0.8
14-Q2	0.71
14-Q3	0.75
14-Q4	0.71

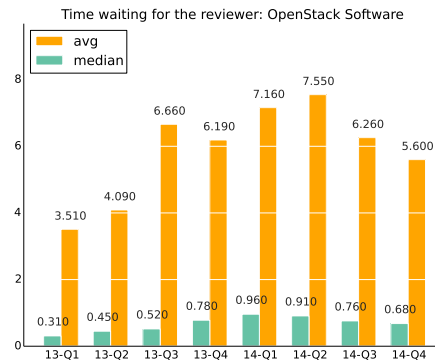


Period	Median	Mean
13-Q1	1.83	6.04
13-Q2	2.45	7.55
13-Q3	4.09	9.79
13-Q4	4.32	11.99
14-Q1	6.22	16.55
14-Q2	6.06	17.77
14-Q3	6.77	22.01
14-Q4	5.24	19.32

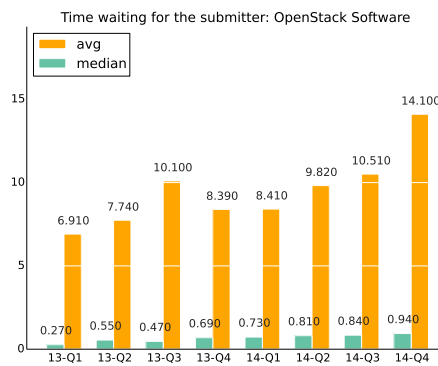


Period	Median	Mean
13-Q1	2.0	3.34
13-Q2	2.0	3.69
13-Q3	2.0	4.25
13-Q4	2.0	4.86
14-Q1	3.0	5.13
14-Q2	3.0	5.55
14-Q3	3.0	5.55
14-Q4	3.0	4.75

## 2.1. OVERALL OPENSTACK PROGRAMS



Period	Median	Mean
13-Q1	0.31	3.51
13-Q2	0.45	4.09
13-Q3	0.52	6.66
13-Q4	0.78	6.19
14-Q1	0.96	7.16
14-Q2	0.91	7.55
14-Q3	0.76	6.26
14-Q4	0.68	5.6

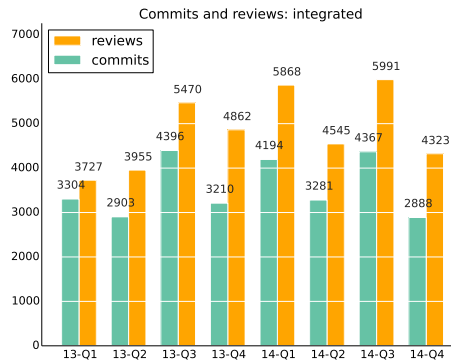


Period	Median	Mean
13-Q1	0.27	6.91
13-Q2	0.55	7.74
13-Q3	0.47	10.1
13-Q4	0.69	8.39
14-Q1	0.73	8.41
14-Q2	0.81	9.82
14-Q3	0.84	10.51
14-Q4	0.94	14.1

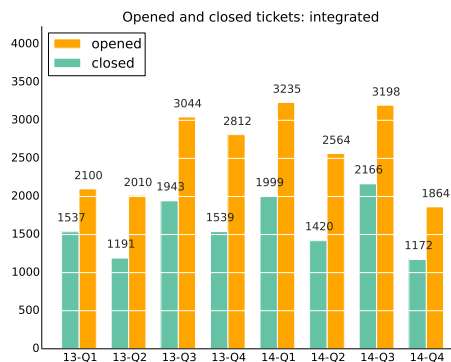


### 2.1.1 OpenStack Integrated Programs

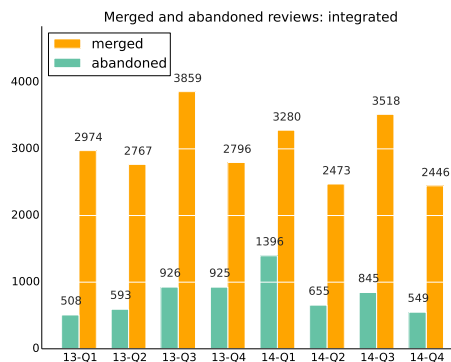
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	3304	3727
13-Q2	2903	3955
13-Q3	4396	5470
13-Q4	3210	4862
14-Q1	4194	5868
14-Q2	3281	4545
14-Q3	4367	5991
14-Q4	2888	4323

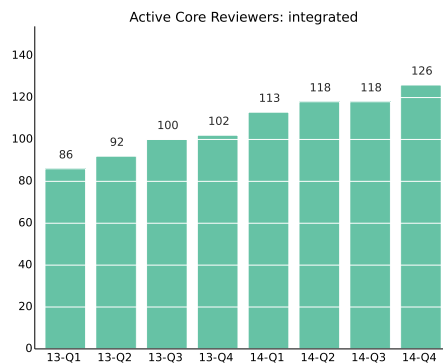


Period	Closed	Opened
13-Q1	1537	2100
13-Q2	1191	2010
13-Q3	1943	3044
13-Q4	1539	2812
14-Q1	1999	3235
14-Q2	1420	2564
14-Q3	2166	3198
14-Q4	1172	1864

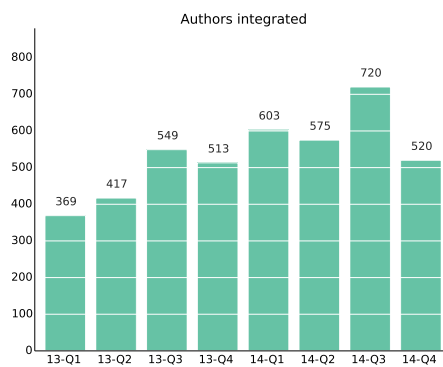


Period	Merged	Abandoned
13-Q1	2974	508
13-Q2	2767	593
13-Q3	3859	926
13-Q4	2796	925
14-Q1	3280	1396
14-Q2	2473	655
14-Q3	3518	845
14-Q4	2446	549

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	86
13-Q2	92
13-Q3	100
13-Q4	102
14-Q1	113
14-Q2	118
14-Q3	118
14-Q4	126



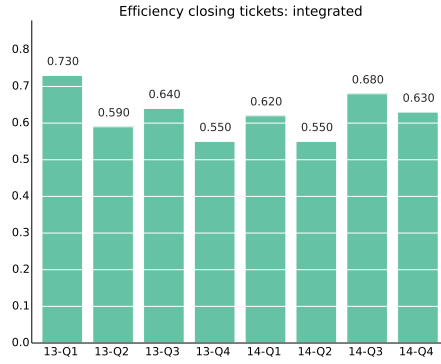
Period	Authors
13-Q1	369
13-Q2	417
13-Q3	549
13-Q4	513
14-Q1	603
14-Q2	575
14-Q3	720
14-Q4	520

Commit (s)	Author
96	Kevin Benton
85	garyk
63	Russell Bryant
55	Mark McClain
45	Steven Hardy
44	Angus Lees
40	Ihar Hrachyshka
36	Brant Knudson
35	Angus Salkeld
35	jichen

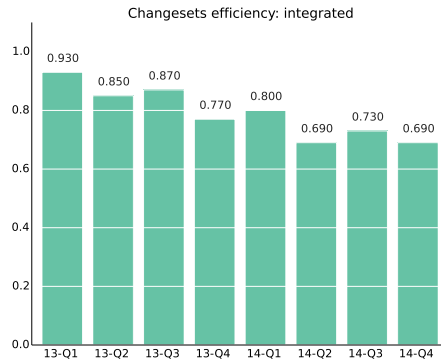
Commit (s)	Organizations
553	Red Hat
492	IBM
279	Mirantis
208	HP
131	Rackspace
120	VMware
96	Bit Switch Networks
85	Radware
83	Huawei
76	NEC

**Process:** Efficiency closing changesets and tickets, time to review (mean

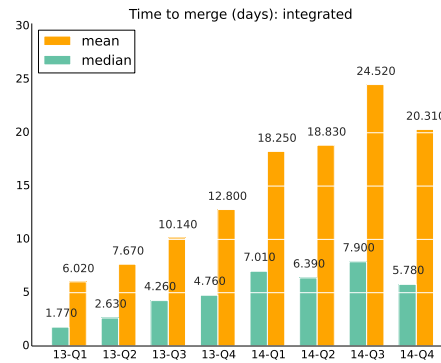
and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



Period	Closed/Opened
13-Q1	0.73
13-Q2	0.59
13-Q3	0.64
13-Q4	0.55
14-Q1	0.62
14-Q2	0.55
14-Q3	0.68
14-Q4	0.63

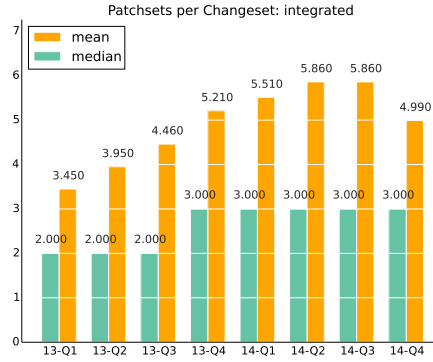


Period	Closed/Opened
13-Q1	0.93
13-Q2	0.85
13-Q3	0.87
13-Q4	0.77
14-Q1	0.8
14-Q2	0.69
14-Q3	0.73
14-Q4	0.69

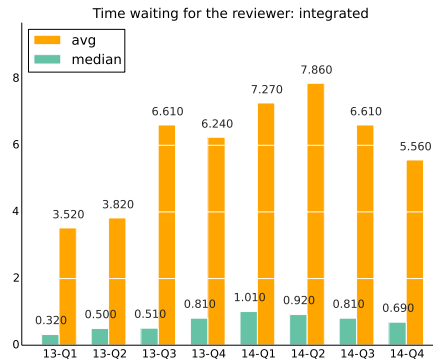


Period	Median	Mean
13-Q1	1.77	6.02
13-Q2	2.63	7.67
13-Q3	4.26	10.14
13-Q4	4.76	12.8
14-Q1	7.01	18.25
14-Q2	6.39	18.83
14-Q3	7.9	24.52
14-Q4	5.78	20.31

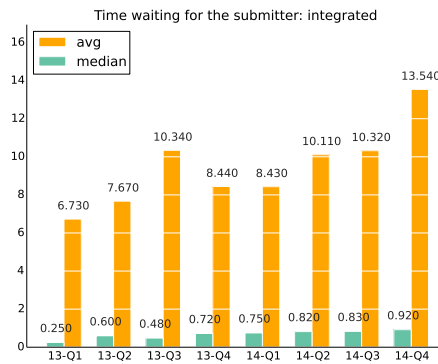
## 2.1. OVERALL OPENSTACK PROGRAMS



Period	Median	Mean
13-Q1	2.0	3.45
13-Q2	2.0	3.95
13-Q3	2.0	4.46
13-Q4	3.0	5.21
14-Q1	3.0	5.51
14-Q2	3.0	5.86
14-Q3	3.0	5.86
14-Q4	3.0	4.99



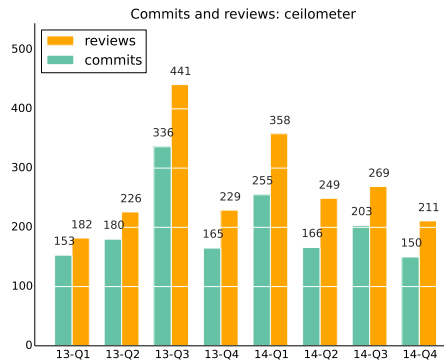
Period	Median	Mean
13-Q1	0.32	3.52
13-Q2	0.5	3.82
13-Q3	0.51	6.61
13-Q4	0.81	6.24
14-Q1	1.01	7.27
14-Q2	0.92	7.86
14-Q3	0.81	6.61
14-Q4	0.69	5.56



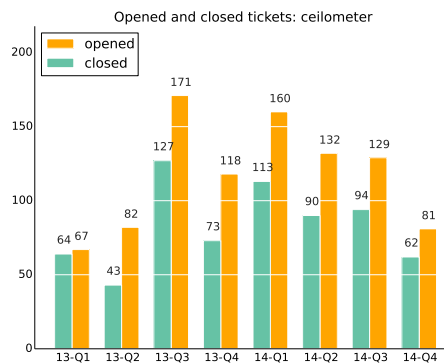
Period	Median	Mean
13-Q1	0.25	6.73
13-Q2	0.6	7.67
13-Q3	0.48	10.34
13-Q4	0.72	8.44
14-Q1	0.75	8.43
14-Q2	0.82	10.11
14-Q3	0.83	10.32
14-Q4	0.92	13.54

### 2.1.1.1 Ceilometer

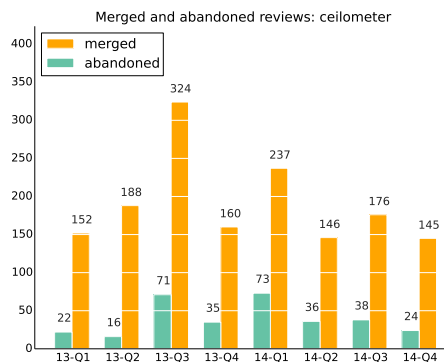
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	153	182
13-Q2	180	226
13-Q3	336	441
13-Q4	165	229
14-Q1	255	358
14-Q2	166	249
14-Q3	203	269
14-Q4	150	211

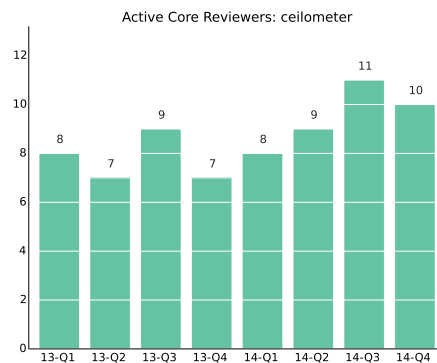


Period	Closed	Opened
13-Q1	64	67
13-Q2	43	82
13-Q3	127	171
13-Q4	73	118
14-Q1	113	160
14-Q2	90	132
14-Q3	94	129
14-Q4	62	81

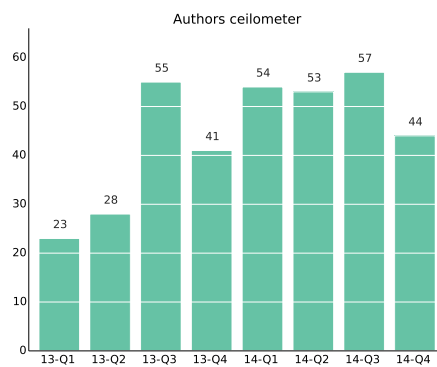


Period	Merged	Abandoned
13-Q1	152	22
13-Q2	188	16
13-Q3	324	71
13-Q4	160	35
14-Q1	237	73
14-Q2	146	36
14-Q3	176	38
14-Q4	145	24

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	8
13-Q2	7
13-Q3	9
13-Q4	7
14-Q1	8
14-Q2	9
14-Q3	11
14-Q4	10



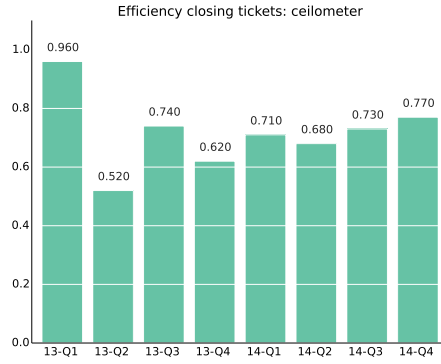
Period	Authors
13-Q1	23
13-Q2	28
13-Q3	55
13-Q4	41
14-Q1	54
14-Q2	53
14-Q3	57
14-Q4	44

Commit (s)	Author
24	Gordon Chung
17	ZhiQiang Fan
9	Dina Belova
9	Igor Degtiarov
7	Chris Dent
6	Ilya Tyaptin
6	nellysmitt
5	Julien Danjou
5	liu-sheng
4	Joe H. Rahme

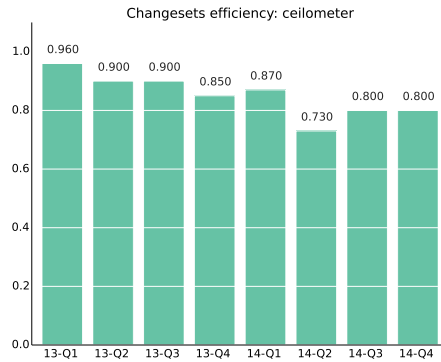
Commit (s)	Organizations
35	IBM
29	Mirantis
23	Huawei
21	Red Hat
4	HP
3	Cisco Systems
3	Ericsson
3	OpenStack Foundation
2	Canonical
2	Cloudbase Solutions

**Process:** Efficiency closing changesets and tickets, time to review (mean

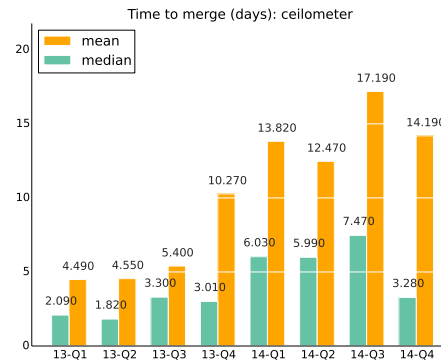
and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



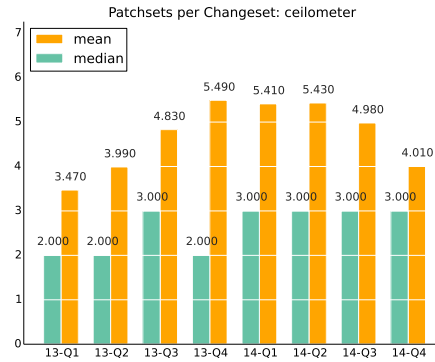
Period	Closed/Opened
13-Q1	0.96
13-Q2	0.52
13-Q3	0.74
13-Q4	0.62
14-Q1	0.71
14-Q2	0.68
14-Q3	0.73
14-Q4	0.77



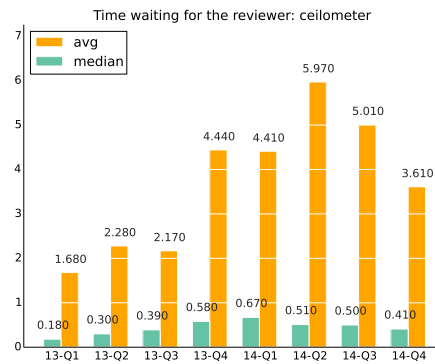
Period	Closed/Opened
13-Q1	0.96
13-Q2	0.9
13-Q3	0.9
13-Q4	0.85
14-Q1	0.87
14-Q2	0.73
14-Q3	0.8
14-Q4	0.8



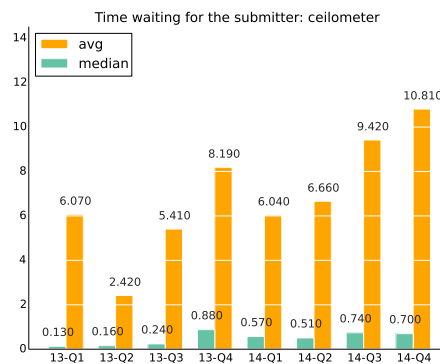
Period	Median	Mean
13-Q1	2.09	4.49
13-Q2	1.82	4.55
13-Q3	3.3	5.4
13-Q4	3.01	10.27
14-Q1	6.03	13.82
14-Q2	5.99	12.47
14-Q3	7.47	17.19
14-Q4	3.28	14.19



Period	Median	Mean
13-Q1	2.0	3.47
13-Q2	2.0	3.99
13-Q3	3.0	4.83
13-Q4	2.0	5.49
14-Q1	3.0	5.41
14-Q2	3.0	5.43
14-Q3	3.0	4.98
14-Q4	3.0	4.01



Period	Median	Mean
13-Q1	0.18	1.68
13-Q2	0.3	2.28
13-Q3	0.39	2.17
13-Q4	0.58	4.44
14-Q1	0.67	4.41
14-Q2	0.51	5.97
14-Q3	0.5	5.01
14-Q4	0.41	3.61

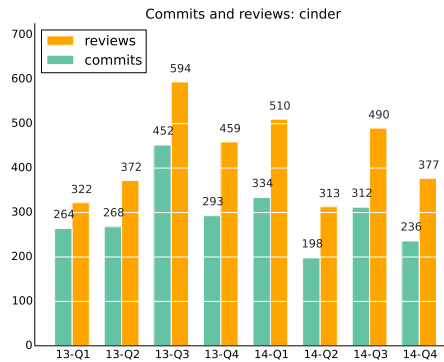


Period	Median	Mean
13-Q1	0.13	6.07
13-Q2	0.16	2.42
13-Q3	0.24	5.41
13-Q4	0.88	8.19
14-Q1	0.57	6.04
14-Q2	0.51	6.66
14-Q3	0.74	9.42
14-Q4	0.7	10.81

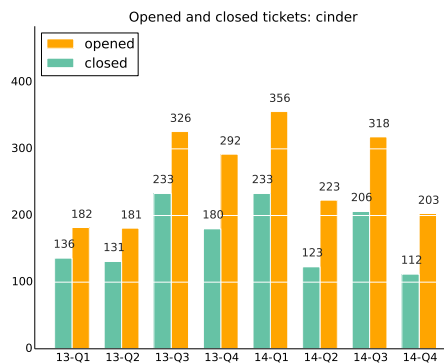


### 2.1.1.2 Cinder

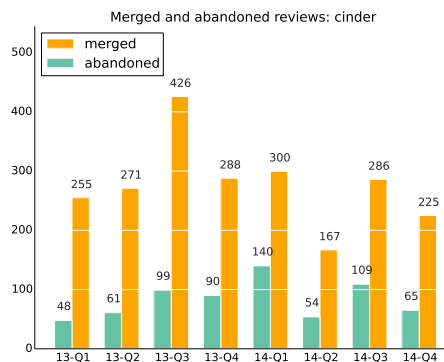
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	264	322
13-Q2	268	372
13-Q3	452	594
13-Q4	293	459
14-Q1	334	510
14-Q2	198	313
14-Q3	312	490
14-Q4	236	377

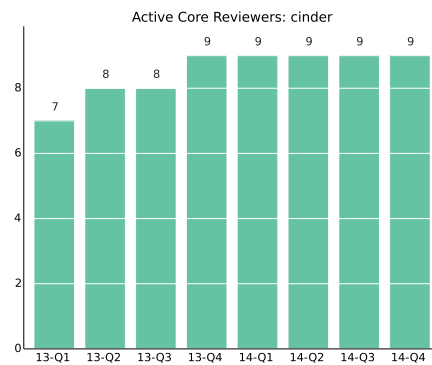


Period	Closed	Opened
13-Q1	136	182
13-Q2	131	181
13-Q3	233	326
13-Q4	180	292
14-Q1	233	356
14-Q2	123	223
14-Q3	206	318
14-Q4	112	203

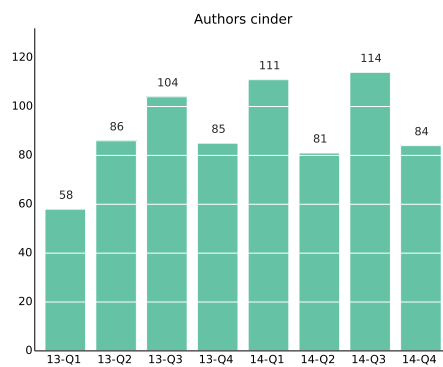


Period	Merged	Abandoned
13-Q1	255	48
13-Q2	271	61
13-Q3	426	99
13-Q4	288	90
14-Q1	300	140
14-Q2	167	54
14-Q3	286	109
14-Q4	225	65

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	7
13-Q2	8
13-Q3	8
13-Q4	9
14-Q1	9
14-Q2	9
14-Q3	9
14-Q4	9



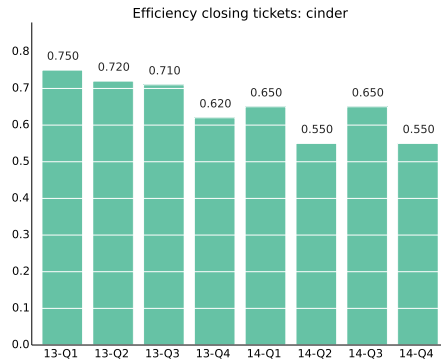
Period	Authors
13-Q1	58
13-Q2	86
13-Q3	104
13-Q4	85
14-Q1	111
14-Q2	81
14-Q3	114
14-Q4	84

Commit (s)	Author
19	John Griffith
14	git-harry
12	Vipin Balachandran
11	Eric Harney
9	ChangBo Guo(gcb)
8	Jay Bryant
8	Mike Mason
7	Navneet Singh
6	Patrick East
6	Sean McGinnis

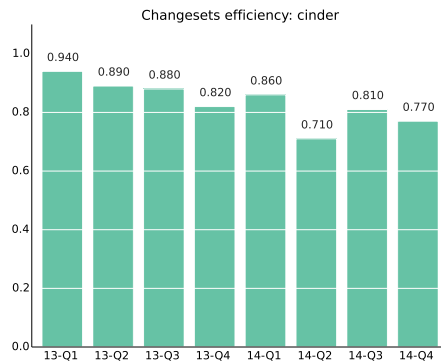
Commit (s)	Organizations
22	IBM
22	NetApp
20	Red Hat
19	SolidFire
14	HP
12	VMware
9	EasyStack
7	Hitachi Data Systems
6	Dell
6	Intel

**Process:** Efficiency closing changesets and tickets, time to review (mean

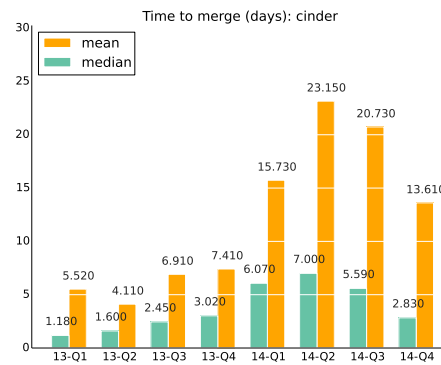
and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



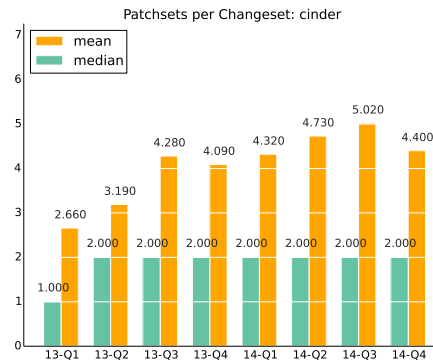
Period	Closed/Opened
13-Q1	0.75
13-Q2	0.72
13-Q3	0.71
13-Q4	0.62
14-Q1	0.65
14-Q2	0.55
14-Q3	0.65
14-Q4	0.55



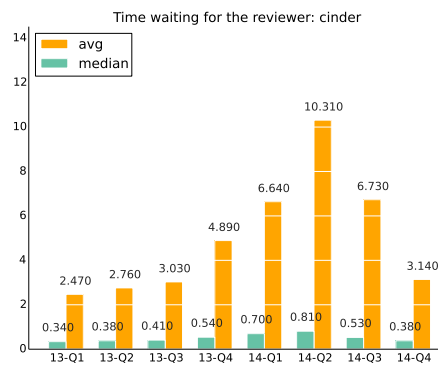
Period	Closed/Opened
13-Q1	0.94
13-Q2	0.89
13-Q3	0.88
13-Q4	0.82
14-Q1	0.86
14-Q2	0.71
14-Q3	0.81
14-Q4	0.77



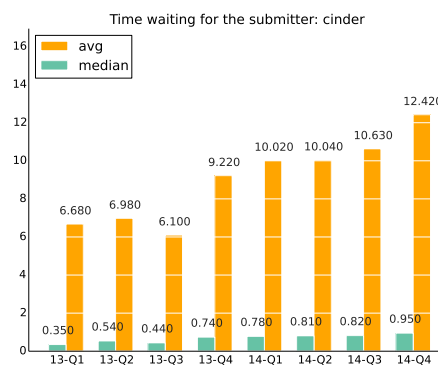
Period	Median	Mean
13-Q1	1.18	5.52
13-Q2	1.6	4.11
13-Q3	2.45	6.91
13-Q4	3.02	7.41
14-Q1	6.07	15.73
14-Q2	7.0	23.15
14-Q3	5.59	20.73
14-Q4	2.83	13.61



Period	Median	Mean
13-Q1	1.0	2.66
13-Q2	2.0	3.19
13-Q3	2.0	4.28
13-Q4	2.0	4.09
14-Q1	2.0	4.32
14-Q2	2.0	4.73
14-Q3	2.0	5.02
14-Q4	2.0	4.4



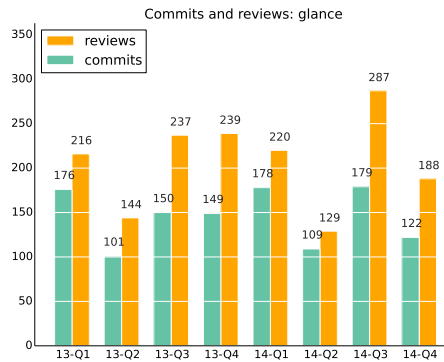
Period	Median	Mean
13-Q1	0.34	2.47
13-Q2	0.38	2.76
13-Q3	0.41	3.03
13-Q4	0.54	4.89
14-Q1	0.7	6.64
14-Q2	0.81	10.31
14-Q3	0.53	6.73
14-Q4	0.38	3.14



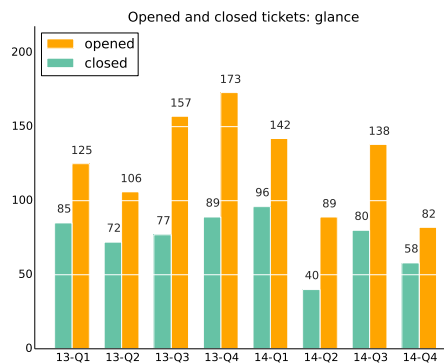
Period	Median	Mean
13-Q1	0.35	6.68
13-Q2	0.54	6.98
13-Q3	0.44	6.1
13-Q4	0.74	9.22
14-Q1	0.78	10.02
14-Q2	0.81	10.04
14-Q3	0.82	10.63
14-Q4	0.95	12.42

### 2.1.1.3 Glance

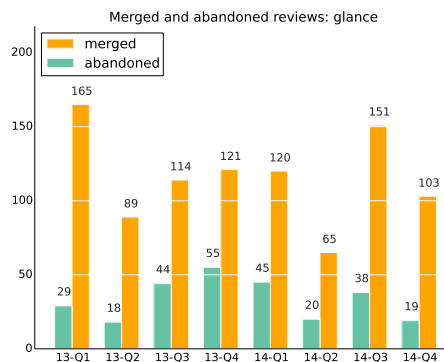
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	176	216
13-Q2	101	144
13-Q3	150	237
13-Q4	149	239
14-Q1	178	220
14-Q2	109	129
14-Q3	179	287
14-Q4	122	188

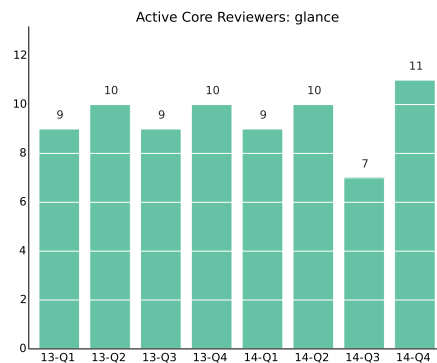


Period	Closed	Opened
13-Q1	85	125
13-Q2	72	106
13-Q3	77	157
13-Q4	89	173
14-Q1	96	142
14-Q2	40	89
14-Q3	80	138
14-Q4	58	82

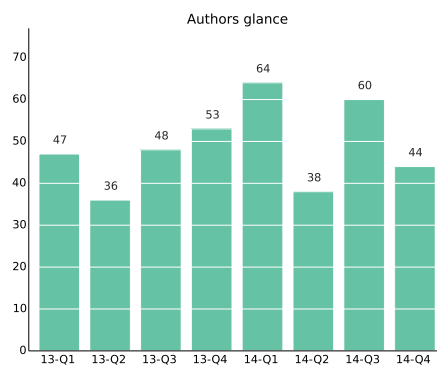


Period	Merged	Abandoned
13-Q1	165	29
13-Q2	89	18
13-Q3	114	44
13-Q4	121	55
14-Q1	120	45
14-Q2	65	20
14-Q3	151	38
14-Q4	103	19

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	9
13-Q2	10
13-Q3	9
13-Q4	10
14-Q1	9
14-Q2	10
14-Q3	7
14-Q4	11



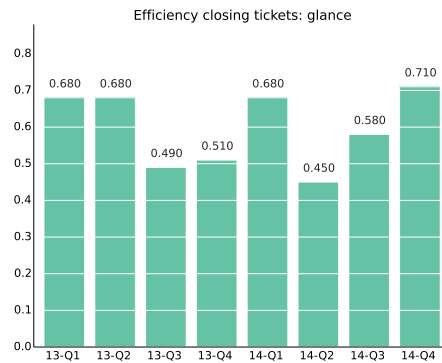
Period	Authors
13-Q1	47
13-Q2	36
13-Q3	48
13-Q4	53
14-Q1	64
14-Q2	38
14-Q3	60
14-Q4	44

Commit (s)	Author
15	Stuart McLaren
8	Ubuntu
8	Zhi Yan Liu
7	Julien Danjou
7	Travis Tripp
6	Flavio Percoco
6	Wayne Okuma
5	Mike Fedosin
5	Oleksii Chuprykov
4	Bartosz Fic

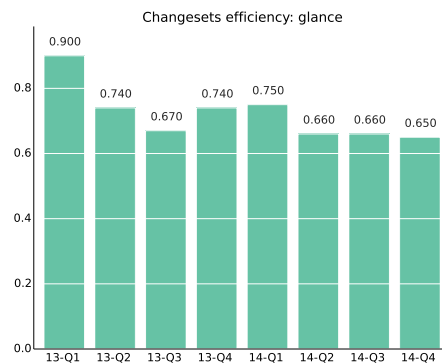
Commit (s)	Organizations
30	HP
16	NTT
16	Red Hat
10	IBM
8	Intel
8	Mirantis
8	Rackspace
5	Canonical
2	DreamHost
2	VMware

**Process:** Efficiency closing changesets and tickets, time to review (mean

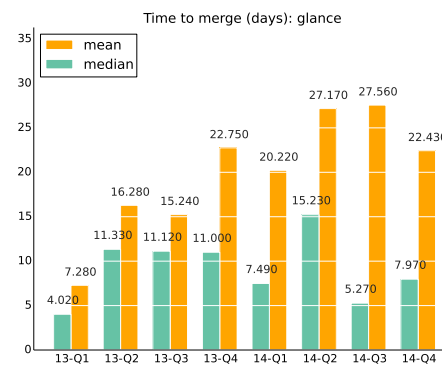
and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



Period	Closed/Opened
13-Q1	0.68
13-Q2	0.68
13-Q3	0.49
13-Q4	0.51
14-Q1	0.68
14-Q2	0.45
14-Q3	0.58
14-Q4	0.71

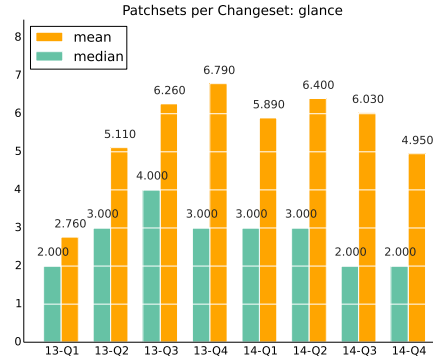


Period	Closed/Opened
13-Q1	0.9
13-Q2	0.74
13-Q3	0.67
13-Q4	0.74
14-Q1	0.75
14-Q2	0.66
14-Q3	0.66
14-Q4	0.65

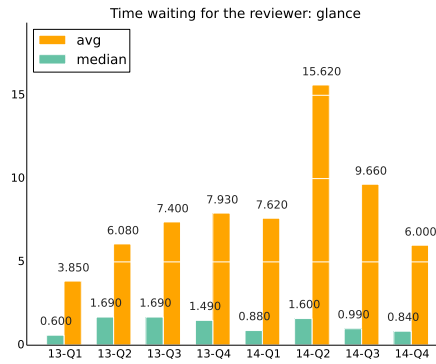


Period	Median	Mean
13-Q1	4.02	7.28
13-Q2	11.33	16.28
13-Q3	11.12	15.24
13-Q4	11.0	22.75
14-Q1	7.49	20.22
14-Q2	15.23	27.17
14-Q3	5.27	27.56
14-Q4	7.97	22.43

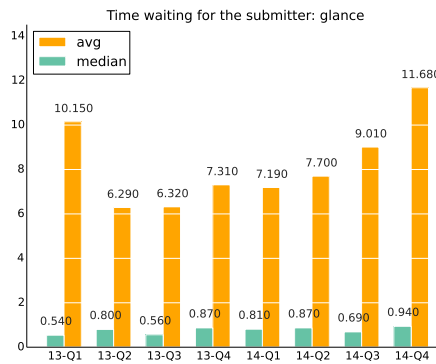
## 2.1. OVERALL OPENSTACK PROGRAMS



Period	Median	Mean
13-Q1	2.0	2.76
13-Q2	3.0	5.11
13-Q3	4.0	6.26
13-Q4	3.0	6.79
14-Q1	3.0	5.89
14-Q2	3.0	6.4
14-Q3	2.0	6.03
14-Q4	2.0	4.95



Period	Median	Mean
13-Q1	0.6	3.85
13-Q2	1.69	6.08
13-Q3	1.69	7.4
13-Q4	1.49	7.93
14-Q1	0.88	7.62
14-Q2	1.6	15.62
14-Q3	0.99	9.66
14-Q4	0.84	6.0

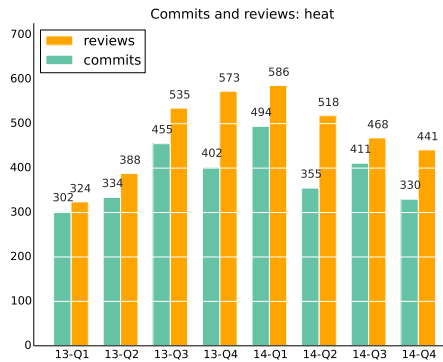


Period	Median	Mean
13-Q1	0.54	10.15
13-Q2	0.8	6.29
13-Q3	0.56	6.32
13-Q4	0.87	7.31
14-Q1	0.81	7.19
14-Q2	0.87	7.7
14-Q3	0.69	9.01
14-Q4	0.94	11.68

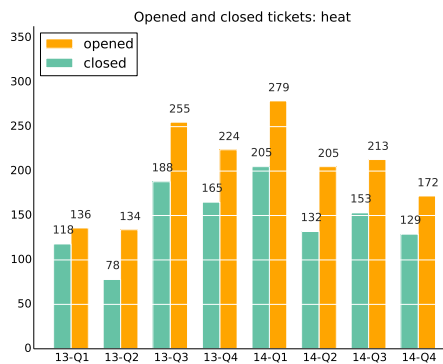


#### 2.1.1.4 Heat

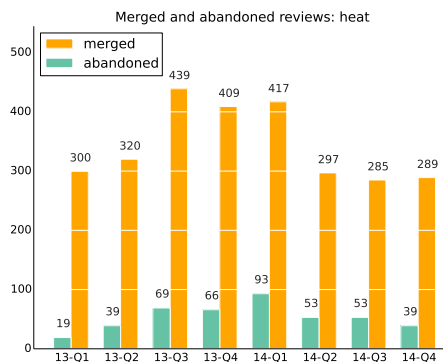
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	302	324
13-Q2	334	388
13-Q3	455	535
13-Q4	402	573
14-Q1	494	586
14-Q2	355	518
14-Q3	411	468
14-Q4	330	441

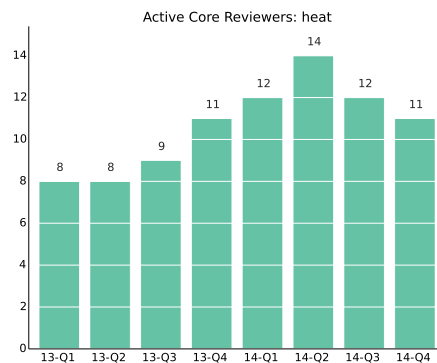


Period	Closed	Opened
13-Q1	118	136
13-Q2	78	134
13-Q3	188	255
13-Q4	165	224
14-Q1	205	279
14-Q2	132	205
14-Q3	153	213
14-Q4	129	172

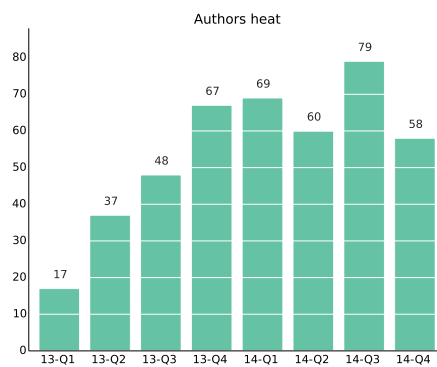


Period	Merged	Abandoned
13-Q1	300	19
13-Q2	320	39
13-Q3	439	69
13-Q4	409	66
14-Q1	417	93
14-Q2	297	53
14-Q3	285	53
14-Q4	289	39

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	8
13-Q2	8
13-Q3	9
13-Q4	11
14-Q1	12
14-Q2	14
14-Q3	12
14-Q4	11



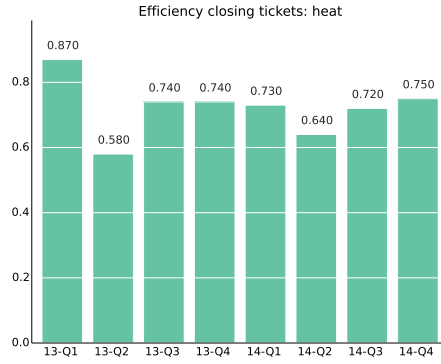
Period	Authors
13-Q1	17
13-Q2	37
13-Q3	48
13-Q4	67
14-Q1	69
14-Q2	60
14-Q3	79
14-Q4	58

Commit (s)	Author
45	Steven Hardy
35	Angus Salkeld
33	Tianhua Huang
26	Peter Razumovsky
17	Anderson Mesquita
17	Sergey Kraynev
15	Steve Baker
15	tengqm
14	Zane Bitter
12	Ethan Lynn

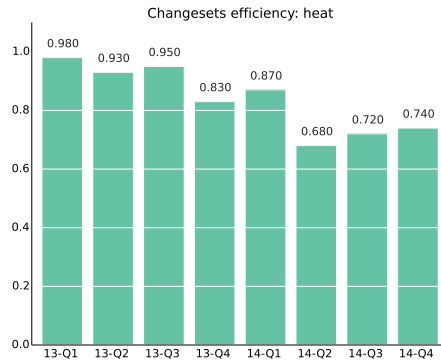
Commit (s)	Organizations
114	Red Hat
59	Mirantis
48	IBM
39	Huawei
36	Rackspace
5	Centrin
4	HP
3	OpenStack Foundation
2	B1 Systems
2	Canonical

**Process:** Efficiency closing changesets and tickets, time to review (mean

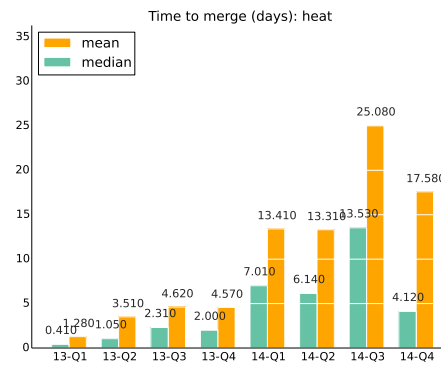
and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



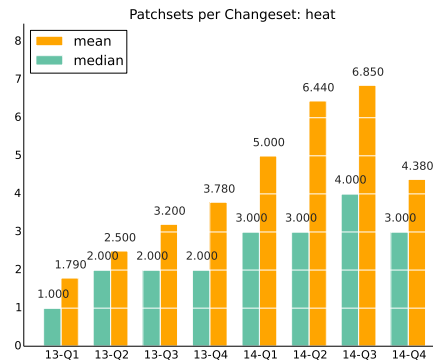
Period	Closed/Opened
13-Q1	0.87
13-Q2	0.58
13-Q3	0.74
13-Q4	0.74
14-Q1	0.73
14-Q2	0.64
14-Q3	0.72
14-Q4	0.75



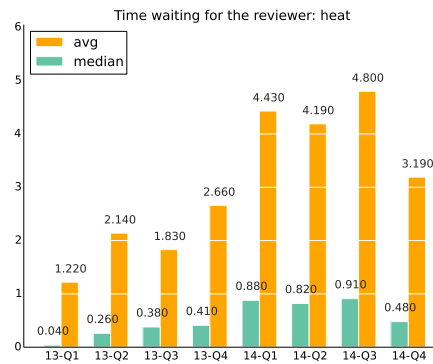
Period	Closed/Opened
13-Q1	0.98
13-Q2	0.93
13-Q3	0.95
13-Q4	0.83
14-Q1	0.87
14-Q2	0.68
14-Q3	0.72
14-Q4	0.74



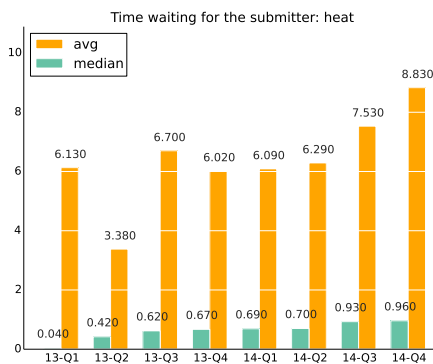
Period	Median	Mean
13-Q1	0.41	1.28
13-Q2	1.05	3.51
13-Q3	2.31	4.62
13-Q4	2.0	4.57
14-Q1	7.01	13.41
14-Q2	6.14	13.31
14-Q3	13.53	25.08
14-Q4	4.12	17.58



Period	Median	Mean
13-Q1	1.0	1.79
13-Q2	2.0	2.5
13-Q3	2.0	3.2
13-Q4	2.0	3.78
14-Q1	3.0	5.0
14-Q2	3.0	6.44
14-Q3	4.0	6.85
14-Q4	3.0	4.38



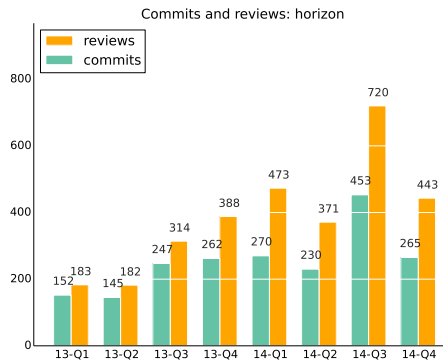
Period	Median	Mean
13-Q1	0.04	1.22
13-Q2	0.26	2.14
13-Q3	0.38	1.83
13-Q4	0.41	2.66
14-Q1	0.88	4.43
14-Q2	0.82	4.19
14-Q3	0.91	4.8
14-Q4	0.48	3.19



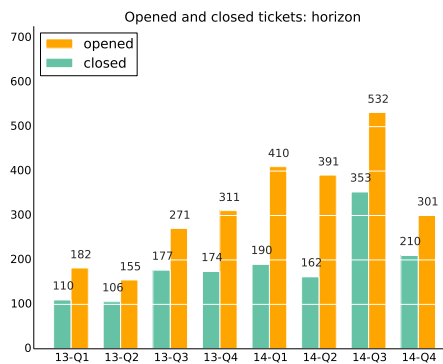
Period	Median	Mean
13-Q1	0.04	6.13
13-Q2	0.42	3.38
13-Q3	0.62	6.7
13-Q4	0.67	6.02
14-Q1	0.69	6.09
14-Q2	0.7	6.29
14-Q3	0.93	7.53
14-Q4	0.96	8.83

### 2.1.1.5 Horizon

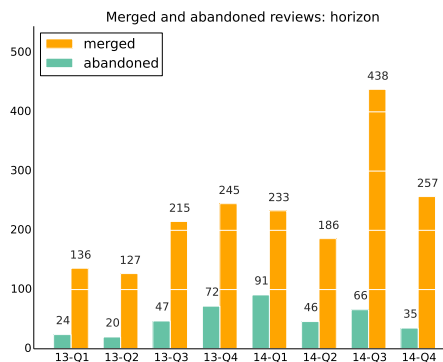
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	152	183
13-Q2	145	182
13-Q3	247	314
13-Q4	262	388
14-Q1	270	473
14-Q2	230	371
14-Q3	453	720
14-Q4	265	443

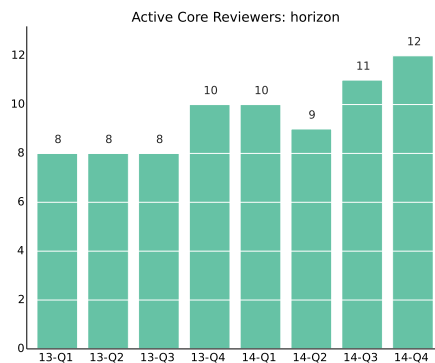


Period	Closed	Opened
13-Q1	110	182
13-Q2	106	155
13-Q3	177	271
13-Q4	174	311
14-Q1	190	410
14-Q2	162	391
14-Q3	353	532
14-Q4	210	301

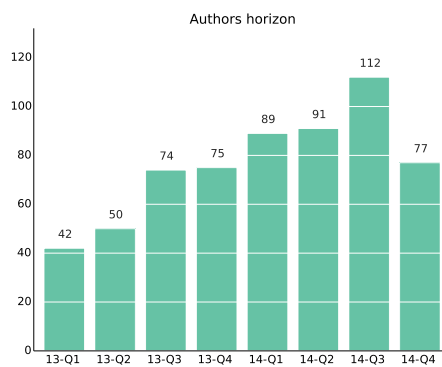


Period	Merged	Abandoned
13-Q1	136	24
13-Q2	127	20
13-Q3	215	47
13-Q4	245	72
14-Q1	233	91
14-Q2	186	46
14-Q3	438	66
14-Q4	257	35

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	8
13-Q2	8
13-Q3	8
13-Q4	10
14-Q1	10
14-Q2	9
14-Q3	11
14-Q4	12



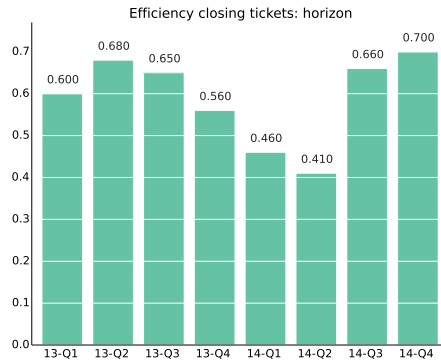
Period	Authors
13-Q1	42
13-Q2	50
13-Q3	74
13-Q4	75
14-Q1	89
14-Q2	91
14-Q3	112
14-Q4	77

Commit (s)	Author
28	Akihiro MOTOKI
13	Cindy Lu
13	David Lyle
13	Doug Fish
12	Lin Hua Cheng
11	Sam Betts
10	Ana Krivokapic
10	Julie Pichon
8	Bradley Jones
8	Li Yingjun

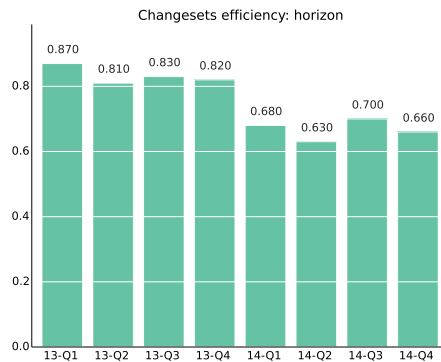
Commit (s)	Organizations
52	Red Hat
44	IBM
38	HP
28	NEC
20	Mirantis
13	Cisco Systems
8	Kylin OS Co.
3	Intel
2	Centrin
2	eBay

**Process:** Efficiency closing changesets and tickets, time to review (mean

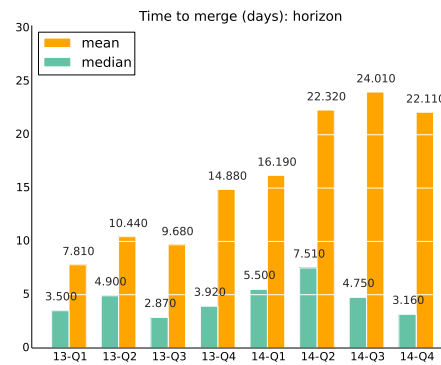
and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



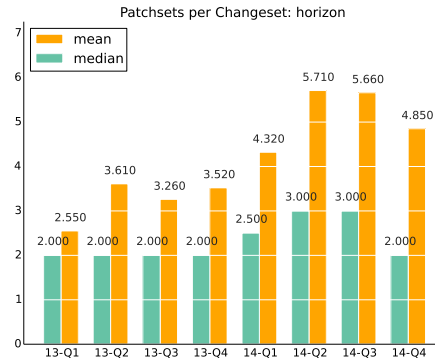
Period	Closed/Opened
13-Q1	0.6
13-Q2	0.68
13-Q3	0.65
13-Q4	0.56
14-Q1	0.46
14-Q2	0.41
14-Q3	0.66
14-Q4	0.7



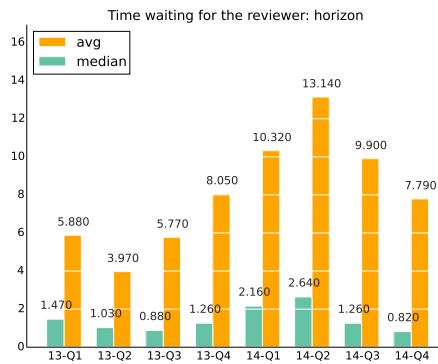
Period	Closed/Opened
13-Q1	0.87
13-Q2	0.81
13-Q3	0.83
13-Q4	0.82
14-Q1	0.68
14-Q2	0.63
14-Q3	0.7
14-Q4	0.66



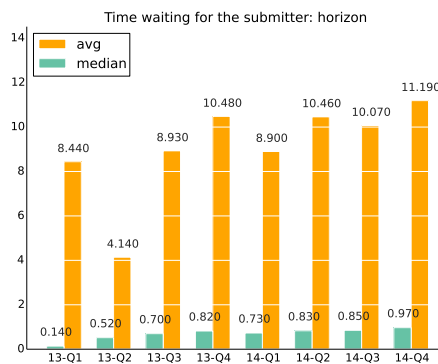
Period	Median	Mean
13-Q1	3.5	7.81
13-Q2	4.9	10.44
13-Q3	2.87	9.68
13-Q4	3.92	14.88
14-Q1	5.5	16.19
14-Q2	7.51	22.32
14-Q3	4.75	24.01
14-Q4	3.16	22.11



Period	Median	Mean
13-Q1	2.0	2.55
13-Q2	2.0	3.61
13-Q3	2.0	3.26
13-Q4	2.0	3.52
14-Q1	2.5	4.32
14-Q2	3.0	5.71
14-Q3	3.0	5.66
14-Q4	2.0	4.85



Period	Median	Mean
13-Q1	1.47	5.88
13-Q2	1.03	3.97
13-Q3	0.88	5.77
13-Q4	1.26	8.05
14-Q1	2.16	10.32
14-Q2	2.64	13.14
14-Q3	1.26	9.9
14-Q4	0.82	7.79

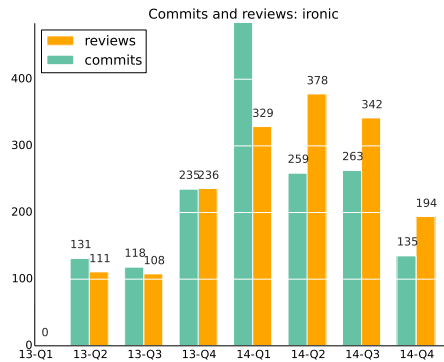


Period	Median	Mean
13-Q1	0.14	8.44
13-Q2	0.52	4.14
13-Q3	0.7	8.93
13-Q4	0.82	10.48
14-Q1	0.73	8.9
14-Q2	0.83	10.46
14-Q3	0.85	10.07
14-Q4	0.97	11.19

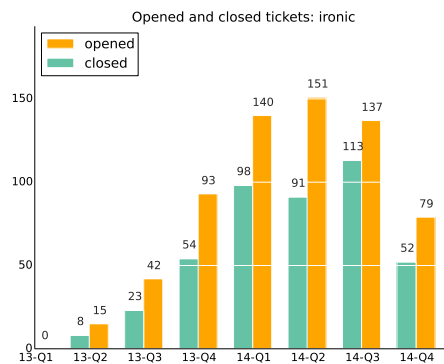


### 2.1.1.6 Ironic

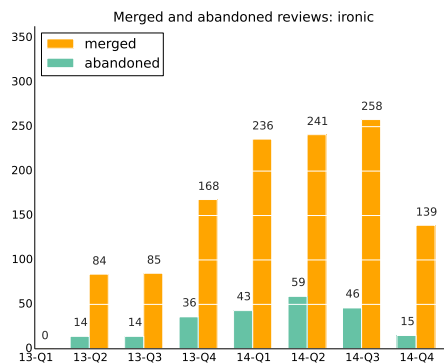
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	60	0
13-Q2	131	111
13-Q3	118	108
13-Q4	235	236
14-Q1	505	329
14-Q2	259	378
14-Q3	263	342
14-Q4	135	194

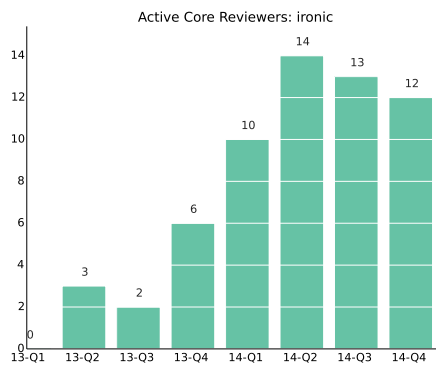


Period	Closed	Opened
13-Q1	0	0
13-Q2	8	15
13-Q3	23	42
13-Q4	54	93
14-Q1	98	140
14-Q2	91	151
14-Q3	113	137
14-Q4	52	79

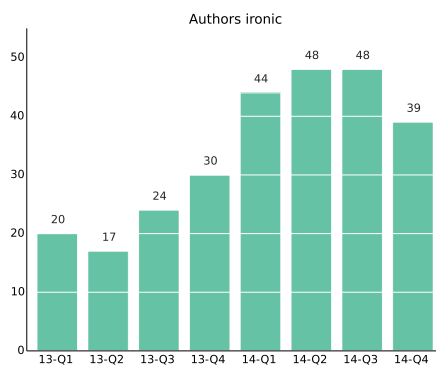


Period	Merged	Abandoned
13-Q1	0	0
13-Q2	84	14
13-Q3	85	14
13-Q4	168	36
14-Q1	236	43
14-Q2	241	59
14-Q3	258	46
14-Q4	139	15

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	0
13-Q2	3
13-Q3	2
13-Q4	6
14-Q1	10
14-Q2	14
14-Q3	13
14-Q4	12



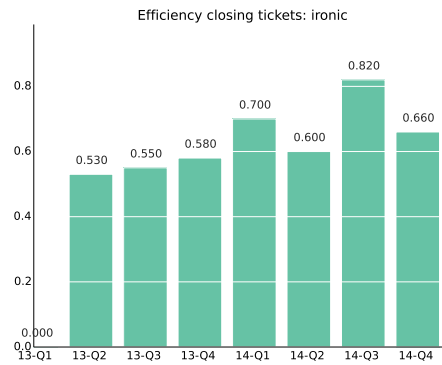
Period	Authors
13-Q1	20
13-Q2	17
13-Q3	24
13-Q4	30
14-Q1	44
14-Q2	48
14-Q3	48
14-Q4	39

Commit (s)	Author
17	Jim Rollenhagen
16	Lucas Alvares Gomes
13	Vladyslav Drok
10	David Shrewsbury
10	Ruby Loo
6	Jay Faulkner
6	Tan Lin
6	Yuriy Zveryanskyy
5	Devananda
4	Ramakrishnan G

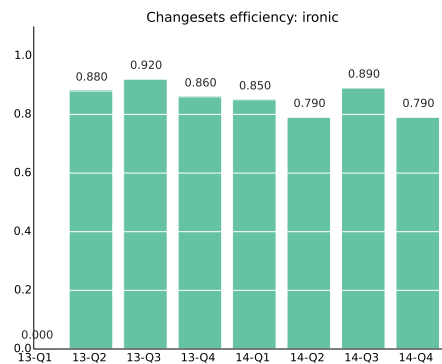
Commit (s)	Organizations
19	Mirantis
18	HP
10	Yahoo!
9	Rackspace
4	OpenStack Foundation
3	IzelTech
3	Red Hat
2	Intel
1	Cisco Systems
1	Hitachi Data Systems

**Process:** Efficiency closing changesets and tickets, time to review (mean

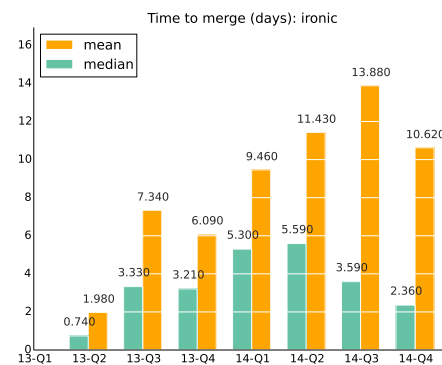
and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



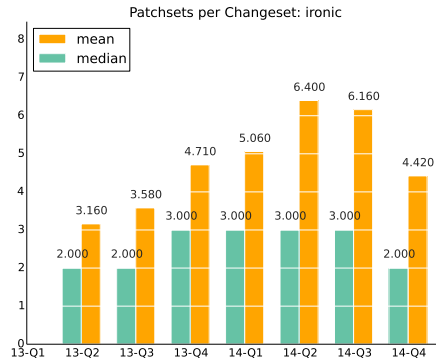
Period	Closed/Opened
13-Q1	0
13-Q2	0.53
13-Q3	0.55
13-Q4	0.58
14-Q1	0.7
14-Q2	0.6
14-Q3	0.82
14-Q4	0.66



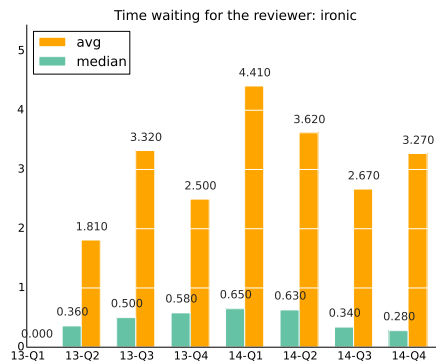
Period	Closed/Opened
13-Q1	0.0
13-Q2	0.88
13-Q3	0.92
13-Q4	0.86
14-Q1	0.85
14-Q2	0.79
14-Q3	0.89
14-Q4	0.79



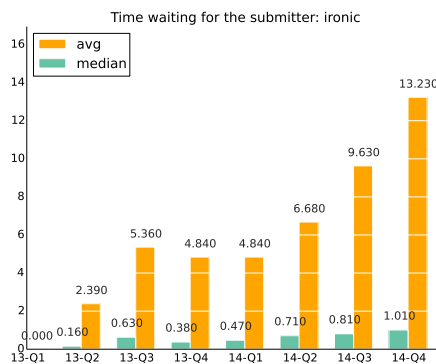
Period	Median	Mean
13-Q1	nan	nan
13-Q2	0.74	1.98
13-Q3	3.33	7.34
13-Q4	3.21	6.09
14-Q1	5.3	9.46
14-Q2	5.59	11.43
14-Q3	3.59	13.88
14-Q4	2.36	10.62



Period	Median	Mean
13-Q1	nan	nan
13-Q2	2.0	3.16
13-Q3	2.0	3.58
13-Q4	3.0	4.71
14-Q1	3.0	5.06
14-Q2	3.0	6.4
14-Q3	3.0	6.16
14-Q4	2.0	4.42



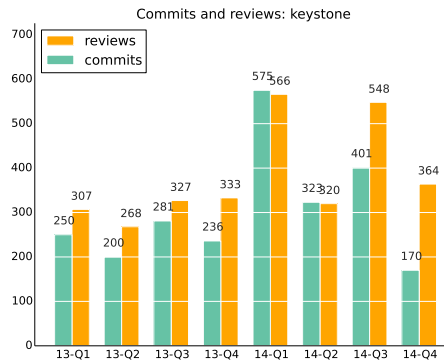
Period	Median	Mean
13-Q1	0.0	0.0
13-Q2	0.36	1.81
13-Q3	0.5	3.32
13-Q4	0.58	2.5
14-Q1	0.65	4.41
14-Q2	0.63	3.62
14-Q3	0.34	2.67
14-Q4	0.28	3.27



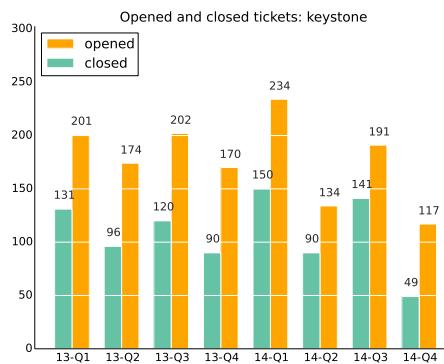
Period	Median	Mean
13-Q1	0.0	0.0
13-Q2	0.16	2.39
13-Q3	0.63	5.36
13-Q4	0.38	4.84
14-Q1	0.47	4.84
14-Q2	0.71	6.68
14-Q3	0.81	9.63
14-Q4	1.01	13.23

### 2.1.1.7 Keystone

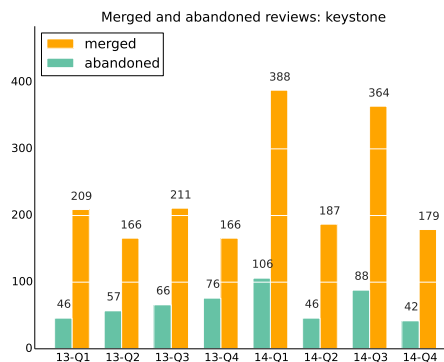
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	250	307
13-Q2	200	268
13-Q3	281	327
13-Q4	236	333
14-Q1	575	566
14-Q2	323	320
14-Q3	401	548
14-Q4	170	364

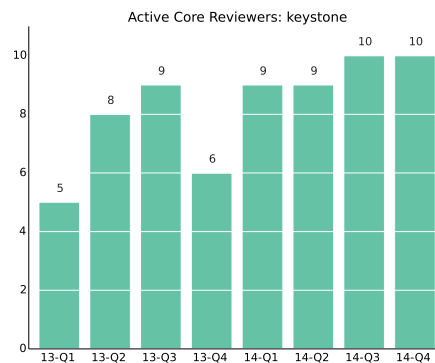


Period	Closed	Opened
13-Q1	131	201
13-Q2	96	174
13-Q3	120	202
13-Q4	90	170
14-Q1	150	234
14-Q2	90	134
14-Q3	141	191
14-Q4	49	117

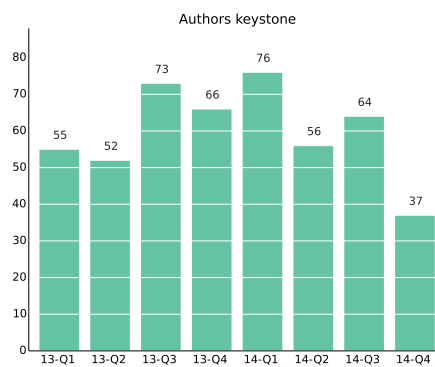


Period	Merged	Abandoned
13-Q1	209	46
13-Q2	166	57
13-Q3	211	66
13-Q4	166	76
14-Q1	388	106
14-Q2	187	46
14-Q3	364	88
14-Q4	179	42

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	5
13-Q2	8
13-Q3	9
13-Q4	6
14-Q1	9
14-Q2	9
14-Q3	10
14-Q4	10



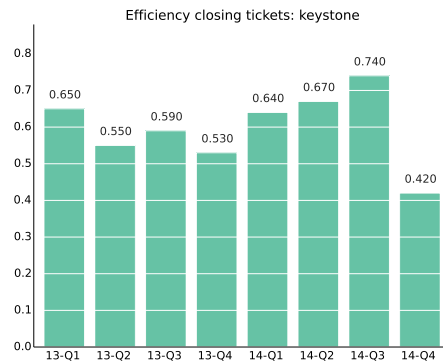
Period	Authors
13-Q1	55
13-Q2	52
13-Q3	73
13-Q4	66
14-Q1	76
14-Q2	56
14-Q3	64
14-Q4	37

Commit (s)	Author
33	Brant Knudson
23	Steve Martinelli
18	Rodrigo Duarte Sousa
14	Jamie Lennox
12	David Stanek
11	Henry Nash
8	Lance Bragstad
5	Dolph Mathews
5	Morgan Fainberg
5	Nathan Kinder

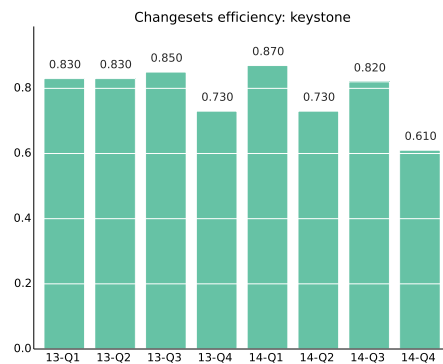
Commit (s)	Organizations
83	IBM
25	Red Hat
20	LSD
18	Rackspace
6	Metacloud
5	Huawei
2	CERN
2	HP
2	Intel
2	NTT

**Process:** Efficiency closing changesets and tickets, time to review (mean

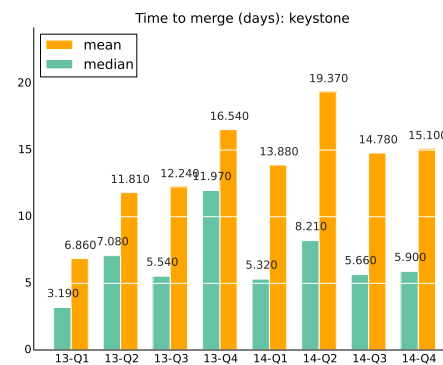
and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



Period	Closed/Opened
13-Q1	0.65
13-Q2	0.55
13-Q3	0.59
13-Q4	0.53
14-Q1	0.64
14-Q2	0.67
14-Q3	0.74
14-Q4	0.42

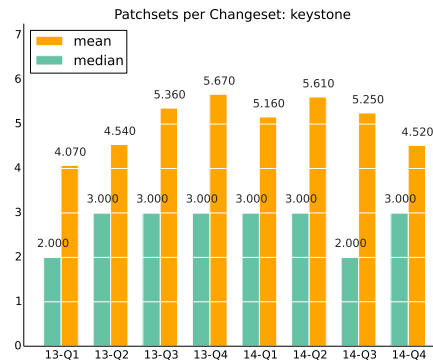


Period	Closed/Opened
13-Q1	0.83
13-Q2	0.83
13-Q3	0.85
13-Q4	0.73
14-Q1	0.87
14-Q2	0.73
14-Q3	0.82
14-Q4	0.61

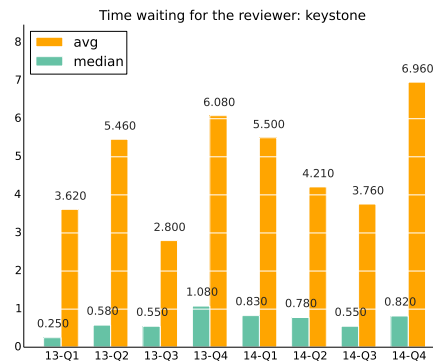


Period	Median	Mean
13-Q1	3.19	6.86
13-Q2	7.08	11.81
13-Q3	5.54	12.24
13-Q4	11.97	16.54
14-Q1	5.32	13.88
14-Q2	8.21	19.37
14-Q3	5.66	14.78
14-Q4	5.9	15.1

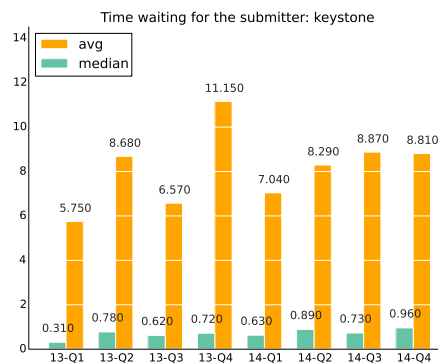
## 2.1. OVERALL OPENSTACK PROGRAMS



Period	Median	Mean
13-Q1	2.0	4.07
13-Q2	3.0	4.54
13-Q3	3.0	5.36
13-Q4	3.0	5.67
14-Q1	3.0	5.16
14-Q2	3.0	5.61
14-Q3	2.0	5.25
14-Q4	3.0	4.52



Period	Median	Mean
13-Q1	0.25	3.62
13-Q2	0.58	5.46
13-Q3	0.55	2.8
13-Q4	1.08	6.08
14-Q1	0.83	5.5
14-Q2	0.78	4.21
14-Q3	0.55	3.76
14-Q4	0.82	6.96

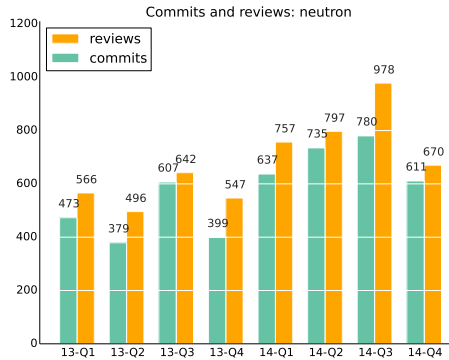


Period	Median	Mean
13-Q1	0.31	5.75
13-Q2	0.78	8.68
13-Q3	0.62	6.57
13-Q4	0.72	11.15
14-Q1	0.63	7.04
14-Q2	0.89	8.29
14-Q3	0.73	8.87
14-Q4	0.96	8.81

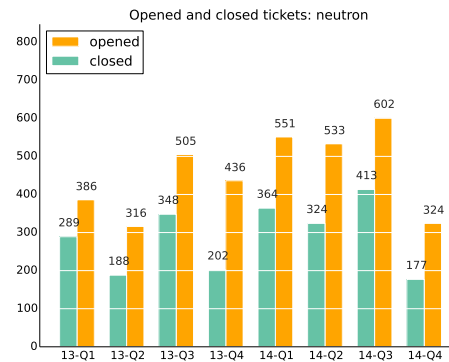


### 2.1.1.8 Neutron

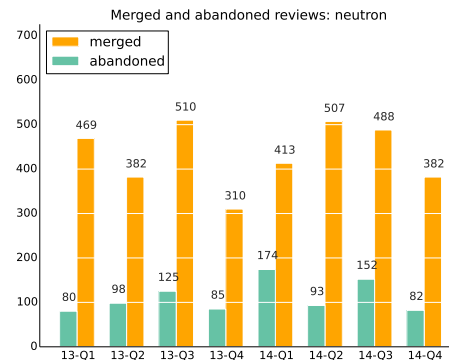
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	473	566
13-Q2	379	496
13-Q3	607	642
13-Q4	399	547
14-Q1	637	757
14-Q2	735	797
14-Q3	780	978
14-Q4	611	670

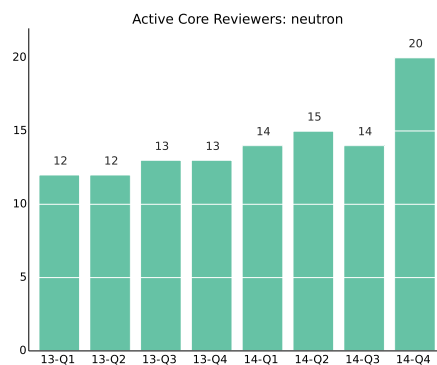


Period	Closed	Opened
13-Q1	289	386
13-Q2	188	316
13-Q3	348	505
13-Q4	202	436
14-Q1	364	551
14-Q2	324	533
14-Q3	413	602
14-Q4	177	324

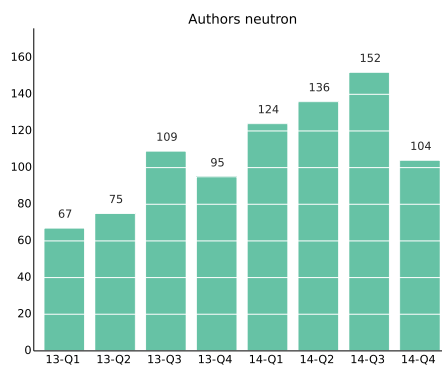


Period	Merged	Abandoned
13-Q1	469	80
13-Q2	382	98
13-Q3	510	125
13-Q4	310	85
14-Q1	413	174
14-Q2	507	93
14-Q3	488	152
14-Q4	382	82

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	12
13-Q2	12
13-Q3	13
13-Q4	13
14-Q1	14
14-Q2	15
14-Q3	14
14-Q4	20



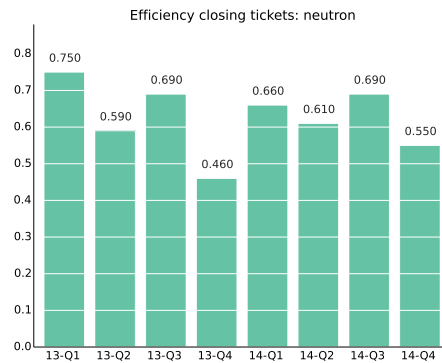
Period	Authors
13-Q1	67
13-Q2	75
13-Q3	109
13-Q4	95
14-Q1	124
14-Q2	136
14-Q3	152
14-Q4	104

Commit (s)	Author
95	Kevin Benton
55	Mark McClain
51	Russell Bryant
44	Angus Lees
40	Ihar Hrachyshka
32	cedric.brandily
32	YAMAMOTO Takashi
23	Carl Baldwin
23	garyk
19	Doug Wiegley

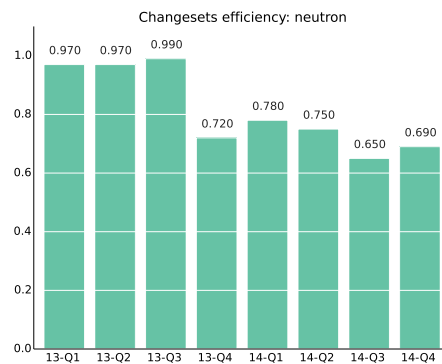
Commit (s)	Organizations
174	Red Hat
95	Bit Switch Networks
57	HP
56	Yahoo!
45	Cisco Systems
39	Mirantis
36	VMware
34	VA Linux
30	IBM
23	Radware

**Process:** Efficiency closing changesets and tickets, time to review (mean

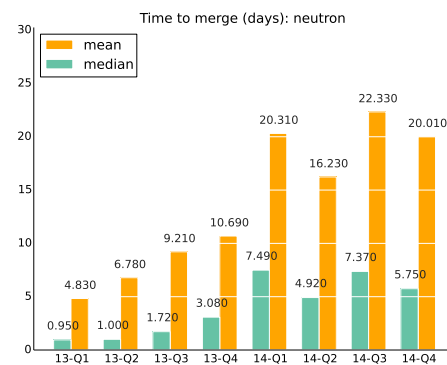
and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



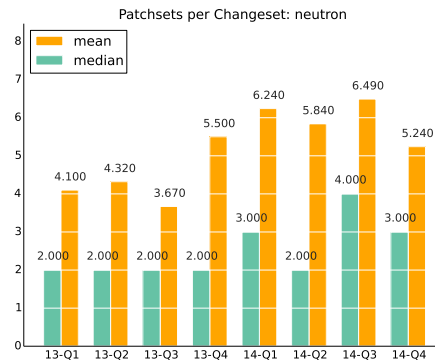
Period	Closed/Opened
13-Q1	0.75
13-Q2	0.59
13-Q3	0.69
13-Q4	0.46
14-Q1	0.66
14-Q2	0.61
14-Q3	0.69
14-Q4	0.55



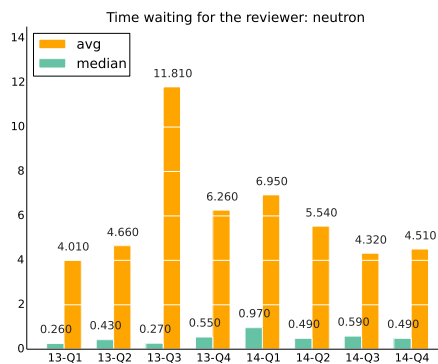
Period	Closed/Opened
13-Q1	0.97
13-Q2	0.97
13-Q3	0.99
13-Q4	0.72
14-Q1	0.78
14-Q2	0.75
14-Q3	0.65
14-Q4	0.69



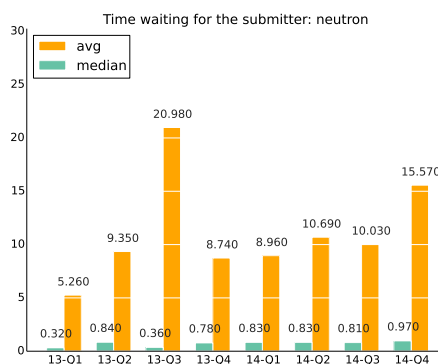
Period	Median	Mean
13-Q1	0.95	4.83
13-Q2	1.0	6.78
13-Q3	1.72	9.21
13-Q4	3.08	10.69
14-Q1	7.49	20.31
14-Q2	4.92	16.23
14-Q3	7.37	22.33
14-Q4	5.75	20.01



Period	Median	Mean
13-Q1	2.0	4.1
13-Q2	2.0	4.32
13-Q3	2.0	3.67
13-Q4	2.0	5.5
14-Q1	3.0	6.24
14-Q2	2.0	5.84
14-Q3	4.0	6.49
14-Q4	3.0	5.24



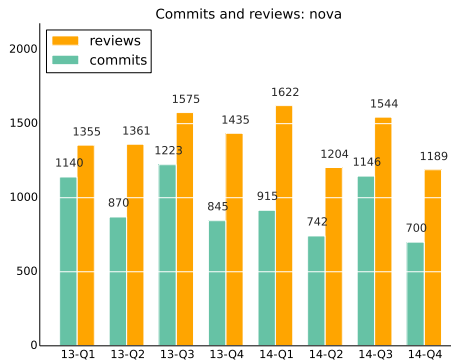
Period	Median	Mean
13-Q1	0.26	4.01
13-Q2	0.43	4.66
13-Q3	0.27	11.81
13-Q4	0.55	6.26
14-Q1	0.97	6.95
14-Q2	0.49	5.54
14-Q3	0.59	4.32
14-Q4	0.49	4.51



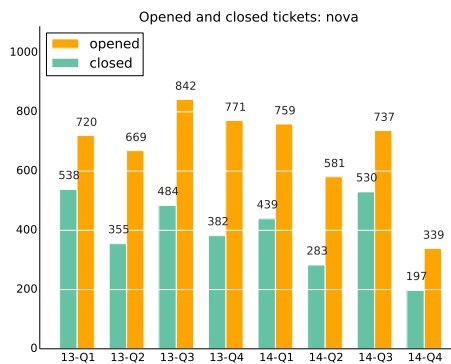
Period	Median	Mean
13-Q1	0.32	5.26
13-Q2	0.84	9.35
13-Q3	0.36	20.98
13-Q4	0.78	8.74
14-Q1	0.83	8.96
14-Q2	0.83	10.69
14-Q3	0.81	10.03
14-Q4	0.97	15.57

### 2.1.1.9 Nova

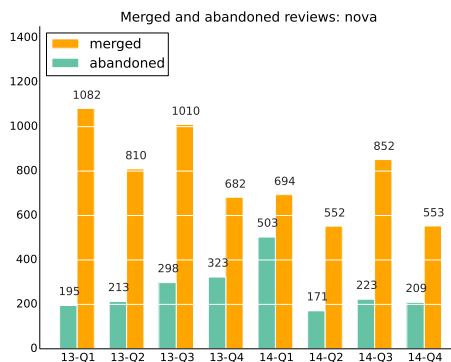
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	1140	1355
13-Q2	870	1361
13-Q3	1223	1575
13-Q4	845	1435
14-Q1	915	1622
14-Q2	742	1204
14-Q3	1146	1544
14-Q4	700	1189

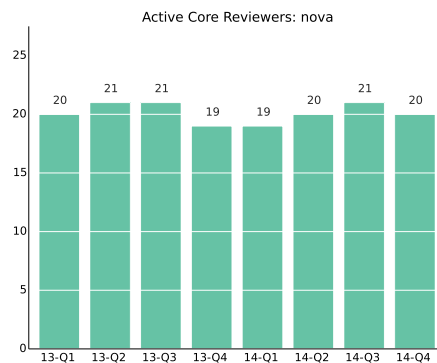


Period	Closed	Opened
13-Q1	538	720
13-Q2	355	669
13-Q3	484	842
13-Q4	382	771
14-Q1	439	759
14-Q2	283	581
14-Q3	530	737
14-Q4	197	339

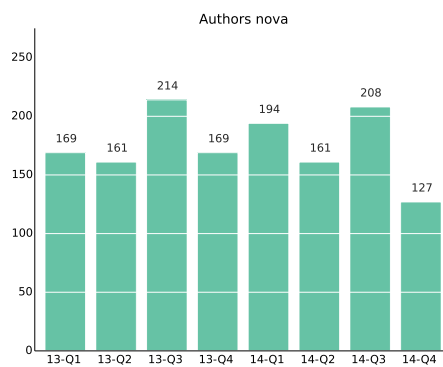


Period	Merged	Abandoned
13-Q1	1082	195
13-Q2	810	213
13-Q3	1010	298
13-Q4	682	323
14-Q1	694	503
14-Q2	552	171
14-Q3	852	223
14-Q4	553	209

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	20
13-Q2	21
13-Q3	21
13-Q4	19
14-Q1	19
14-Q2	20
14-Q3	21
14-Q4	20



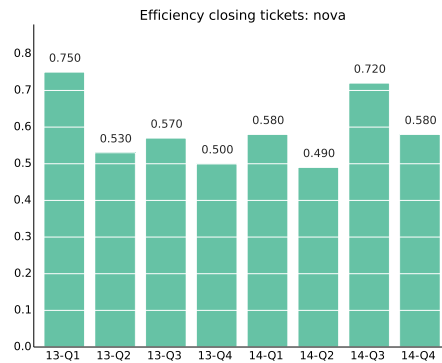
Period	Authors
13-Q1	169
13-Q2	161
13-Q3	214
13-Q4	169
14-Q1	194
14-Q2	161
14-Q3	208
14-Q4	127

Commit (s)	Author
62	garyk
35	jichen
31	Eli Qiao
31	jaypipes
29	Chris Yeoh
29	Dan Smith
27	Matt Riedemann
24	Daniel P. Berrange
22	Sean Dague
21	Ken'ichi Ohmichi

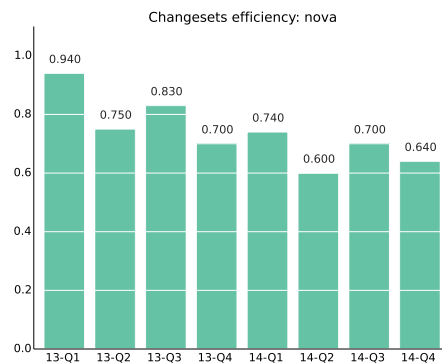
Commit (s)	Organizations
214	IBM
89	Red Hat
70	VMware
62	Radware
53	HP
40	NEC
32	Mirantis
32	Rackspace
T	T ,,
20	Cloudbase Solutions

**Process:** Efficiency closing changesets and tickets, time to review (mean

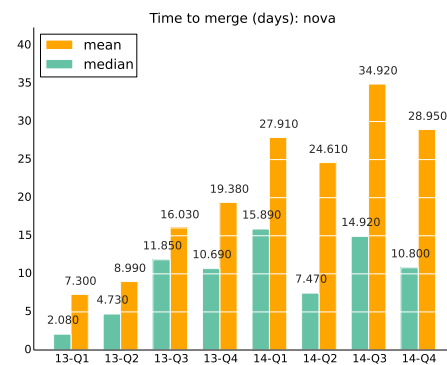
and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



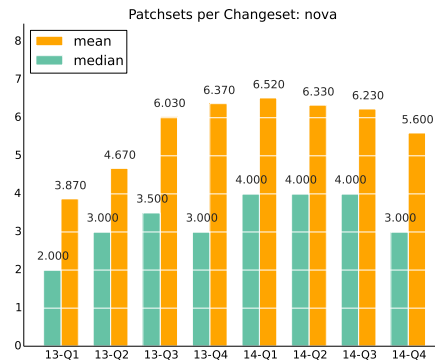
Period	Closed/Opened
13-Q1	0.75
13-Q2	0.53
13-Q3	0.57
13-Q4	0.5
14-Q1	0.58
14-Q2	0.49
14-Q3	0.72
14-Q4	0.58



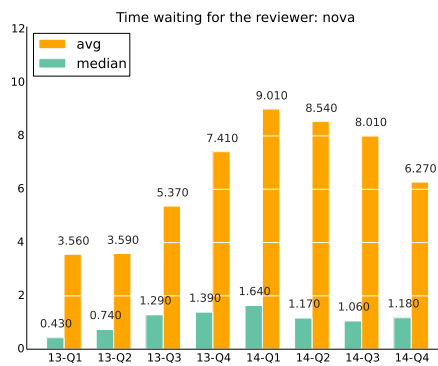
Period	Closed/Opened
13-Q1	0.94
13-Q2	0.75
13-Q3	0.83
13-Q4	0.7
14-Q1	0.74
14-Q2	0.6
14-Q3	0.7
14-Q4	0.64



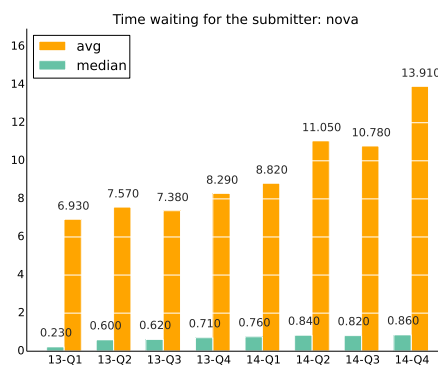
Period	Median	Mean
13-Q1	2.08	7.3
13-Q2	4.73	8.99
13-Q3	11.85	16.03
13-Q4	10.69	19.38
14-Q1	15.89	27.91
14-Q2	7.47	24.61
14-Q3	14.92	34.92
14-Q4	10.8	28.95



Period	Median	Mean
13-Q1	2.0	3.87
13-Q2	3.0	4.67
13-Q3	3.5	6.03
13-Q4	3.0	6.37
14-Q1	4.0	6.52
14-Q2	4.0	6.33
14-Q3	4.0	6.23
14-Q4	3.0	5.6



Period	Median	Mean
13-Q1	0.43	3.56
13-Q2	0.74	3.59
13-Q3	1.29	5.37
13-Q4	1.39	7.41
14-Q1	1.64	9.01
14-Q2	1.17	8.54
14-Q3	1.06	8.01
14-Q4	1.18	6.27

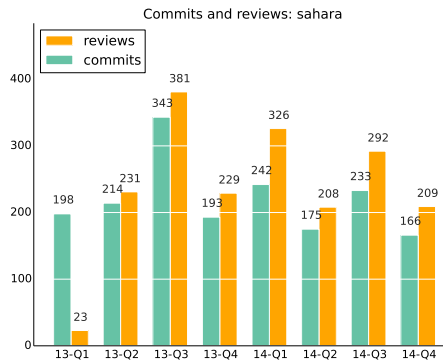


Period	Median	Mean
13-Q1	0.23	6.93
13-Q2	0.6	7.57
13-Q3	0.62	7.38
13-Q4	0.71	8.29
14-Q1	0.76	8.82
14-Q2	0.84	11.05
14-Q3	0.82	10.78
14-Q4	0.86	13.91

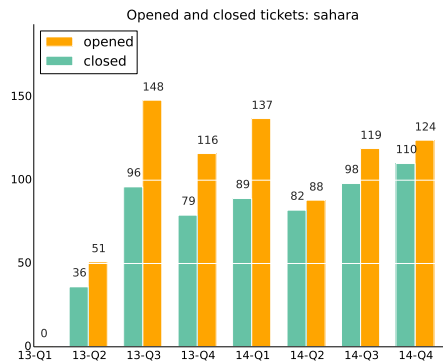


### 2.1.1.10 Sahara

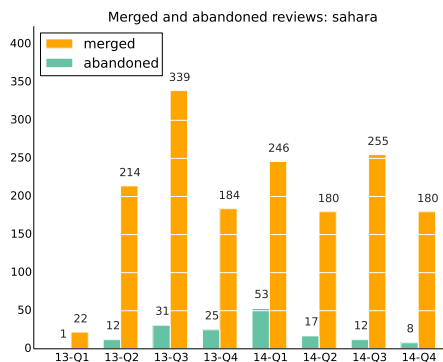
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	198	23
13-Q2	214	231
13-Q3	343	381
13-Q4	193	229
14-Q1	242	326
14-Q2	175	208
14-Q3	233	292
14-Q4	166	209

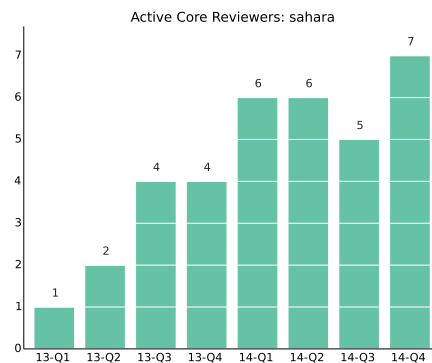


Period	Closed	Opened
13-Q1	0	0
13-Q2	36	51
13-Q3	96	148
13-Q4	79	116
14-Q1	89	137
14-Q2	82	88
14-Q3	98	119
14-Q4	110	124

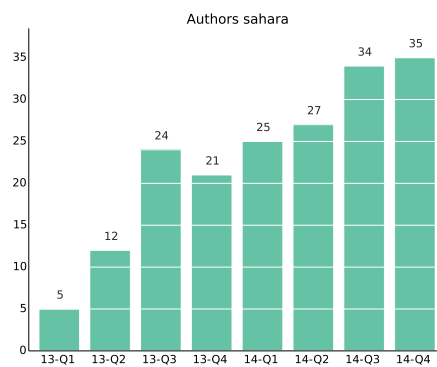


Period	Merged	Abandoned
13-Q1	22	1
13-Q2	214	12
13-Q3	339	31
13-Q4	184	25
14-Q1	246	53
14-Q2	180	17
14-Q3	255	12
14-Q4	180	8

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	1
13-Q2	2
13-Q3	4
13-Q4	4
14-Q1	6
14-Q2	6
14-Q3	5
14-Q4	7



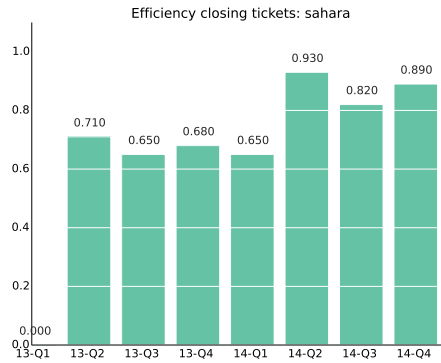
Period	Authors
13-Q1	5
13-Q2	12
13-Q3	24
13-Q4	21
14-Q1	25
14-Q2	27
14-Q3	34
14-Q4	35

Commit (s)	Author
30	Sergey Reshetnyak
28	Andrew Lazarev
16	Trevor McKay
15	Shilla Saebi
12	ERROR
8	Andrey Pavlov
6	Matthew Farrellee
6	Sergey Lukjanov
6	Vitaly Gridnev
5	Michael McCune

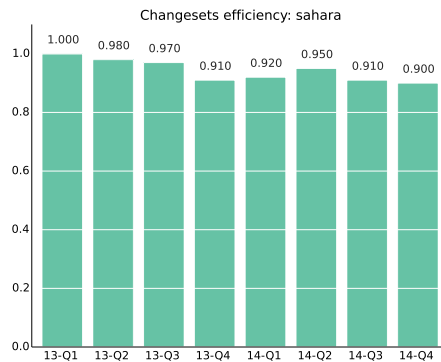
Commit (s)	Organizations
84	Mirantis
33	Red Hat
15	Comcast
12	Numergy
9	Cloudscaling
3	UFCG
2	Canonical
2	NTT
2	OpenStack Foundation
1	Intel

**Process:** Efficiency closing changesets and tickets, time to review (mean

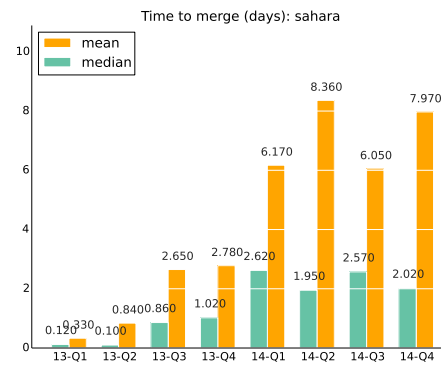
and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



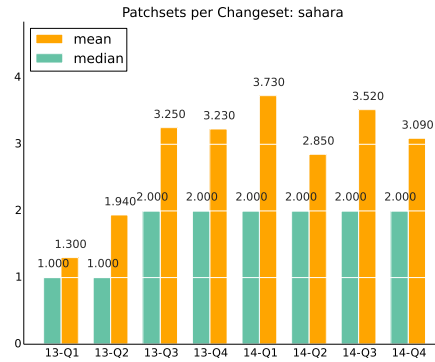
Period	Closed/Opened
13-Q1	0
13-Q2	0.71
13-Q3	0.65
13-Q4	0.68
14-Q1	0.65
14-Q2	0.93
14-Q3	0.82
14-Q4	0.89



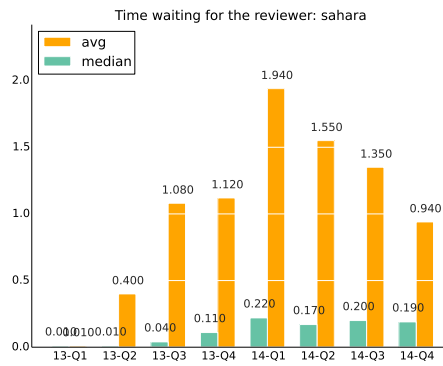
Period	Closed/Opened
13-Q1	1.0
13-Q2	0.98
13-Q3	0.97
13-Q4	0.91
14-Q1	0.92
14-Q2	0.95
14-Q3	0.91
14-Q4	0.9



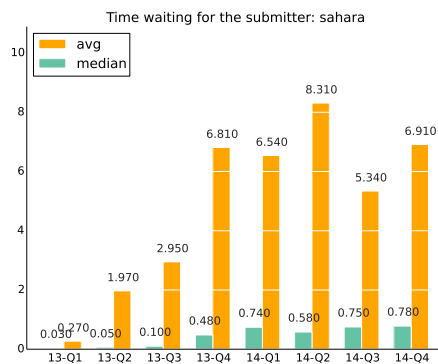
Period	Median	Mean
13-Q1	0.12	0.33
13-Q2	0.1	0.84
13-Q3	0.86	2.65
13-Q4	1.02	2.78
14-Q1	2.62	6.17
14-Q2	1.95	8.36
14-Q3	2.57	6.05
14-Q4	2.02	7.97



Period	Median	Mean
13-Q1	1.0	1.3
13-Q2	1.0	1.94
13-Q3	2.0	3.25
13-Q4	2.0	3.23
14-Q1	2.0	3.73
14-Q2	2.0	2.85
14-Q3	2.0	3.52
14-Q4	2.0	3.09



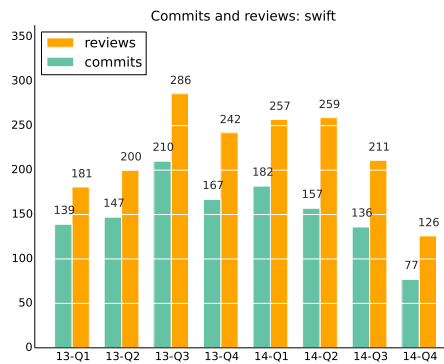
Period	Median	Mean
13-Q1	0.01	0.01
13-Q2	0.01	0.4
13-Q3	0.04	1.08
13-Q4	0.11	1.12
14-Q1	0.22	1.94
14-Q2	0.17	1.55
14-Q3	0.2	1.35
14-Q4	0.19	0.94



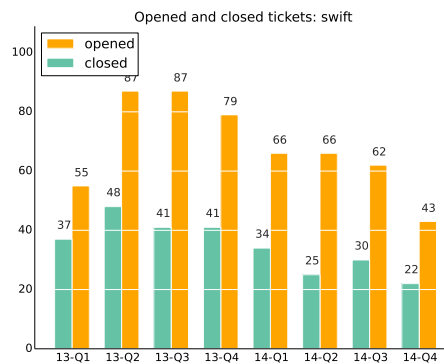
Period	Median	Mean
13-Q1	0.03	0.27
13-Q2	0.05	1.97
13-Q3	0.1	2.95
13-Q4	0.48	6.81
14-Q1	0.74	6.54
14-Q2	0.58	8.31
14-Q3	0.75	5.34
14-Q4	0.78	6.91

### 2.1.1.11 Swift

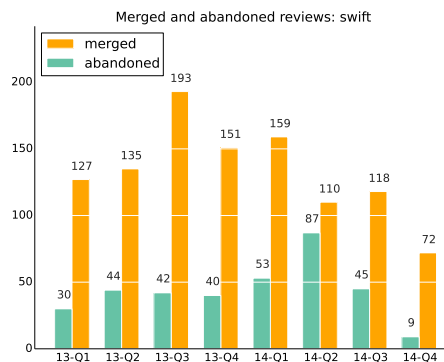
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	139	181
13-Q2	147	200
13-Q3	210	286
13-Q4	167	242
14-Q1	182	257
14-Q2	157	259
14-Q3	136	211
14-Q4	77	126

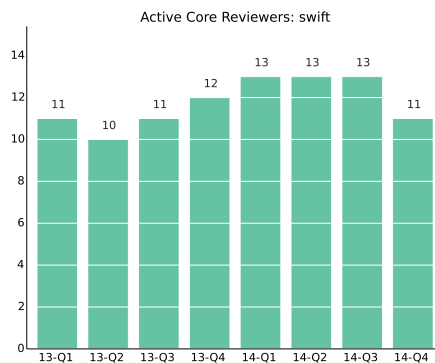


Period	Closed	Opened
13-Q1	37	55
13-Q2	48	87
13-Q3	41	87
13-Q4	41	79
14-Q1	34	66
14-Q2	25	66
14-Q3	30	62
14-Q4	22	43

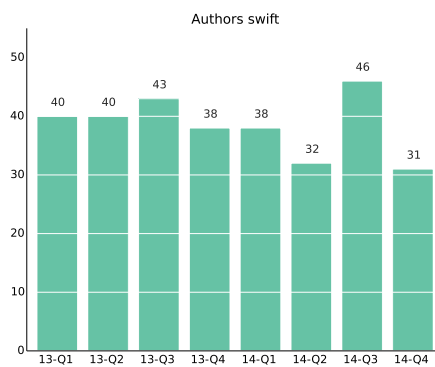


Period	Merged	Abandoned
13-Q1	127	30
13-Q2	135	44
13-Q3	193	42
13-Q4	151	40
14-Q1	159	53
14-Q2	110	87
14-Q3	118	45
14-Q4	72	9

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	11
13-Q2	10
13-Q3	11
13-Q4	12
14-Q1	13
14-Q2	13
14-Q3	13
14-Q4	11



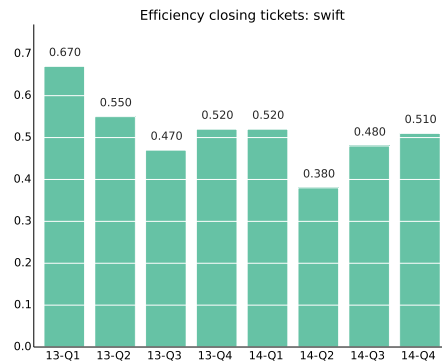
Period	Authors
13-Q1	40
13-Q2	40
13-Q3	43
13-Q4	38
14-Q1	38
14-Q2	32
14-Q3	46
14-Q4	31

Commit (s)	Author
12	Samuel Merritt
7	Clay Gerrard
7	Paul Luse
6	John Dickinson
5	Christian Schwede
5	Jay Bryant
3	Shilla Saebi
3	Thiago da Silva
2	Alistair Coles
2	Caleb Tennis

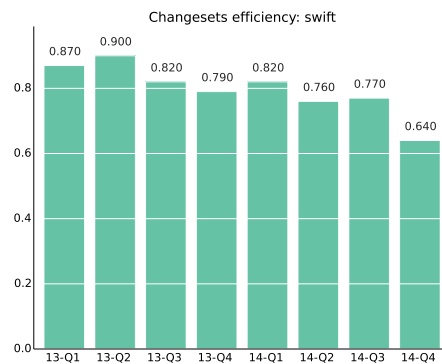
Commit (s)	Organizations
18	SwiftStack
15	Rackspace
7	Intel
5	DKRZ
5	IBM
4	Red Hat
3	Comcast
3	OpenStack Foundation
2	HP
2	NTT

**Process:** Efficiency closing changesets and tickets, time to review (mean

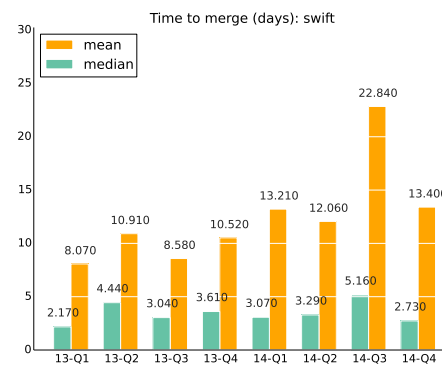
and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process. : Efficiency closing issues and time to review: mean and median



Period	Closed/Opened
13-Q1	0.67
13-Q2	0.55
13-Q3	0.47
13-Q4	0.52
14-Q1	0.52
14-Q2	0.38
14-Q3	0.48
14-Q4	0.51

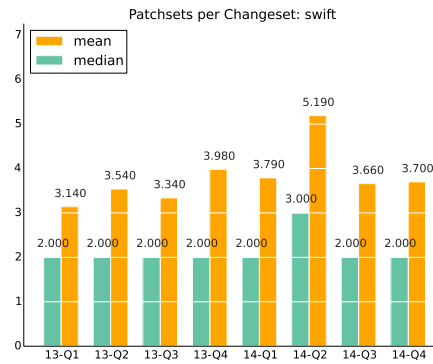


Period	Closed/Opened
13-Q1	0.87
13-Q2	0.9
13-Q3	0.82
13-Q4	0.79
14-Q1	0.82
14-Q2	0.76
14-Q3	0.77
14-Q4	0.64

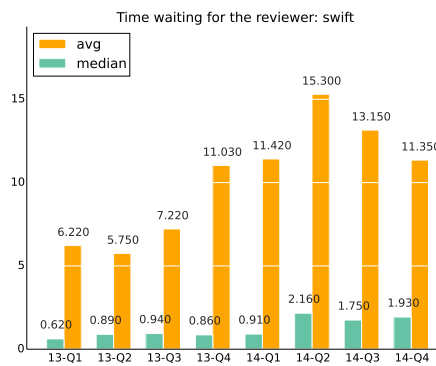


Period	Median	Mean
13-Q1	2.17	8.07
13-Q2	4.44	10.91
13-Q3	3.04	8.58
13-Q4	3.61	10.52
14-Q1	3.07	13.21
14-Q2	3.29	12.06
14-Q3	5.16	22.84
14-Q4	2.73	13.4

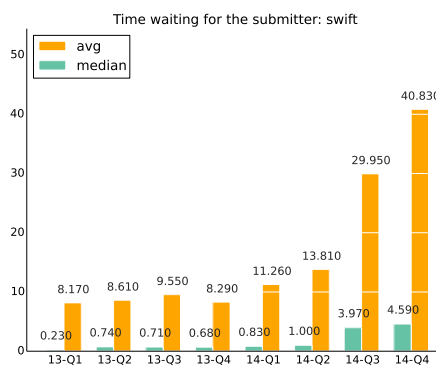
## 2.1. OVERALL OPENSTACK PROGRAMS



Period	Median	Mean
13-Q1	2.0	3.14
13-Q2	2.0	3.54
13-Q3	2.0	3.34
13-Q4	2.0	3.98
14-Q1	2.0	3.79
14-Q2	3.0	5.19
14-Q3	2.0	3.66
14-Q4	2.0	3.7



Period	Median	Mean
13-Q1	0.62	6.22
13-Q2	0.89	5.75
13-Q3	0.94	7.22
13-Q4	0.86	11.03
14-Q1	0.91	11.42
14-Q2	2.16	15.3
14-Q3	1.75	13.15
14-Q4	1.93	11.35

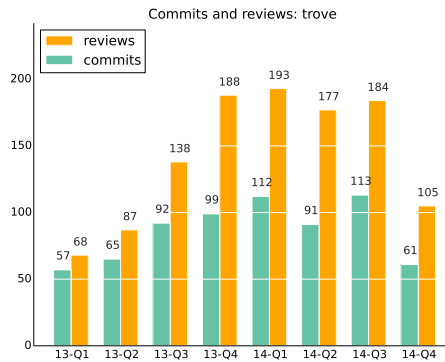


Period	Median	Mean
13-Q1	0.23	8.17
13-Q2	0.74	8.61
13-Q3	0.71	9.55
13-Q4	0.68	8.29
14-Q1	0.83	11.26
14-Q2	1.0	13.81
14-Q3	3.97	29.95
14-Q4	4.59	40.83

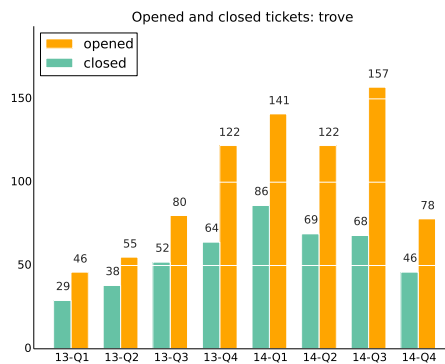


## 2.1.1.12 Trove

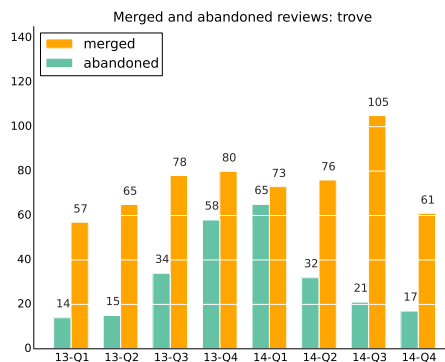
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	57	68
13-Q2	65	87
13-Q3	92	138
13-Q4	99	188
14-Q1	112	193
14-Q2	91	177
14-Q3	113	184
14-Q4	61	105

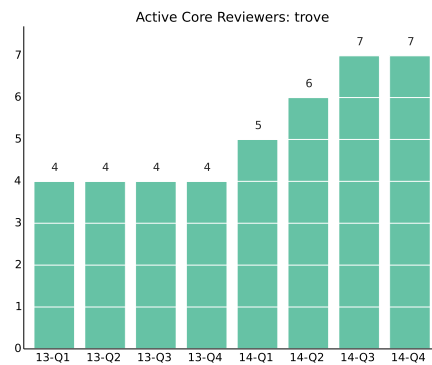


Period	Closed	Opened
13-Q1	29	46
13-Q2	38	55
13-Q3	52	80
13-Q4	64	122
14-Q1	86	141
14-Q2	69	122
14-Q3	68	157
14-Q4	46	78

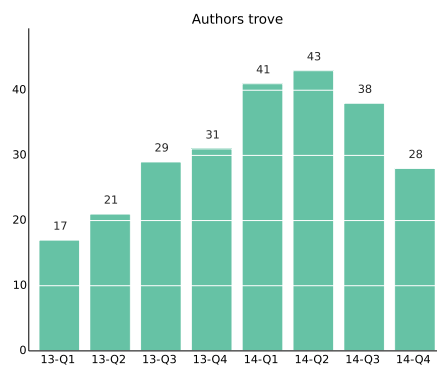


Period	Merged	Abandoned
13-Q1	57	14
13-Q2	65	15
13-Q3	78	34
13-Q4	80	58
14-Q1	73	65
14-Q2	76	32
14-Q3	105	21
14-Q4	61	17

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	4
13-Q2	4
13-Q3	4
13-Q4	4
14-Q1	5
14-Q2	6
14-Q3	7
14-Q4	7



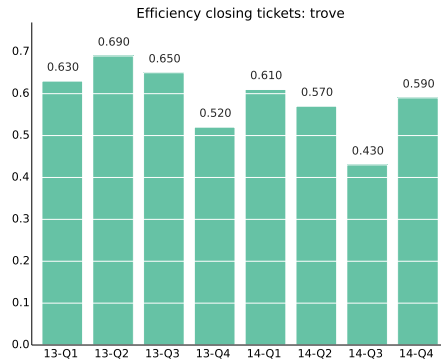
Period	Authors
13-Q1	17
13-Q2	21
13-Q3	29
13-Q4	31
14-Q1	41
14-Q2	43
14-Q3	38
14-Q4	28

Commit (s)	Author
8	Amrith Kumar
8	Craig Vyvial
5	Auston McReynolds
4	Peter Stachowski
3	Denis M
3	Nikhil Manchanda
3	Sergey Gotliv
2	Andreas Jaeger
2	Anna Philips
2	iccha-sethi

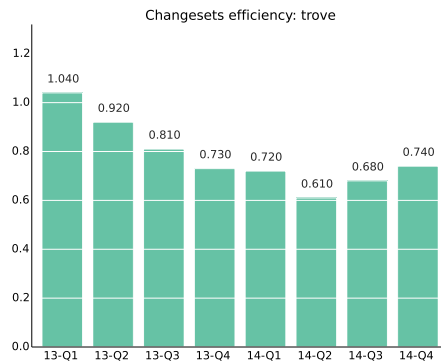
Commit (s)	Organizations
14	Rackspace
14	Tesora
7	eBay
5	Red Hat
4	HP
3	Mirantis
2	OpenStack Foundation
2	SUSE
1	Canonical
1	IBM

**Process:** Efficiency closing changesets and tickets, time to review (mean

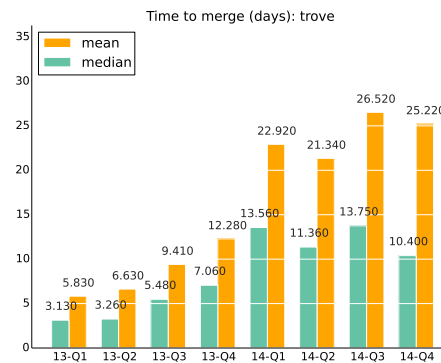
and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



Period	Closed/Opened
13-Q1	0.63
13-Q2	0.69
13-Q3	0.65
13-Q4	0.52
14-Q1	0.61
14-Q2	0.57
14-Q3	0.43
14-Q4	0.59

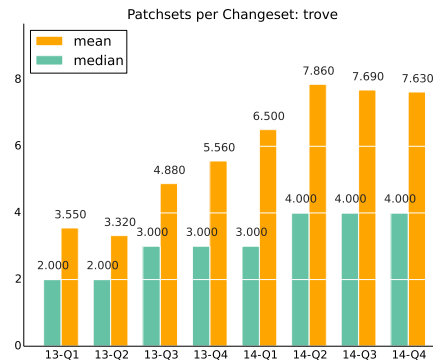


Period	Closed/Opened
13-Q1	1.04
13-Q2	0.92
13-Q3	0.81
13-Q4	0.73
14-Q1	0.72
14-Q2	0.61
14-Q3	0.68
14-Q4	0.74

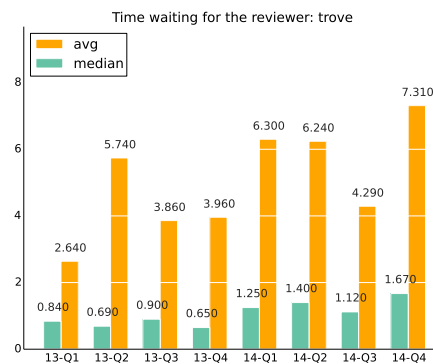


Period	Median	Mean
13-Q1	3.13	5.83
13-Q2	3.26	6.63
13-Q3	5.48	9.41
13-Q4	7.06	12.28
14-Q1	13.56	22.92
14-Q2	11.36	21.34
14-Q3	13.75	26.52
14-Q4	10.4	25.22

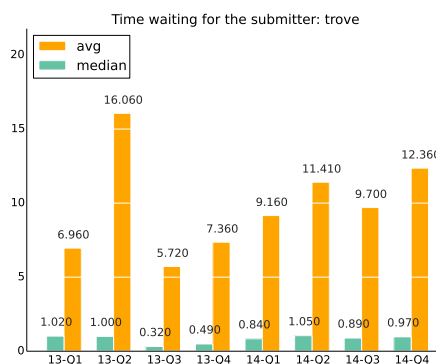
## 2.1. OVERALL OPENSTACK PROGRAMS



Period	Median	Mean
13-Q1	2.0	3.55
13-Q2	2.0	3.32
13-Q3	3.0	4.88
13-Q4	3.0	5.56
14-Q1	3.0	6.5
14-Q2	4.0	7.86
14-Q3	4.0	7.69
14-Q4	4.0	7.63



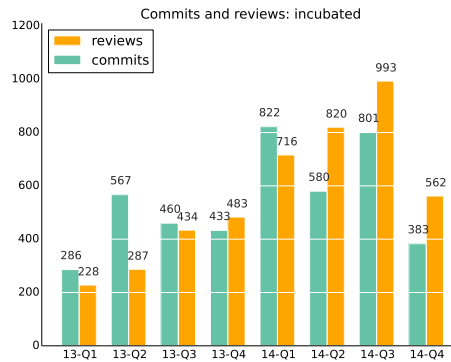
Period	Median	Mean
13-Q1	0.84	2.64
13-Q2	0.69	5.74
13-Q3	0.9	3.86
13-Q4	0.65	3.96
14-Q1	1.25	6.3
14-Q2	1.4	6.24
14-Q3	1.12	4.29
14-Q4	1.67	7.31



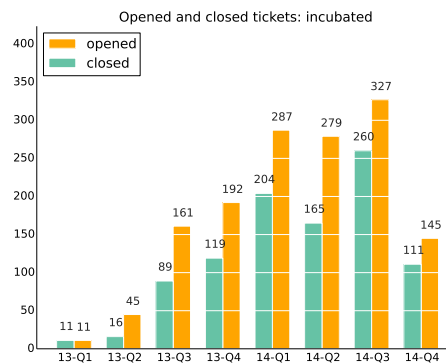
Period	Median	Mean
13-Q1	1.02	6.96
13-Q2	1.0	16.06
13-Q3	0.32	5.72
13-Q4	0.49	7.36
14-Q1	0.84	9.16
14-Q2	1.05	11.41
14-Q3	0.89	9.7
14-Q4	0.97	12.36

### 2.1.2 Incubated

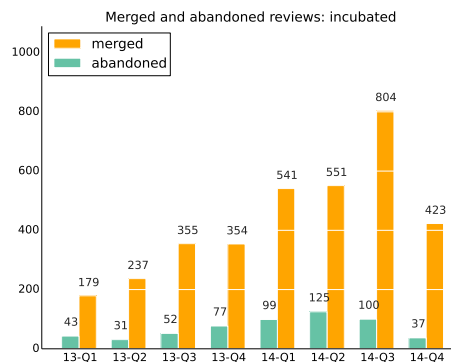
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	286	228
13-Q2	567	287
13-Q3	460	434
13-Q4	433	483
14-Q1	822	716
14-Q2	580	820
14-Q3	801	993
14-Q4	383	562

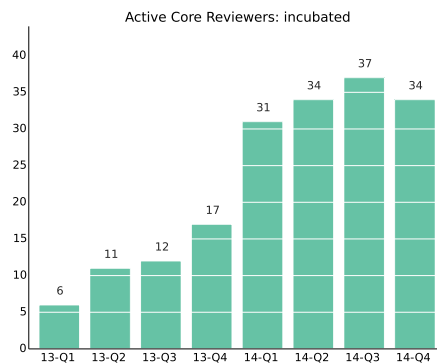


Period	Closed	Opened
13-Q1	11	11
13-Q2	16	45
13-Q3	89	161
13-Q4	119	192
14-Q1	204	287
14-Q2	165	279
14-Q3	260	327
14-Q4	111	145

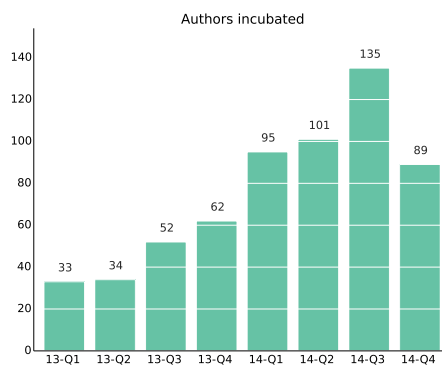


Period	Merged	Abandoned
13-Q1	179	43
13-Q2	237	31
13-Q3	355	52
13-Q4	354	77
14-Q1	541	99
14-Q2	551	125
14-Q3	804	100
14-Q4	423	37

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	6
13-Q2	11
13-Q3	12
13-Q4	17
14-Q1	31
14-Q2	34
14-Q3	37
14-Q4	34



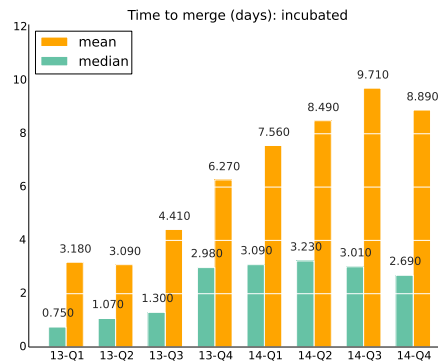
Period	Authors
13-Q1	33
13-Q2	34
13-Q3	52
13-Q4	62
14-Q1	95
14-Q2	101
14-Q3	135
14-Q4	89

Commit (s)	Author
31	Kiall Mac Innes
25	Flavio Percoco
19	Andreas Jaeger
18	Valeriy Ponomaryov
17	Jim Rollenhagen
16	Lei Zhang
16	Lucas Alvares Gomes
13	Vladyslav Drok
11	John Vrbanc
11	Thomas Dinkjian

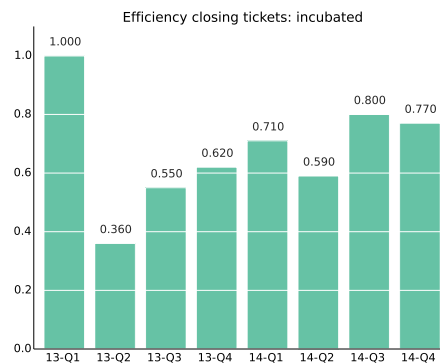
Commit (s)	Organizations
59	HP
52	Mirantis
48	Rackspace
29	Red Hat
19	SUSE
13	OpenStack Foundation
10	Yahoo!
5	eBay
5	Ericsson
4	IBM

**Process:** Efficiency closing changesets and tickets, time to review (mean

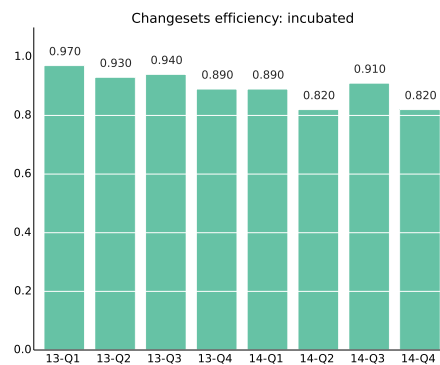
and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



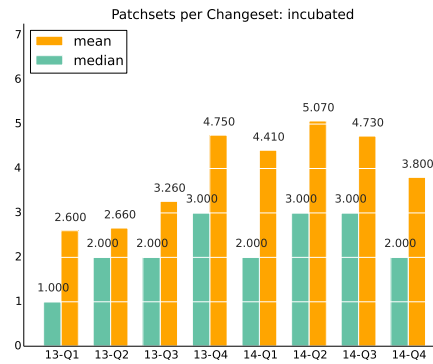
Period	Median	Mean
13-Q1	0.75	3.18
13-Q2	1.07	3.09
13-Q3	1.3	4.41
13-Q4	2.98	6.27
14-Q1	3.09	7.56
14-Q2	3.23	8.49
14-Q3	3.01	9.71
14-Q4	2.69	8.89



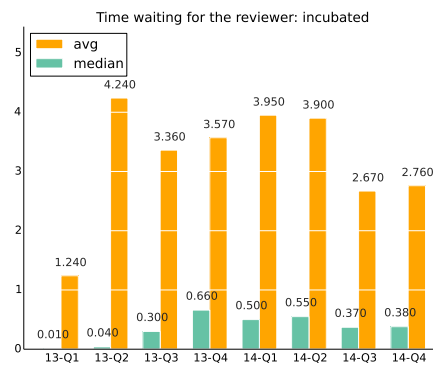
Period	Closed/Opened
13-Q1	1.0
13-Q2	0.36
13-Q3	0.55
13-Q4	0.62
14-Q1	0.71
14-Q2	0.59
14-Q3	0.8
14-Q4	0.77



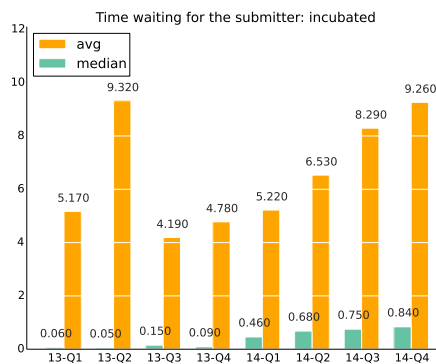
Period	Closed/Opened
13-Q1	0.97
13-Q2	0.93
13-Q3	0.94
13-Q4	0.89
14-Q1	0.89
14-Q2	0.82
14-Q3	0.91
14-Q4	0.82



Period	Median	Mean
13-Q1	1.0	2.6
13-Q2	2.0	2.66
13-Q3	2.0	3.26
13-Q4	3.0	4.75
14-Q1	2.0	4.41
14-Q2	3.0	5.07
14-Q3	3.0	4.73
14-Q4	2.0	3.8



Period	Median	Mean
13-Q1	0.01	1.24
13-Q2	0.04	4.24
13-Q3	0.3	3.36
13-Q4	0.66	3.57
14-Q1	0.5	3.95
14-Q2	0.55	3.9
14-Q3	0.37	2.67
14-Q4	0.38	2.76

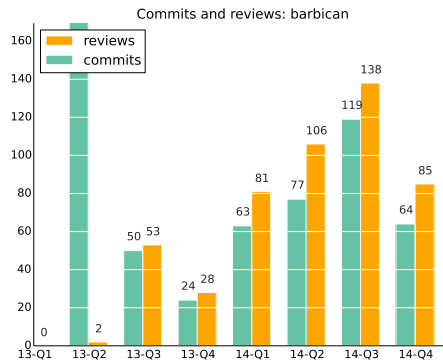


Period	Median	Mean
13-Q1	0.06	5.17
13-Q2	0.05	9.32
13-Q3	0.15	4.19
13-Q4	0.09	4.78
14-Q1	0.46	5.22
14-Q2	0.68	6.53
14-Q3	0.75	8.29
14-Q4	0.84	9.26

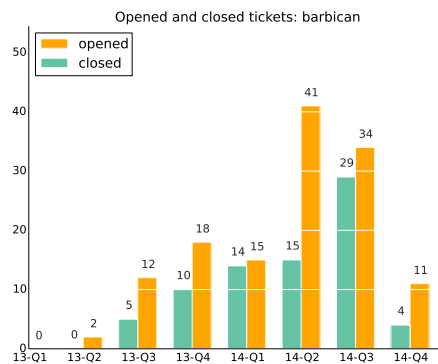


### 2.1.2.1 Barbican

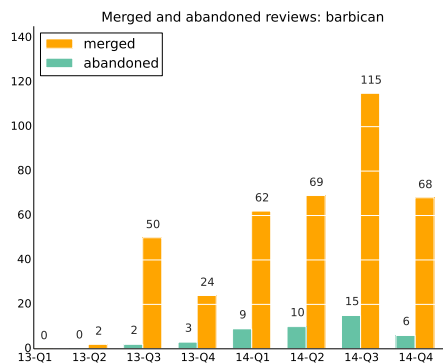
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	44	0
13-Q2	279	2
13-Q3	50	53
13-Q4	24	28
14-Q1	63	81
14-Q2	77	106
14-Q3	119	138
14-Q4	64	85

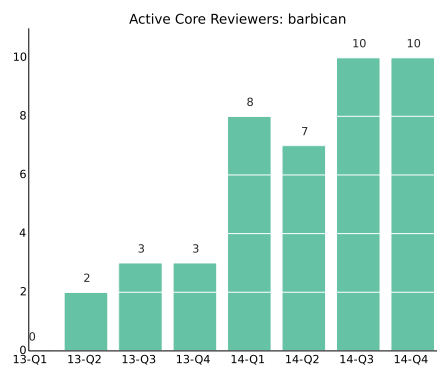


Period	Closed	Opened
13-Q1	0	0
13-Q2	0	2
13-Q3	5	12
13-Q4	10	18
14-Q1	14	15
14-Q2	15	41
14-Q3	29	34
14-Q4	4	11

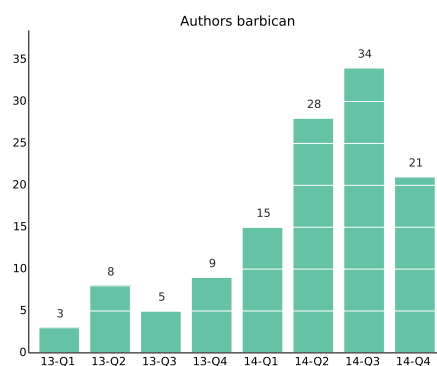


Period	Merged	Abandoned
13-Q1	0	0
13-Q2	2	0
13-Q3	50	2
13-Q4	24	3
14-Q1	62	9
14-Q2	69	10
14-Q3	115	15
14-Q4	68	6

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	0
13-Q2	2
13-Q3	3
13-Q4	3
14-Q1	8
14-Q2	7
14-Q3	10
14-Q4	10

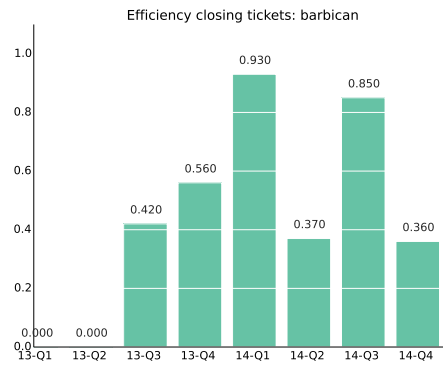


Period	Authors
13-Q1	3
13-Q2	8
13-Q3	5
13-Q4	9
14-Q1	15
14-Q2	28
14-Q3	34
14-Q4	21

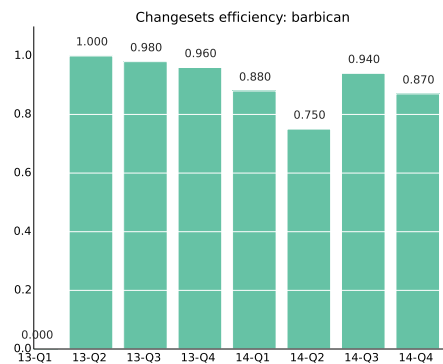
Commit (s)	Author	Commit (s)	Organizations
11	John Vrbanc	28	Rackspace
11	Thomas Dinkjian	5	Ericsson
7	jfwood	5	OpenStack Foundation
5	Juan Antonio Osorio Robles	4	HP
4	Steve Heyman	2	B1 Systems
3	Jeremy Stanley	1	JHU APL
2	Adam Harwell	1	Red Hat
2	Christian Berendt	1	SUSE
2	Donald Stufft		
2	ERROR		

**Process:** Efficiency closing changesets and tickets, time to review (mean

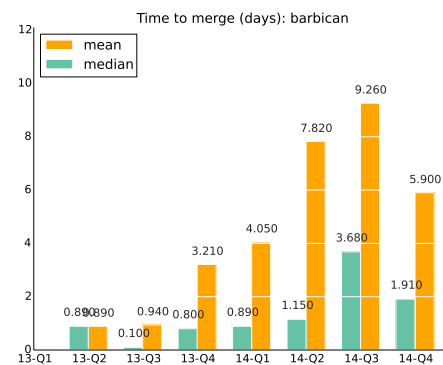
and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



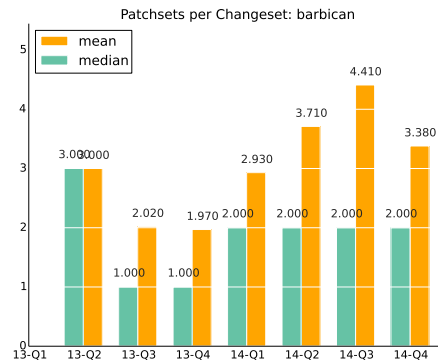
Period	Closed/Opened
13-Q1	0
13-Q2	0.0
13-Q3	0.42
13-Q4	0.56
14-Q1	0.93
14-Q2	0.37
14-Q3	0.85
14-Q4	0.36



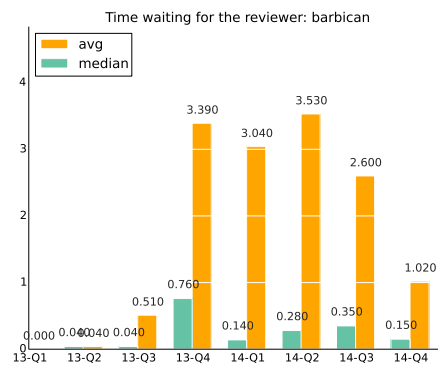
Period	Closed/Opened
13-Q1	0.0
13-Q2	1.0
13-Q3	0.98
13-Q4	0.96
14-Q1	0.88
14-Q2	0.75
14-Q3	0.94
14-Q4	0.87



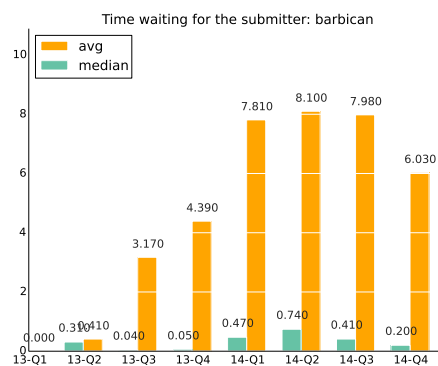
Period	Median	Mean
13-Q1	nan	nan
13-Q2	0.89	0.89
13-Q3	0.1	0.94
13-Q4	0.8	3.21
14-Q1	0.89	4.05
14-Q2	1.15	7.82
14-Q3	3.68	9.26
14-Q4	1.91	5.9



Period	Median	Mean
13-Q1	nan	nan
13-Q2	3.0	3.0
13-Q3	1.0	2.02
13-Q4	1.0	1.97
14-Q1	2.0	2.93
14-Q2	2.0	3.71
14-Q3	2.0	4.41
14-Q4	2.0	3.38



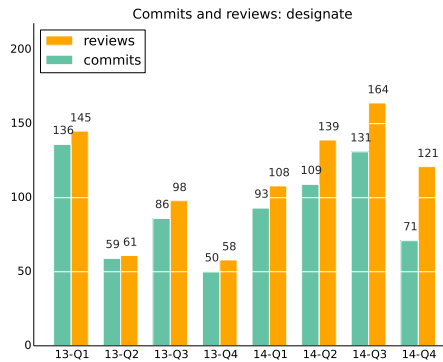
Period	Median	Mean
13-Q1	0.0	0.0
13-Q2	0.04	0.04
13-Q3	0.04	0.51
13-Q4	0.76	3.39
14-Q1	0.14	3.04
14-Q2	0.28	3.53
14-Q3	0.35	2.6
14-Q4	0.15	1.02



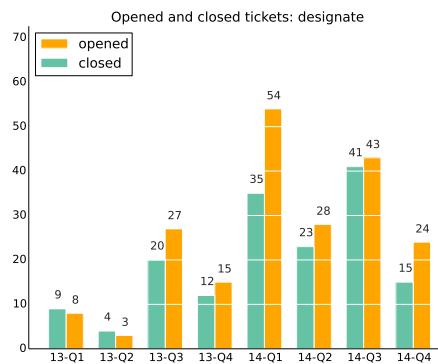
Period	Median	Mean
13-Q1	0.0	0.0
13-Q2	0.31	0.41
13-Q3	0.04	3.17
13-Q4	0.05	4.39
14-Q1	0.47	7.81
14-Q2	0.74	8.1
14-Q3	0.41	7.98
14-Q4	0.2	6.03

### 2.1.2.2 Designate

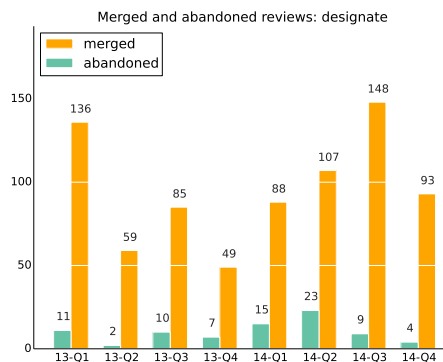
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	136	145
13-Q2	59	61
13-Q3	86	98
13-Q4	50	58
14-Q1	93	108
14-Q2	109	139
14-Q3	131	164
14-Q4	71	121

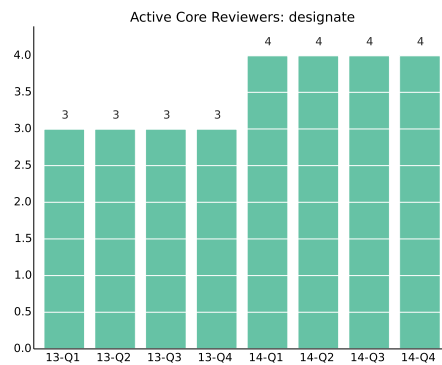


Period	Closed	Opened
13-Q1	9	8
13-Q2	4	3
13-Q3	20	27
13-Q4	12	15
14-Q1	35	54
14-Q2	23	28
14-Q3	41	43
14-Q4	15	24

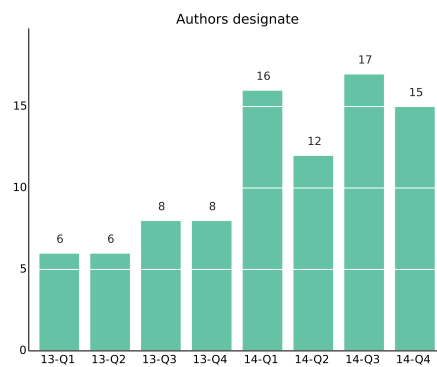


Period	Merged	Abandoned
13-Q1	136	11
13-Q2	59	2
13-Q3	85	10
13-Q4	49	7
14-Q1	88	15
14-Q2	107	23
14-Q3	148	9
14-Q4	93	4

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	3
13-Q2	3
13-Q3	3
13-Q4	3
14-Q1	4
14-Q2	4
14-Q3	4
14-Q4	4



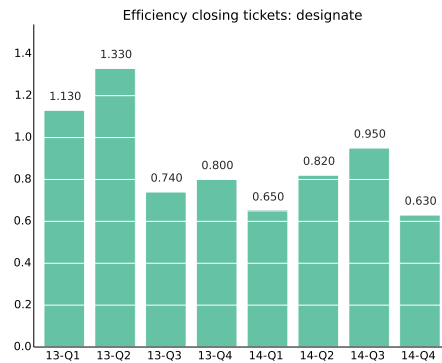
Period	Authors
13-Q1	6
13-Q2	6
13-Q3	8
13-Q4	8
14-Q1	16
14-Q2	12
14-Q3	17
14-Q4	15

Commit (s)	Author
31	Kiall Mac Innes
10	Endre Karlson
5	rjrjr
4	Betsy Luzader
4	Boris Pavlovic
4	Graham Hayes
2	Joe McBride
2	Nayna Patel
2	Tim Simmons
2	Vinod Mangalpally

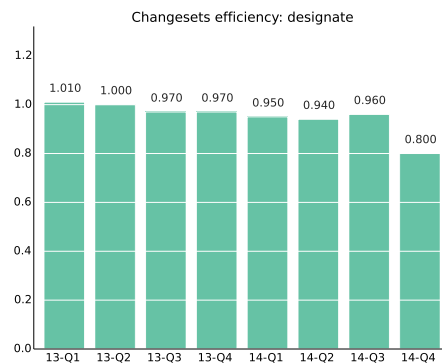
Commit (s)	Organizations
37	HP
9	Rackspace
5	eBay
5	Mirantis
2	OpenStack Foundation
1	Huawei

**Process:** Efficiency closing changesets and tickets, time to review (mean

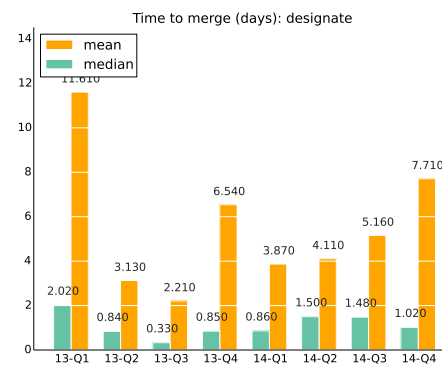
and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



Period	Closed/Opened
13-Q1	1.13
13-Q2	1.33
13-Q3	0.74
13-Q4	0.8
14-Q1	0.65
14-Q2	0.82
14-Q3	0.95
14-Q4	0.63

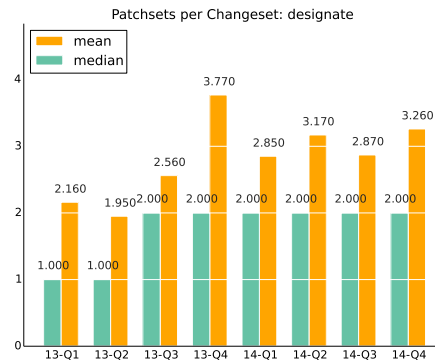


Period	Closed/Opened
13-Q1	1.01
13-Q2	1.0
13-Q3	0.97
13-Q4	0.97
14-Q1	0.95
14-Q2	0.94
14-Q3	0.96
14-Q4	0.8

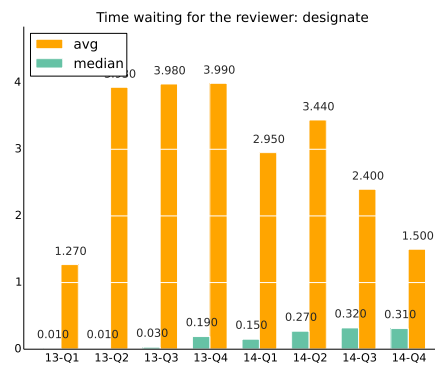


Period	Median	Mean
13-Q1	2.02	11.61
13-Q2	0.84	3.13
13-Q3	0.33	2.21
13-Q4	0.85	6.54
14-Q1	0.86	3.87
14-Q2	1.5	4.11
14-Q3	1.48	5.16
14-Q4	1.02	7.71

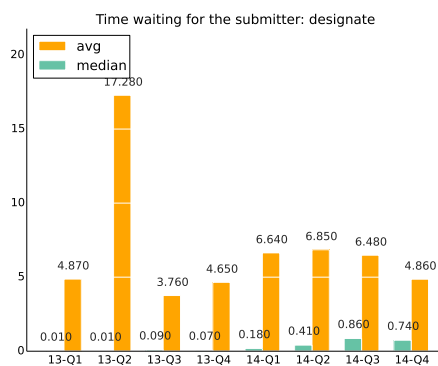
## 2.1. OVERALL OPENSTACK PROGRAMS



Period	Median	Mean
13-Q1	1.0	2.16
13-Q2	1.0	1.95
13-Q3	2.0	2.56
13-Q4	2.0	3.77
14-Q1	2.0	2.85
14-Q2	2.0	3.17
14-Q3	2.0	2.87
14-Q4	2.0	3.26



Period	Median	Mean
13-Q1	0.01	1.27
13-Q2	0.01	3.93
13-Q3	0.03	3.98
13-Q4	0.19	3.99
14-Q1	0.15	2.95
14-Q2	0.27	3.44
14-Q3	0.32	2.4
14-Q4	0.31	1.5

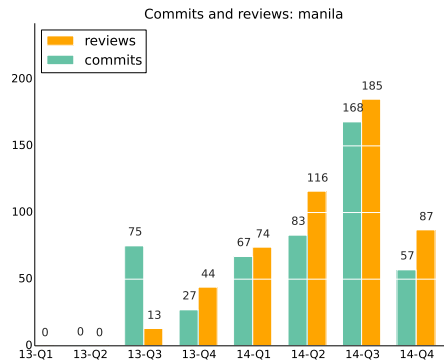


Period	Median	Mean
13-Q1	0.01	4.87
13-Q2	0.01	17.28
13-Q3	0.09	3.76
13-Q4	0.07	4.65
14-Q1	0.18	6.64
14-Q2	0.41	6.85
14-Q3	0.86	6.48
14-Q4	0.74	4.86

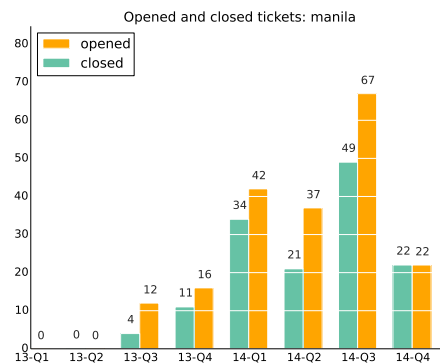


### 2.1.2.3 Manila

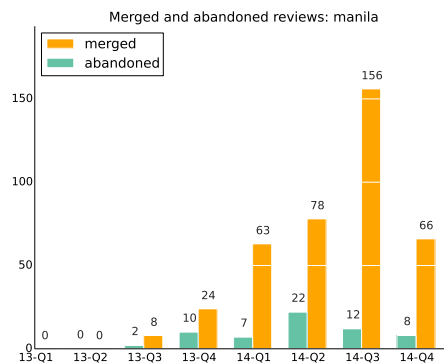
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	0	0
13-Q2	0	0
13-Q3	75	13
13-Q4	27	44
14-Q1	67	74
14-Q2	83	116
14-Q3	168	185
14-Q4	57	87

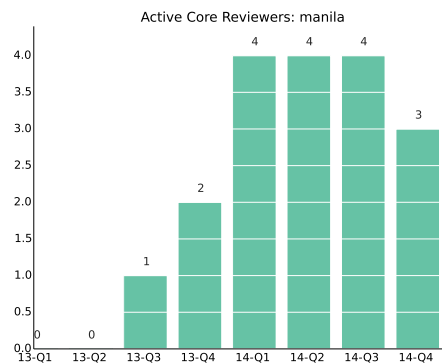


Period	Closed	Opened
13-Q1	0	0
13-Q2	0	0
13-Q3	4	12
13-Q4	11	16
14-Q1	34	42
14-Q2	21	37
14-Q3	49	67
14-Q4	22	22

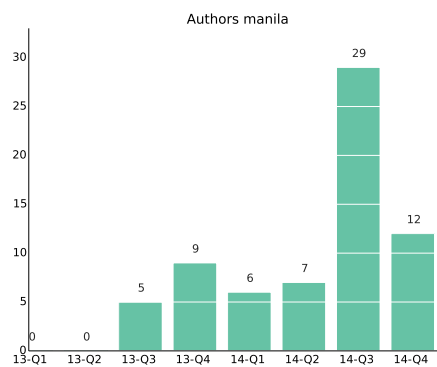


Period	Merged	Abandoned
13-Q1	0	0
13-Q2	0	0
13-Q3	8	2
13-Q4	24	10
14-Q1	63	7
14-Q2	78	22
14-Q3	156	12
14-Q4	66	8

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	0
13-Q2	0
13-Q3	1
13-Q4	2
14-Q1	4
14-Q2	4
14-Q3	4
14-Q4	3



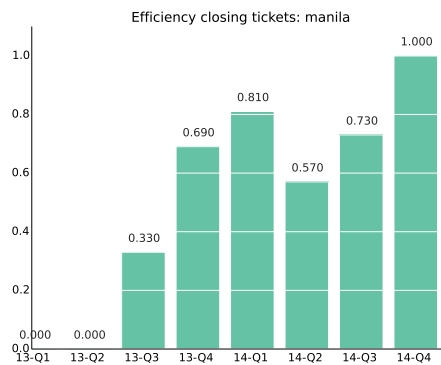
Period	Authors
13-Q1	0
13-Q2	0
13-Q3	5
13-Q4	9
14-Q1	6
14-Q2	7
14-Q3	29
14-Q4	12

Commit (s)	Author
18	Valeriy Ponomaryov
17	Andreas Jaeger
5	Vladimir Vechkanov
3	Julia Varlamova
3	Rushil Chugh
3	Thomas Bechtold
2	Jay Xu
2	Nilesh Bhosale
1	Christian Berendt
1	Igor Malinovskiy

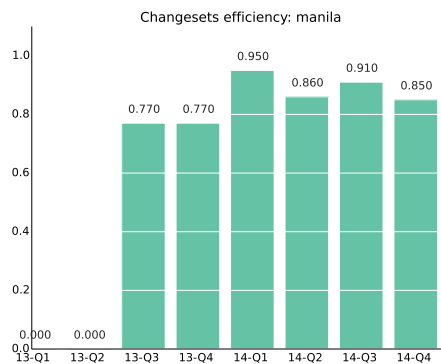
Commit (s)	Organizations
26	Mirantis
17	SUSE
3	JPBerlin
3	NetApp
2	EMC
2	IBM
1	B1 Systems
1	Deutsche Telekom

**Process:** Efficiency closing changesets and tickets, time to review (mean

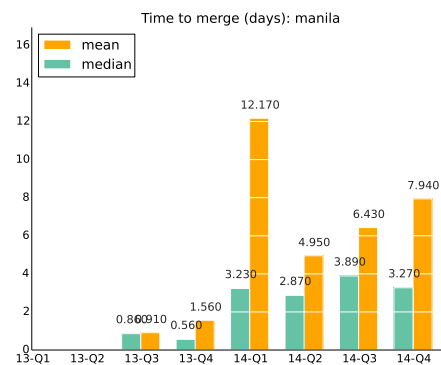
and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



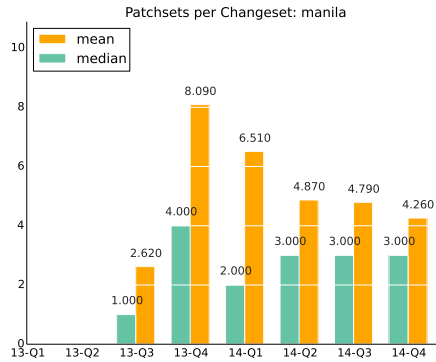
Period	Closed/Opened
13-Q1	0
13-Q2	0
13-Q3	0.33
13-Q4	0.69
14-Q1	0.81
14-Q2	0.57
14-Q3	0.73
14-Q4	1.0



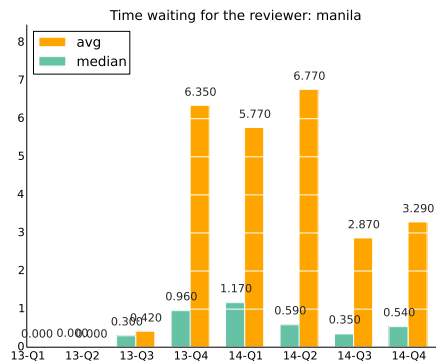
Period	Closed/Opened
13-Q1	0.0
13-Q2	0.0
13-Q3	0.77
13-Q4	0.77
14-Q1	0.95
14-Q2	0.86
14-Q3	0.91
14-Q4	0.85



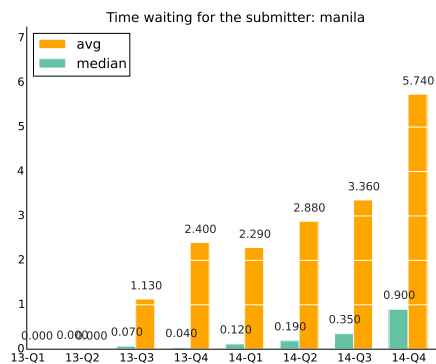
Period	Median	Mean
13-Q1	nan	nan
13-Q2	nan	nan
13-Q3	0.86	0.91
13-Q4	0.56	1.56
14-Q1	3.23	12.17
14-Q2	2.87	4.95
14-Q3	3.89	6.43
14-Q4	3.27	7.94



Period	Median	Mean
13-Q1	nan	nan
13-Q2	nan	nan
13-Q3	1.0	2.62
13-Q4	4.0	8.09
14-Q1	2.0	6.51
14-Q2	3.0	4.87
14-Q3	3.0	4.79
14-Q4	3.0	4.26



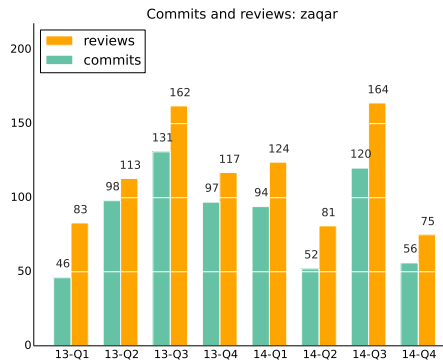
Period	Median	Mean
13-Q1	0.0	0.0
13-Q2	0.0	0.0
13-Q3	0.3	0.42
13-Q4	0.96	6.35
14-Q1	1.17	5.77
14-Q2	0.59	6.77
14-Q3	0.35	2.87
14-Q4	0.54	3.29



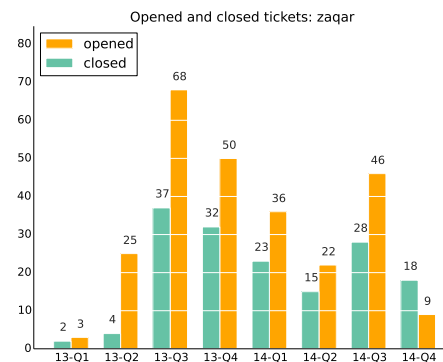
Period	Median	Mean
13-Q1	0.0	0.0
13-Q2	0.0	0.0
13-Q3	0.07	1.13
13-Q4	0.04	2.4
14-Q1	0.12	2.29
14-Q2	0.19	2.88
14-Q3	0.35	3.36
14-Q4	0.9	5.74

#### 2.1.2.4 Zaqar

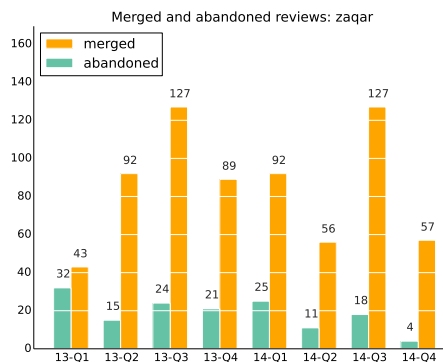
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	46	83
13-Q2	98	113
13-Q3	131	162
13-Q4	97	117
14-Q1	94	124
14-Q2	52	81
14-Q3	120	164
14-Q4	56	75

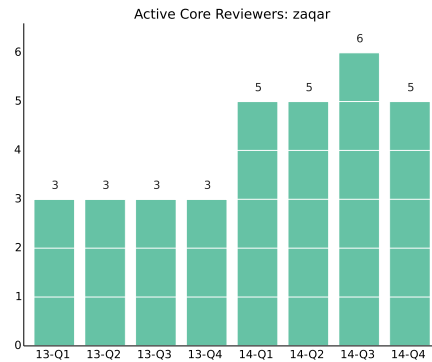


Period	Closed	Opened
13-Q1	2	3
13-Q2	4	25
13-Q3	37	68
13-Q4	32	50
14-Q1	23	36
14-Q2	15	22
14-Q3	28	46
14-Q4	18	9

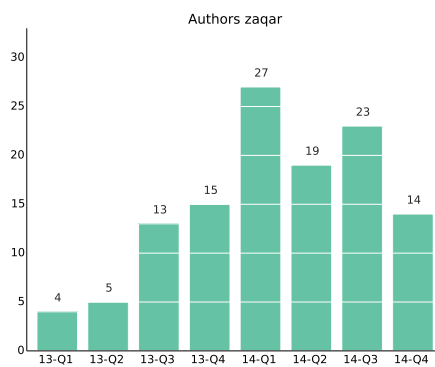


Period	Merged	Abandoned
13-Q1	43	32
13-Q2	92	15
13-Q3	127	24
13-Q4	89	21
14-Q1	92	25
14-Q2	56	11
14-Q3	127	18
14-Q4	57	4

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	3
13-Q2	3
13-Q3	3
13-Q4	3
14-Q1	5
14-Q2	5
14-Q3	6
14-Q4	5



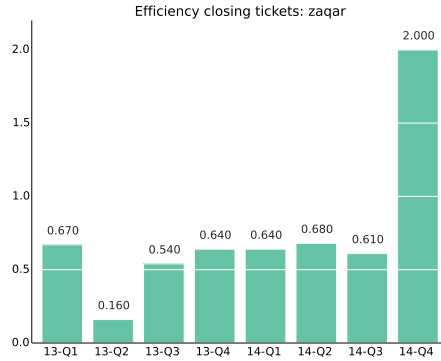
Period	Authors
13-Q1	4
13-Q2	5
13-Q3	13
13-Q4	15
14-Q1	27
14-Q2	19
14-Q3	23
14-Q4	14

Commit (s)	Author
25	Flavio Percoco
16	Lei Zhang
2	Boris Pavlovic
2	Kurt Griffiths
2	Prashanth Raghu
1	Abhishek Chanda
1	Andreas Jaeger
1	Fei Long Wang
1	Jeremy Stanley
1	Louis Taylor

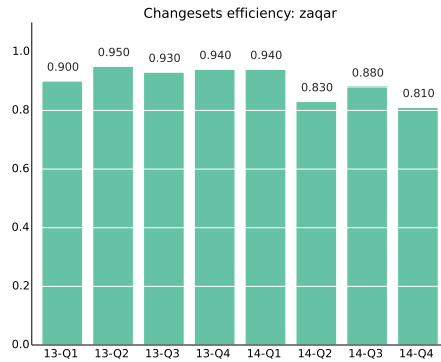
Commit (s)	Organizations
25	Red Hat
2	Mirantis
2	OpenStack Foundation
2	Rackspace
1	Cloudscaling
1	IBM
1	SUSE

**Process:** Efficiency closing changesets and tickets, time to review (mean

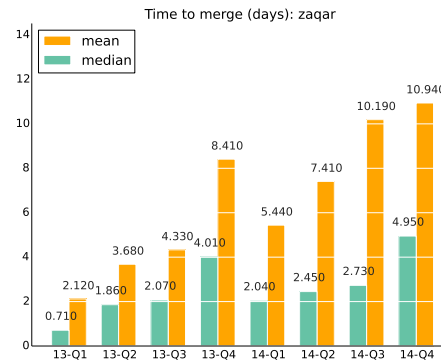
and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



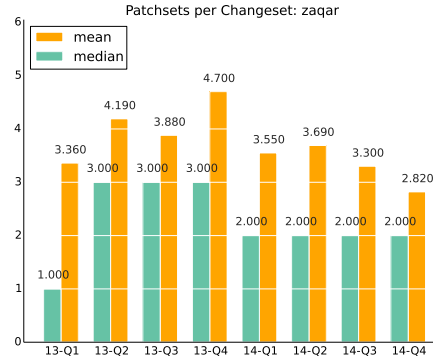
Period	Closed/Opened
13-Q1	0.67
13-Q2	0.16
13-Q3	0.54
13-Q4	0.64
14-Q1	0.64
14-Q2	0.68
14-Q3	0.61
14-Q4	2.0



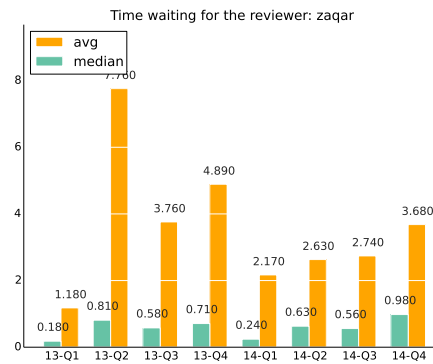
Period	Closed/Opened
13-Q1	0.9
13-Q2	0.95
13-Q3	0.93
13-Q4	0.94
14-Q1	0.94
14-Q2	0.83
14-Q3	0.88
14-Q4	0.81



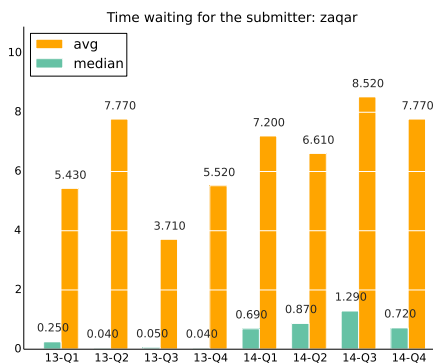
Period	Median	Mean
13-Q1	0.71	2.12
13-Q2	1.86	3.68
13-Q3	2.07	4.33
13-Q4	4.01	8.41
14-Q1	2.04	5.44
14-Q2	2.45	7.41
14-Q3	2.73	10.19
14-Q4	4.95	10.94



Period	Median	Mean
13-Q1	1.0	3.36
13-Q2	3.0	4.19
13-Q3	3.0	3.88
13-Q4	3.0	4.7
14-Q1	2.0	3.55
14-Q2	2.0	3.69
14-Q3	2.0	3.3
14-Q4	2.0	2.82



Period	Median	Mean
13-Q1	0.18	1.18
13-Q2	0.81	7.76
13-Q3	0.58	3.76
13-Q4	0.71	4.89
14-Q1	0.24	2.17
14-Q2	0.63	2.63
14-Q3	0.56	2.74
14-Q4	0.98	3.68

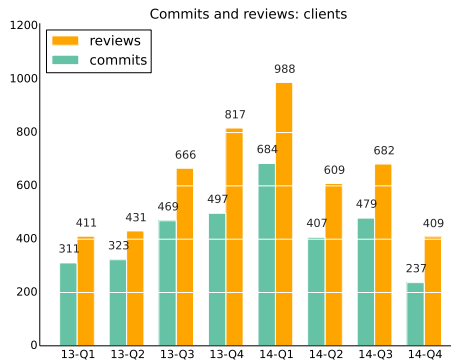


Period	Median	Mean
13-Q1	0.25	5.43
13-Q2	0.04	7.77
13-Q3	0.05	3.71
13-Q4	0.04	5.52
14-Q1	0.69	7.2
14-Q2	0.87	6.61
14-Q3	1.29	8.52
14-Q4	0.72	7.77

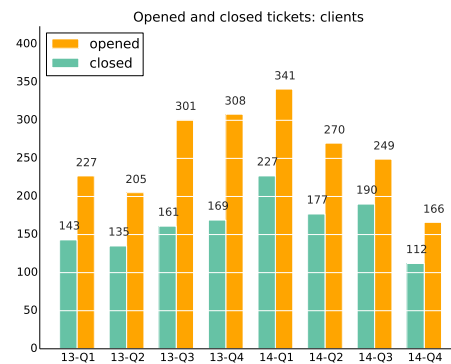


### 2.1.3 Clients

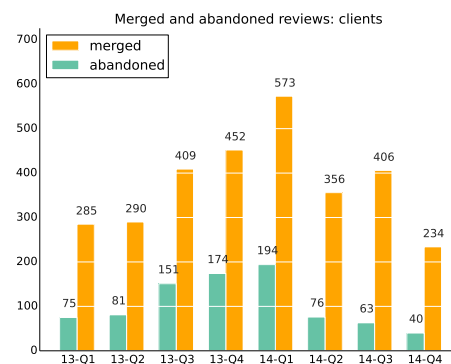
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	311	411
13-Q2	323	431
13-Q3	469	666
13-Q4	497	817
14-Q1	684	988
14-Q2	407	609
14-Q3	479	682
14-Q4	237	409

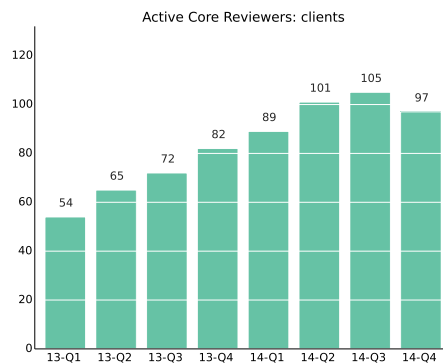


Period	Closed	Opened
13-Q1	143	227
13-Q2	135	205
13-Q3	161	301
13-Q4	169	308
14-Q1	227	341
14-Q2	177	270
14-Q3	190	249
14-Q4	112	166



Period	Merged	Abandoned
13-Q1	285	75
13-Q2	290	81
13-Q3	409	151
13-Q4	452	174
14-Q1	573	194
14-Q2	356	76
14-Q3	406	63
14-Q4	234	40

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	54
13-Q2	65
13-Q3	72
13-Q4	82
14-Q1	89
14-Q2	101
14-Q3	105
14-Q4	97



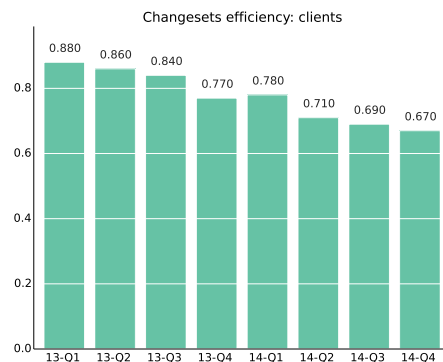
Period	Authors
13-Q1	120
13-Q2	114
13-Q3	167
13-Q4	151
14-Q1	192
14-Q2	136
14-Q3	181
14-Q4	116

Commit (s)	Author
18	Brant Knudson
10	Andrey Kurilin
9	Jeremy Stanley
8	Flavio Percoco
8	Jamie Lennox
5	Daniel Wakefield
5	Eugeniya Kudryashova
5	Louis Taylor
5	Matthew Farrellee
5	Steven Hardy

Commit (s)	Organizations
43	Red Hat
35	Mirantis
29	IBM
21	HP
9	Huawei
9	OpenStack Foundation
7	NEC
7	Rackspace
3	Cloudscaling
3	DKRZ

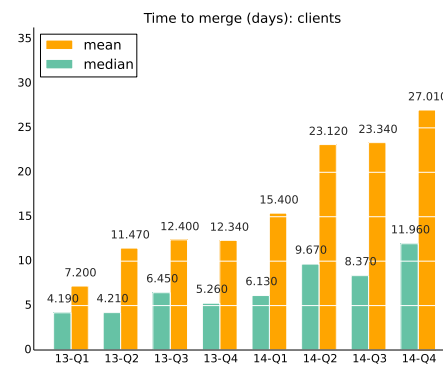
**Process:** Efficiency closing changesets and tickets, time to review (mean

and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



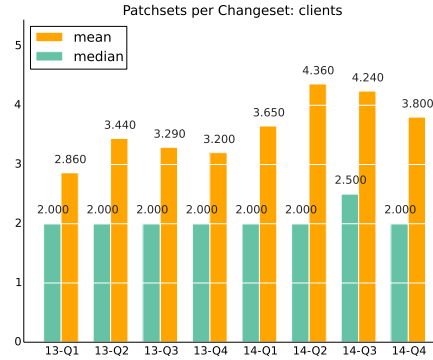
He was an Austrian physicist famous for his founding contributions in the fields of statistical mechanics and statistical thermodynamics. He was one of the most important advocates for atomic theory at a time when that scientific model was still highly controversial.

Period	Closed/Opened
13-Q1	0.88
13-Q2	0.86
13-Q3	0.84
13-Q4	0.77
14-Q1	0.78
14-Q2	0.71
14-Q3	0.69
14-Q4	0.67

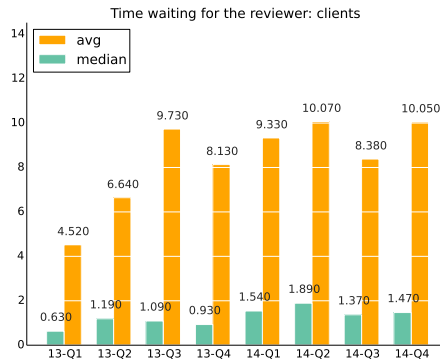


Period	Median	Mean
13-Q1	4.19	7.2
13-Q2	4.21	11.47
13-Q3	6.45	12.4
13-Q4	5.26	12.34
14-Q1	6.13	15.4
14-Q2	9.67	23.12
14-Q3	8.37	23.34
14-Q4	11.96	27.01

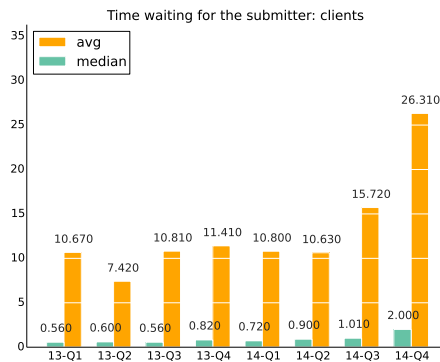
## 2.1. OVERALL OPENSTACK PROGRAMS



Period	Median	Mean
13-Q1	2.0	2.86
13-Q2	2.0	3.44
13-Q3	2.0	3.29
13-Q4	2.0	3.2
14-Q1	2.0	3.65
14-Q2	2.0	4.36
14-Q3	2.5	4.24
14-Q4	2.0	3.8



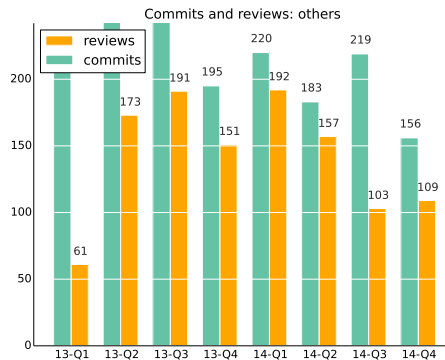
Period	Median	Mean
13-Q1	0.63	4.52
13-Q2	1.19	6.64
13-Q3	1.09	9.73
13-Q4	0.93	8.13
14-Q1	1.54	9.33
14-Q2	1.89	10.07
14-Q3	1.37	8.38
14-Q4	1.47	10.05



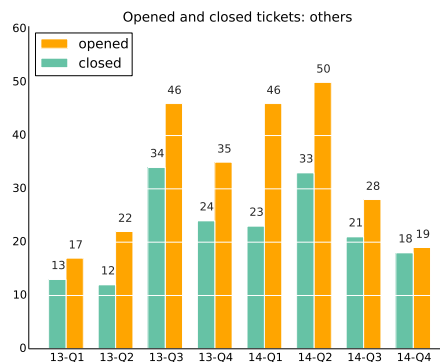
Period	Median	Mean
13-Q1	0.56	10.67
13-Q2	0.6	7.42
13-Q3	0.56	10.81
13-Q4	0.82	11.41
14-Q1	0.72	10.8
14-Q2	0.9	10.63
14-Q3	1.01	15.72
14-Q4	2.0	26.31

### 2.1.4 Others

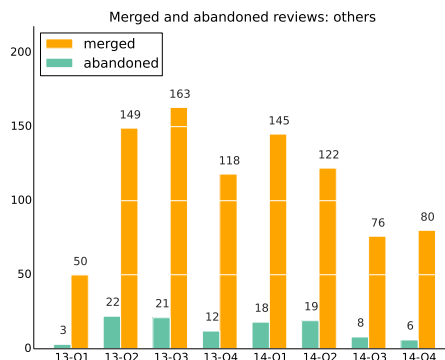
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	221	61
13-Q2	267	173
13-Q3	470	191
13-Q4	195	151
14-Q1	220	192
14-Q2	183	157
14-Q3	219	103
14-Q4	156	109

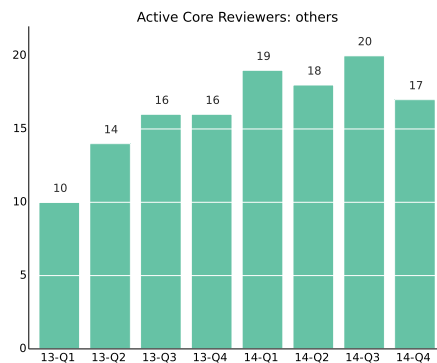


Period	Closed	Opened
13-Q1	13	17
13-Q2	12	22
13-Q3	34	46
13-Q4	24	35
14-Q1	23	46
14-Q2	33	50
14-Q3	21	28
14-Q4	18	19

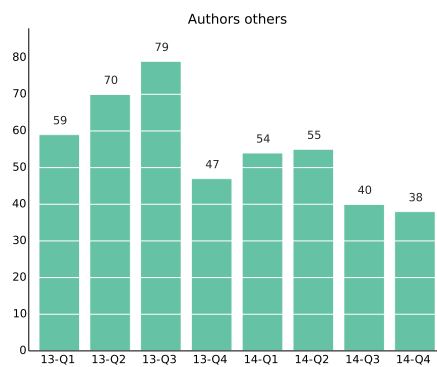


Period	Merged	Abandoned
13-Q1	50	3
13-Q2	149	22
13-Q3	163	21
13-Q4	118	12
14-Q1	145	18
14-Q2	122	19
14-Q3	76	8
14-Q4	80	6

**Community:** Authors per quarter and top authors and organizations in the last quarter



Period	Active Core
13-Q1	10
13-Q2	14
13-Q3	16
13-Q4	16
14-Q1	19
14-Q2	18
14-Q3	20
14-Q4	17



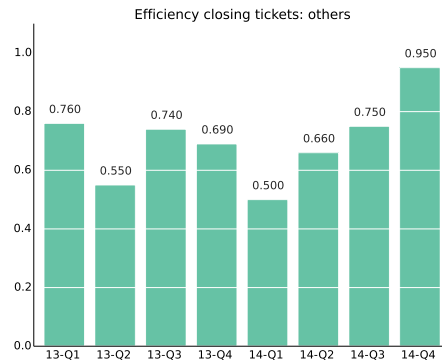
Period	Authors
13-Q1	59
13-Q2	70
13-Q3	79
13-Q4	47
14-Q1	54
14-Q2	55
14-Q3	40
14-Q4	38

Commit (s)	Author
24	Ana Krivokapic
21	Radomir Dopieralski
20	Ladislav Smola
13	Tzu-Mainn Chen
8	Sergey Reshetnyak
7	Lennart Regebro
7	Sergey Lukjanov
6	Jiri Tomasek
6	Nikhil Manchanda
5	Jeremy Stanley

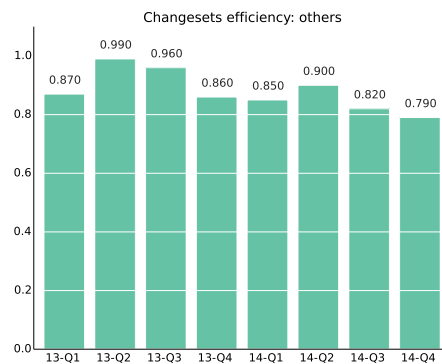
Commit (s)	Organizations
98	Red Hat
26	Mirantis
7	HP
5	OpenStack Foundation
3	eBay
3	UFCG
2	NEC
2	NTT
2	SwiftStack
1	Cloudscaling

**Process:** Efficiency closing issues and time to review: mean and median

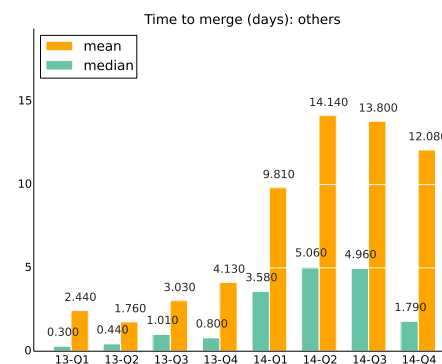
## 2.1. OVERALL OPENSTACK PROGRAMS



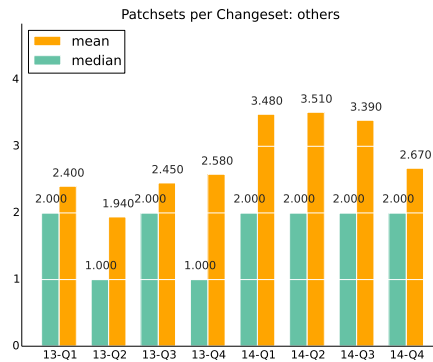
Period	Closed/Opened
13-Q1	0.76
13-Q2	0.55
13-Q3	0.74
13-Q4	0.69
14-Q1	0.5
14-Q2	0.66
14-Q3	0.75
14-Q4	0.95



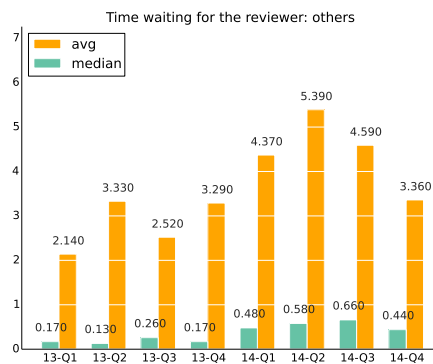
Period	Closed/Opened
13-Q1	0.87
13-Q2	0.99
13-Q3	0.96
13-Q4	0.86
14-Q1	0.85
14-Q2	0.9
14-Q3	0.82
14-Q4	0.79



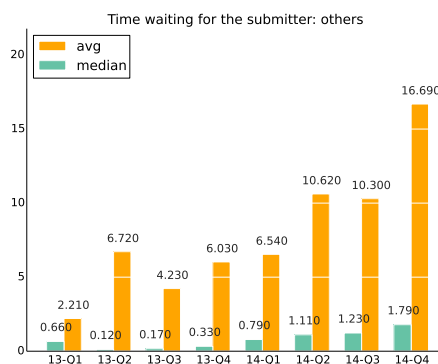
Period	Median	Mean
13-Q1	0.3	2.44
13-Q2	0.44	1.76
13-Q3	1.01	3.03
13-Q4	0.8	4.13
14-Q1	3.58	9.81
14-Q2	5.06	14.14
14-Q3	4.96	13.8
14-Q4	1.79	12.08



Period	Median	Mean
13-Q1	2.0	2.4
13-Q2	1.0	1.94
13-Q3	2.0	2.45
13-Q4	1.0	2.58
14-Q1	2.0	3.48
14-Q2	2.0	3.51
14-Q3	2.0	3.39
14-Q4	2.0	2.67



Period	Median	Mean
13-Q1	0.17	2.14
13-Q2	0.13	3.33
13-Q3	0.26	2.52
13-Q4	0.17	3.29
14-Q1	0.48	4.37
14-Q2	0.58	5.39
14-Q3	0.66	4.59
14-Q4	0.44	3.36

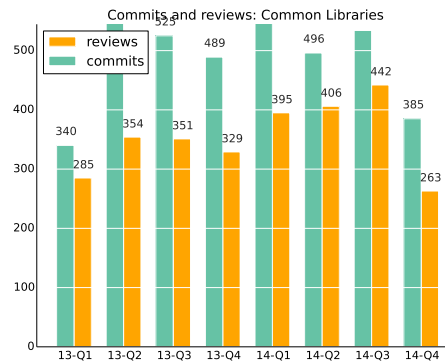


Period	Median	Mean
13-Q1	0.66	2.21
13-Q2	0.12	6.72
13-Q3	0.17	4.23
13-Q4	0.33	6.03
14-Q1	0.79	6.54
14-Q2	1.11	10.62
14-Q3	1.23	10.3
14-Q4	1.79	16.69

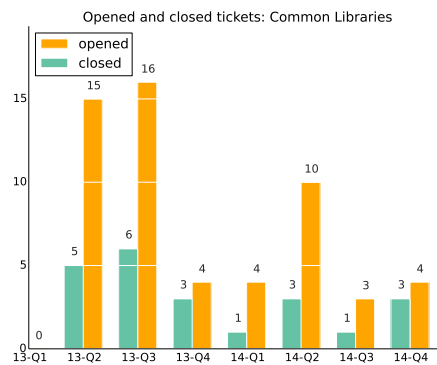


## 2.2 Common Libraries

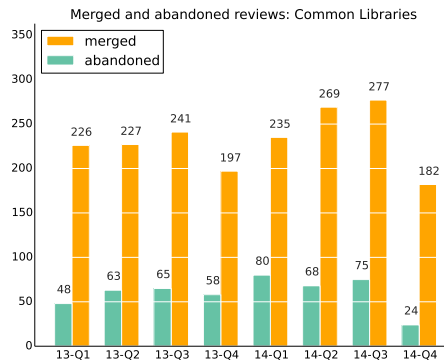
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
13-Q1	340	285
13-Q2	606	354
13-Q3	525	351
13-Q4	489	329
14-Q1	672	395
14-Q2	496	406
14-Q3	534	442
14-Q4	385	263

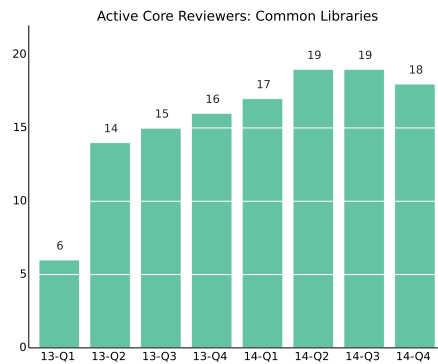


Period	Closed	Opened
13-Q1	0	0
13-Q2	5	15
13-Q3	6	16
13-Q4	3	4
14-Q1	1	4
14-Q2	3	10
14-Q3	1	3
14-Q4	3	4

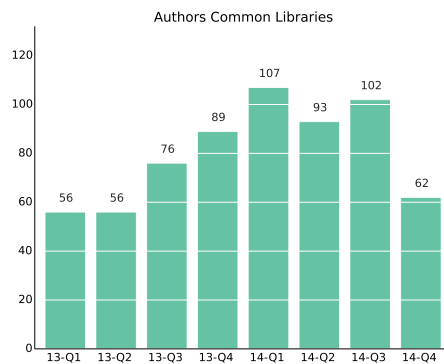


Period	Merged	Abandoned
13-Q1	226	48
13-Q2	227	63
13-Q3	241	65
13-Q4	197	58
14-Q1	235	80
14-Q2	269	68
14-Q3	277	75
14-Q4	182	24

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	6
13-Q2	14
13-Q3	15
13-Q4	16
14-Q1	17
14-Q2	19
14-Q3	19
14-Q4	18

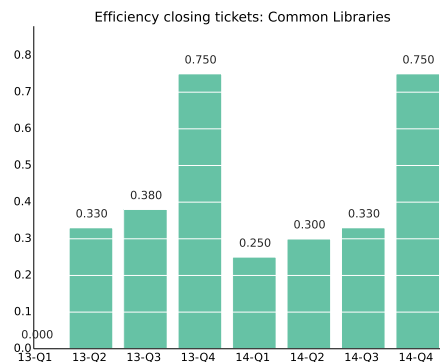


Period	Authors
13-Q1	56
13-Q2	56
13-Q3	76
13-Q4	89
14-Q1	107
14-Q2	93
14-Q3	102
14-Q4	62

Commit (s)	Author
114	Joshua Harlow
42	Doug Hellmann
34	Julien Danjou
27	Mehdi Abaakouk
24	Davanum Srinivas
14	Jeremy Stanley
12	Ben Nemec
9	James Carey
8	Ihar Hrachyshka
7	Mike Bayer

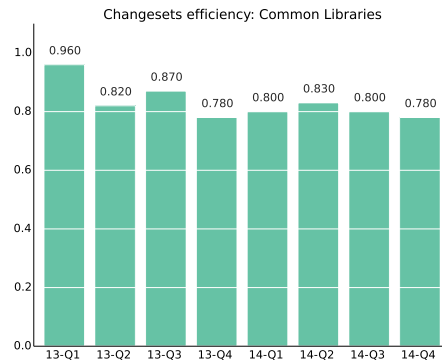
Commit (s)	Organizations
114	Yahoo!
105	Red Hat
45	IBM
42	DreamHost
19	Mirantis
14	OpenStack Foundation
11	VMware
6	HP
4	B1 Systems
4	SUSE

**Process:** Efficiency closing changesets and tickets, time to review (mean and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.

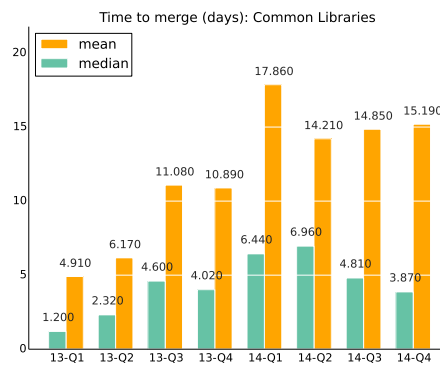


Period	Closed/Opened
13-Q1	0
13-Q2	0.33
13-Q3	0.38
13-Q4	0.75
14-Q1	0.25
14-Q2	0.3
14-Q3	0.33
14-Q4	0.75

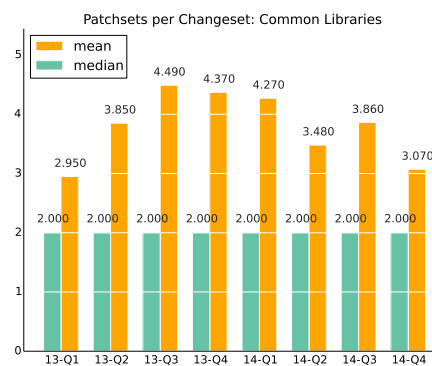
## 2.2. COMMON LIBRARIES



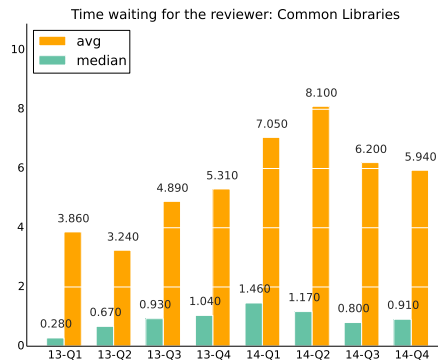
Period	Closed/Opened
13-Q1	0.96
13-Q2	0.82
13-Q3	0.87
13-Q4	0.78
14-Q1	0.8
14-Q2	0.83
14-Q3	0.8
14-Q4	0.78



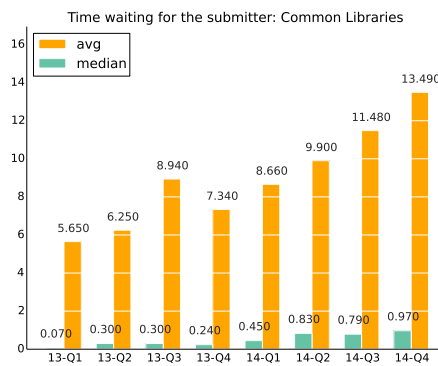
Period	Median	Mean
13-Q1	1.2	4.91
13-Q2	2.32	6.17
13-Q3	4.6	11.08
13-Q4	4.02	10.89
14-Q1	6.44	17.86
14-Q2	6.96	14.21
14-Q3	4.81	14.85
14-Q4	3.87	15.19



Period	Median	Mean
13-Q1	2.0	2.95
13-Q2	2.0	3.85
13-Q3	2.0	4.49
13-Q4	2.0	4.37
14-Q1	2.0	4.27
14-Q2	2.0	3.48
14-Q3	2.0	3.86
14-Q4	2.0	3.07



Period	Median	Mean
13-Q1	0.28	3.86
13-Q2	0.67	3.24
13-Q3	0.93	4.89
13-Q4	1.04	5.31
14-Q1	1.46	7.05
14-Q2	1.17	8.1
14-Q3	0.8	6.2
14-Q4	0.91	5.94

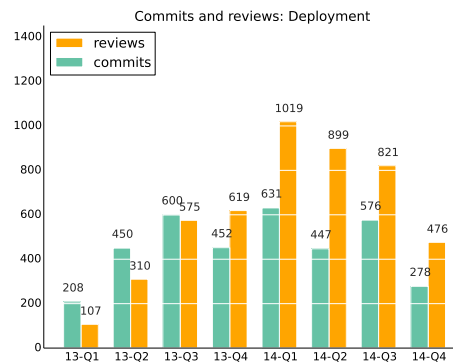


Period	Median	Mean
13-Q1	0.07	5.65
13-Q2	0.3	6.25
13-Q3	0.3	8.94
13-Q4	0.24	7.34
14-Q1	0.45	8.66
14-Q2	0.83	9.9
14-Q3	0.79	11.48
14-Q4	0.97	13.49

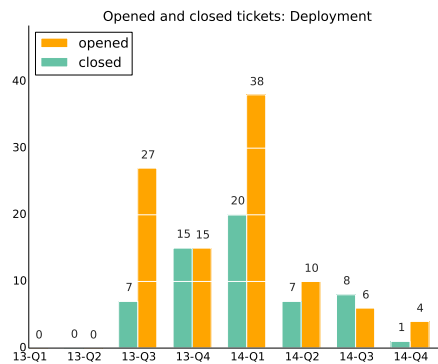
## 2.3 Deployment

Time to review activity is not available for this program.

**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.

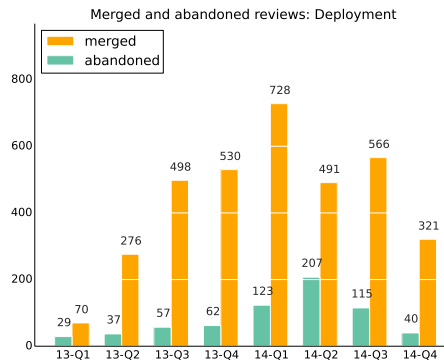


Period	Commits	Reviews
13-Q1	208	107
13-Q2	450	310
13-Q3	600	575
13-Q4	452	619
14-Q1	631	1019
14-Q2	447	899
14-Q3	576	821
14-Q4	278	476



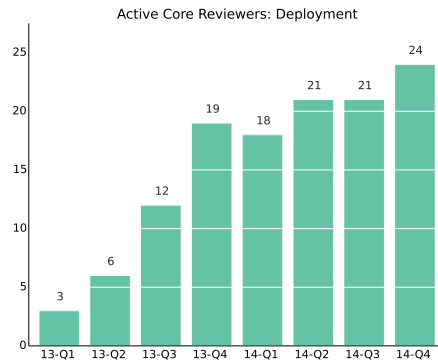
Period	Closed	Opened
13-Q1	0	0
13-Q2	0	0
13-Q3	7	27
13-Q4	15	15
14-Q1	20	38
14-Q2	7	10
14-Q3	8	6
14-Q4	1	4

### 2.3. DEPLOYMENT

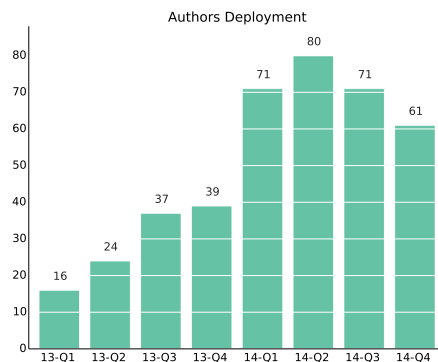


Period	Merged	Abandoned
13-Q1	70	29
13-Q2	276	37
13-Q3	498	57
13-Q4	530	62
14-Q1	728	123
14-Q2	491	207
14-Q3	566	115
14-Q4	321	40

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	3
13-Q2	6
13-Q3	12
13-Q4	19
14-Q1	18
14-Q2	21
14-Q3	21
14-Q4	24

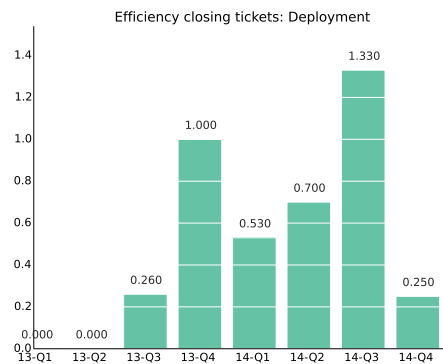


Period	Authors
13-Q1	16
13-Q2	24
13-Q3	37
13-Q4	39
14-Q1	71
14-Q2	80
14-Q3	71
14-Q4	61

Commit (s)	Author
33	Dan Prince
21	Ryan Brady
20	Dougal Matthews
17	Gregory Haynes
16	Steve Kowalik
12	James Polley
11	Alexis Lee
9	Derek Higgins
8	Richard Su
7	Giulio

Commit (s)	Organizations
138	Red Hat
73	HP
16	Canonical
6	Huawei
4	OpenStack Foundation
1	MIT
1	NEC
1	Reliance Jio Infocomm

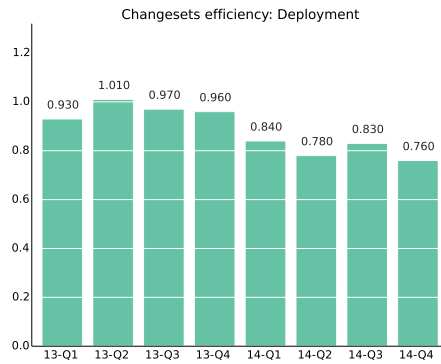
**Process:** Efficiency closing changesets and tickets, time to review (mean and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.



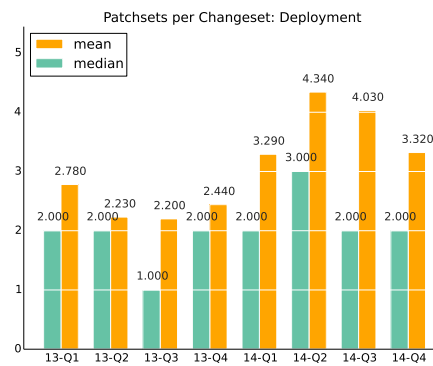
Period	Closed/Opened
13-Q1	0
13-Q2	0
13-Q3	0.26
13-Q4	1.0
14-Q1	0.53
14-Q2	0.7
14-Q3	1.33
14-Q4	0.25



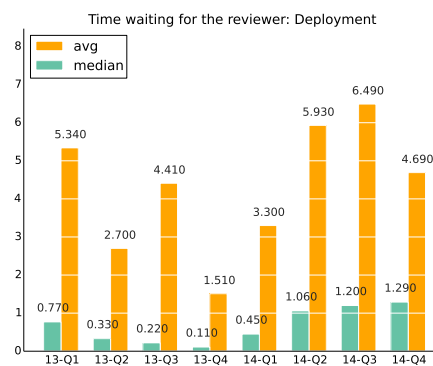
### 2.3. DEPLOYMENT



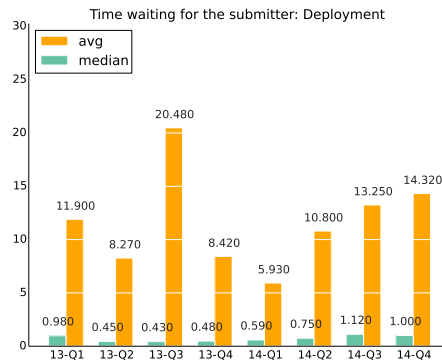
Period	Closed/Opened
13-Q1	0.93
13-Q2	1.01
13-Q3	0.97
13-Q4	0.96
14-Q1	0.84
14-Q2	0.78
14-Q3	0.83
14-Q4	0.76



Period	Median	Mean
13-Q1	2.0	2.78
13-Q2	2.0	2.23
13-Q3	1.0	2.2
13-Q4	2.0	2.44
14-Q1	2.0	3.29
14-Q2	3.0	4.34
14-Q3	2.0	4.03
14-Q4	2.0	3.32



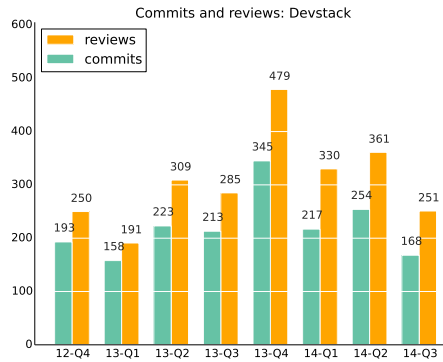
Period	Median	Mean
13-Q1	0.77	5.34
13-Q2	0.33	2.7
13-Q3	0.22	4.41
13-Q4	0.11	1.51
14-Q1	0.45	3.3
14-Q2	1.06	5.93
14-Q3	1.2	6.49
14-Q4	1.29	4.69



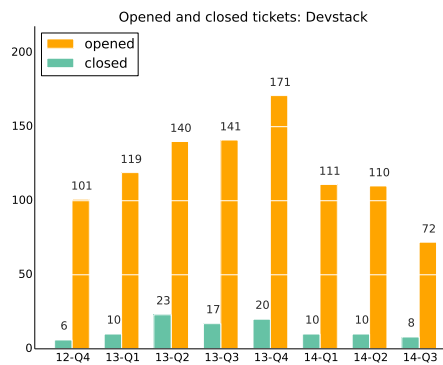
Period	Median	Mean
13-Q1	0.98	11.9
13-Q2	0.45	8.27
13-Q3	0.43	20.48
13-Q4	0.48	8.42
14-Q1	0.59	5.93
14-Q2	0.75	10.8
14-Q3	1.12	13.25
14-Q4	1.0	14.32

## 2.4 Devstack

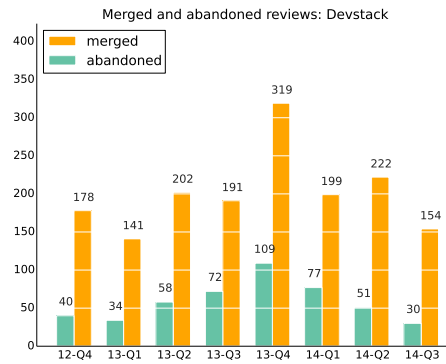
**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.



Period	Commits	Reviews
12-Q4	193	250
13-Q1	158	191
13-Q2	223	309
13-Q3	213	285
13-Q4	345	479
14-Q1	217	330
14-Q2	254	361
14-Q3	168	251

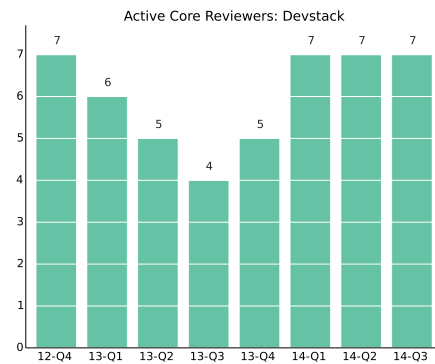


Period	Closed	Opened
12-Q4	6	101
13-Q1	10	119
13-Q2	23	140
13-Q3	17	141
13-Q4	20	171
14-Q1	10	111
14-Q2	10	110
14-Q3	8	72

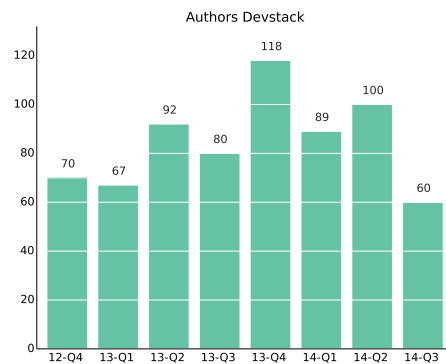


Period	Merged	Abandoned
12-Q4	178	40
13-Q1	141	34
13-Q2	202	58
13-Q3	191	72
13-Q4	319	109
14-Q1	199	77
14-Q2	222	51
14-Q3	154	30

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



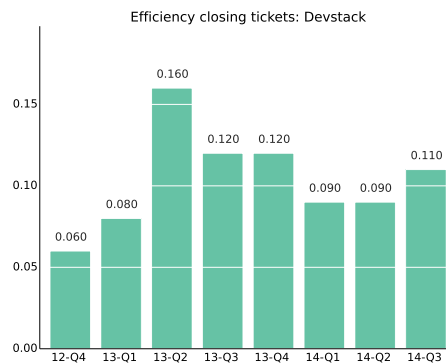
Period	Active Core
12-Q4	7
13-Q1	6
13-Q2	5
13-Q3	4
13-Q4	5
14-Q1	7
14-Q2	7
14-Q3	7



Period	Authors
12-Q4	70
13-Q1	67
13-Q2	92
13-Q3	80
13-Q4	118
14-Q1	89
14-Q2	100
14-Q3	60

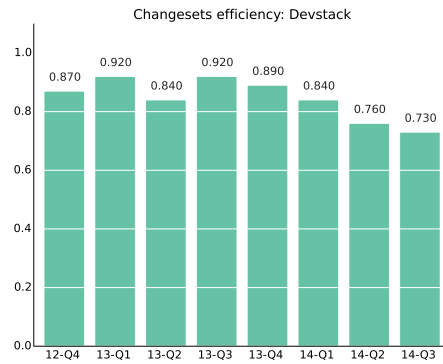
Commit (s)	Author	Commit (s)	Organizations
20	Sean Dague	35	HP
13	Adam Gandelman	33	Red Hat
12	Dean Troyer	13	Canonical
8	Ian Wienand	12	IBM
8	YAMAMOTO Takashi	12	Nebula
7	Joe Gordon	8	VA Linux
7	Mate Lakat	7	Cisco Systems
6	Chris Dent	7	Citrix
4	Akihiro MOTOKI	5	NEC
4	Davanum Srinivas	4	Comcast

**Process:** Efficiency closing changesets and tickets, time to review (mean and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.

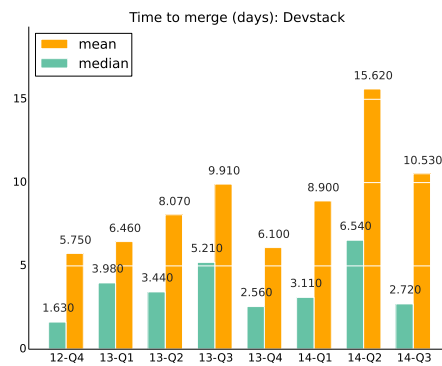


Period	Closed/Opened
12-Q4	0.06
13-Q1	0.08
13-Q2	0.16
13-Q3	0.12
13-Q4	0.12
14-Q1	0.09
14-Q2	0.09
14-Q3	0.11

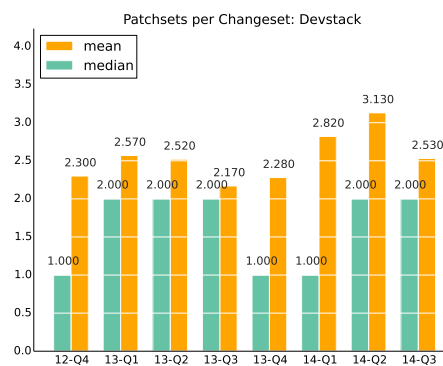
## 2.4. DEVSTACK



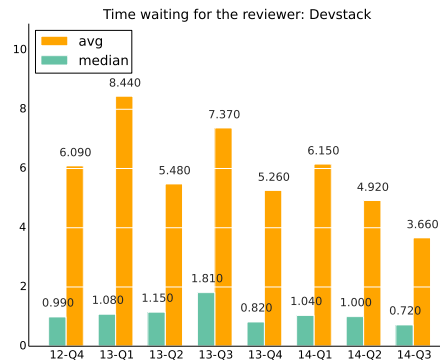
Period	Closed/Opened
12-Q4	0.87
13-Q1	0.92
13-Q2	0.84
13-Q3	0.92
13-Q4	0.89
14-Q1	0.84
14-Q2	0.76
14-Q3	0.73



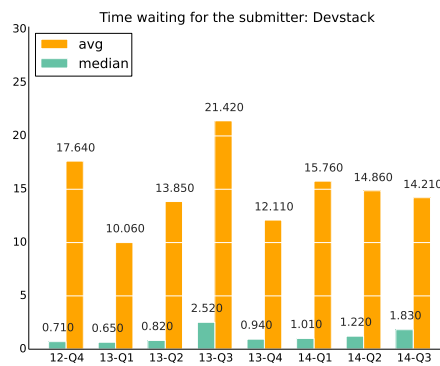
Period	Median	Mean
12-Q4	1.63	5.75
13-Q1	3.98	6.46
13-Q2	3.44	8.07
13-Q3	5.21	9.91
13-Q4	2.56	6.1
14-Q1	3.11	8.9
14-Q2	6.54	15.62
14-Q3	2.72	10.53



Period	Median	Mean
12-Q4	1.0	2.3
13-Q1	2.0	2.57
13-Q2	2.0	2.52
13-Q3	2.0	2.17
13-Q4	1.0	2.28
14-Q1	1.0	2.82
14-Q2	2.0	3.13
14-Q3	2.0	2.53



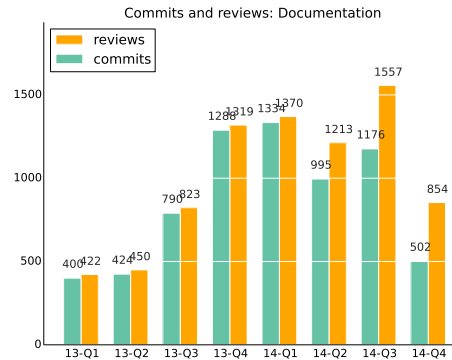
Period	Median	Mean
12-Q4	0.99	6.09
13-Q1	1.08	8.44
13-Q2	1.15	5.48
13-Q3	1.81	7.37
13-Q4	0.82	5.26
14-Q1	1.04	6.15
14-Q2	1.0	4.92
14-Q3	0.72	3.66



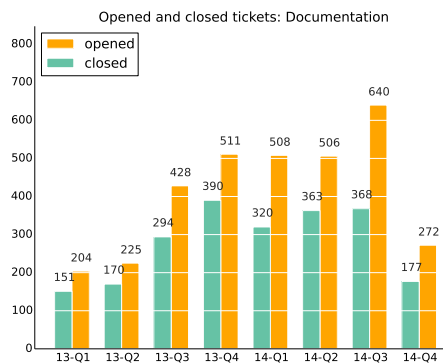
Period	Median	Mean
12-Q4	0.71	17.64
13-Q1	0.65	10.06
13-Q2	0.82	13.85
13-Q3	2.52	21.42
13-Q4	0.94	12.11
14-Q1	1.01	15.76
14-Q2	1.22	14.86
14-Q3	1.83	14.21

## 2.5 Documentation

**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.

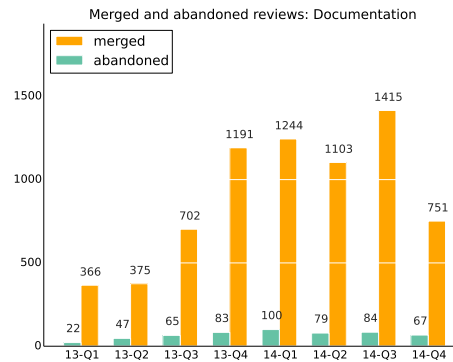


Period	Commits	Reviews
13-Q1	400	422
13-Q2	424	450
13-Q3	790	823
13-Q4	1288	1319
14-Q1	1334	1370
14-Q2	995	1213
14-Q3	1176	1557
14-Q4	502	854



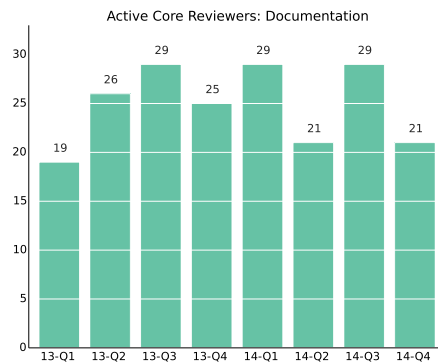
Period	Closed	Opened
13-Q1	151	204
13-Q2	170	225
13-Q3	294	428
13-Q4	390	511
14-Q1	320	508
14-Q2	363	506
14-Q3	368	640
14-Q4	177	272



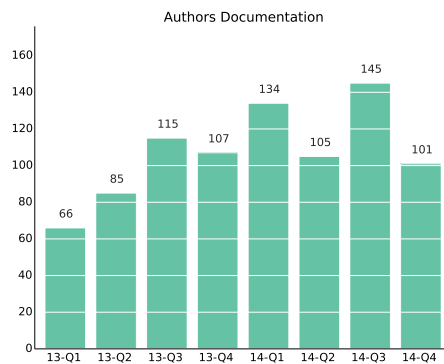


Period	Merged	Abandoned
13-Q1	366	22
13-Q2	375	47
13-Q3	702	65
13-Q4	1191	83
14-Q1	1244	100
14-Q2	1103	79
14-Q3	1415	84
14-Q4	751	67

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	19
13-Q2	26
13-Q3	29
13-Q4	25
14-Q1	29
14-Q2	21
14-Q3	29
14-Q4	21

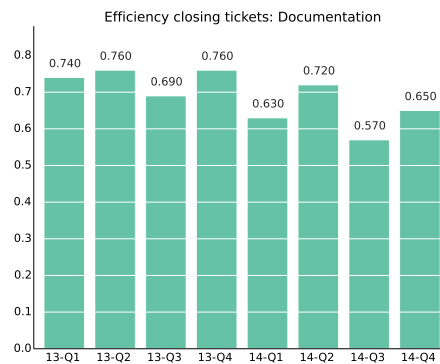


Period	Authors
13-Q1	66
13-Q2	85
13-Q3	115
13-Q4	107
14-Q1	134
14-Q2	105
14-Q3	145
14-Q4	101

Commit (s)	Author
63	Christian Berendt
40	Matt Kassawara
37	Gauvain Pocentek
33	Andreas Jaeger
32	darrenchan
31	Roger Luethi
29	Shilla Saebi
21	Anne Gentle
14	sayalilunkad
13	KATO Tomoyuki

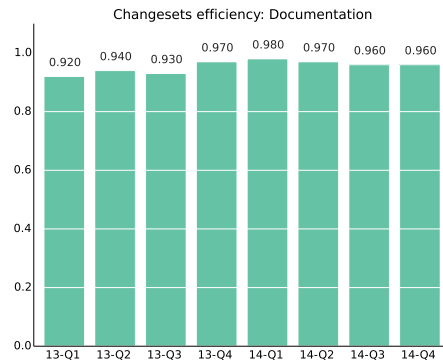
Commit (s)	Organizations
63	B1 Systems
48	Rackspace
37	Objectif-libre
33	SUSE
29	Comcast
19	Red Hat
18	OpenStack Foundation
14	Fujitsu
10	Aptira
10	Tesora

**Process:** Efficiency closing changesets and tickets, time to review (mean and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.

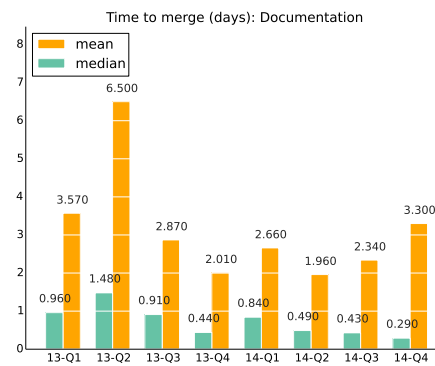


Period	Closed/Opened
13-Q1	0.74
13-Q2	0.76
13-Q3	0.69
13-Q4	0.76
14-Q1	0.63
14-Q2	0.72
14-Q3	0.57
14-Q4	0.65

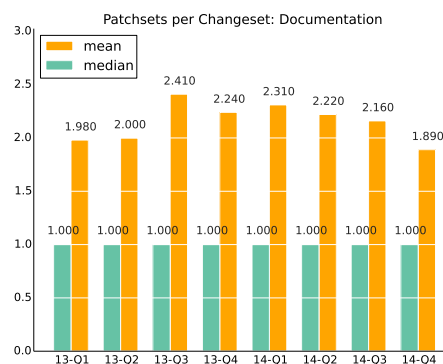
## 2.5. DOCUMENTATION



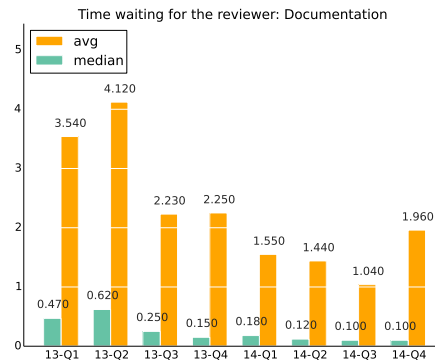
Period	Closed/Opened
13-Q1	0.92
13-Q2	0.94
13-Q3	0.93
13-Q4	0.97
14-Q1	0.98
14-Q2	0.97
14-Q3	0.96
14-Q4	0.96



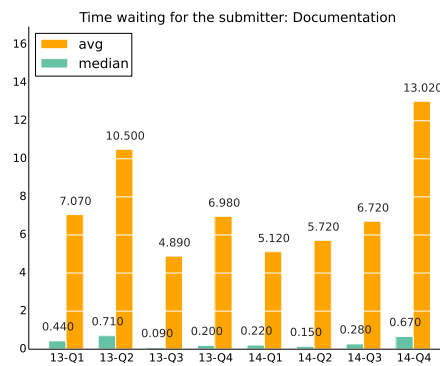
Period	Median	Mean
13-Q1	0.96	3.57
13-Q2	1.48	6.5
13-Q3	0.91	2.87
13-Q4	0.44	2.01
14-Q1	0.84	2.66
14-Q2	0.49	1.96
14-Q3	0.43	2.34
14-Q4	0.29	3.3



Period	Median	Mean
13-Q1	1.0	1.98
13-Q2	1.0	2.0
13-Q3	1.0	2.41
13-Q4	1.0	2.24
14-Q1	1.0	2.31
14-Q2	1.0	2.22
14-Q3	1.0	2.16
14-Q4	1.0	1.89



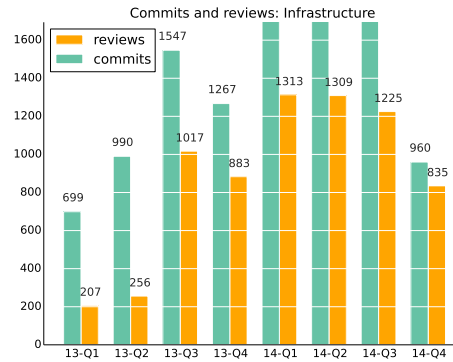
Period	Median	Mean
13-Q1	0.47	3.54
13-Q2	0.62	4.12
13-Q3	0.25	2.23
13-Q4	0.15	2.25
14-Q1	0.18	1.55
14-Q2	0.12	1.44
14-Q3	0.1	1.04
14-Q4	0.1	1.96



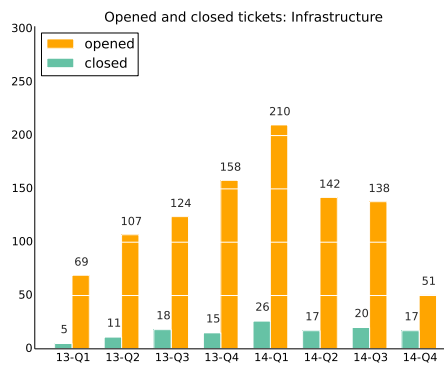
Period	Median	Mean
13-Q1	0.44	7.07
13-Q2	0.71	10.5
13-Q3	0.09	4.89
13-Q4	0.2	6.98
14-Q1	0.22	5.12
14-Q2	0.15	5.72
14-Q3	0.28	6.72
14-Q4	0.67	13.02

## 2.6 Infrastructure

**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.

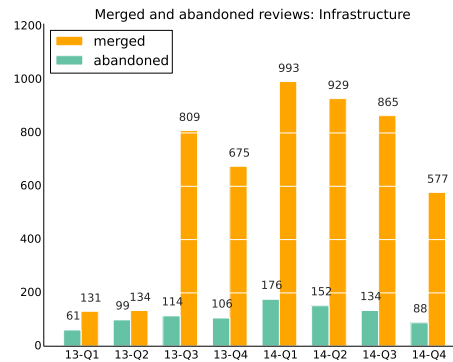


Period	Commits	Reviews
13-Q1	699	207
13-Q2	990	256
13-Q3	1547	1017
13-Q4	1267	883
14-Q1	1953	1313
14-Q2	1929	1309
14-Q3	1845	1225
14-Q4	960	835



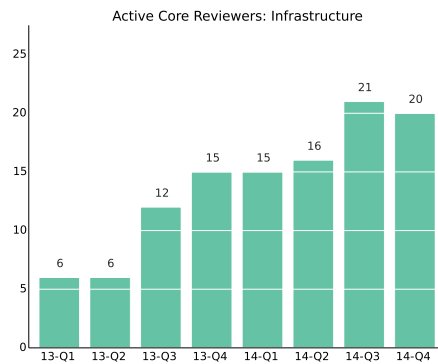
Period	Closed	Opened
13-Q1	5	69
13-Q2	11	107
13-Q3	18	124
13-Q4	15	158
14-Q1	26	210
14-Q2	17	142
14-Q3	20	138
14-Q4	17	51

## 2.6. INFRASTRUCTURE

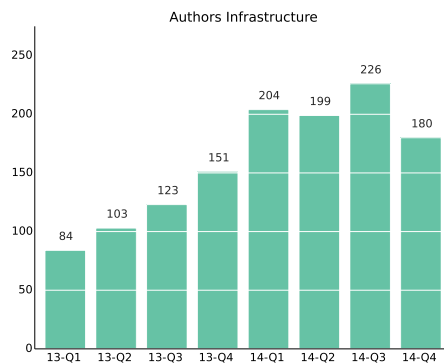


Period	Merged	Abandoned
13-Q1	131	61
13-Q2	134	99
13-Q3	809	114
13-Q4	675	106
14-Q1	993	176
14-Q2	929	152
14-Q3	865	134
14-Q4	577	88

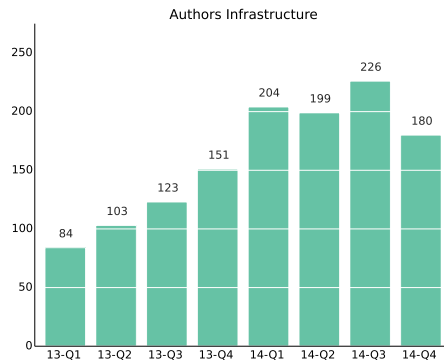
**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	6
13-Q2	6
13-Q3	12
13-Q4	15
14-Q1	15
14-Q2	16
14-Q3	21
14-Q4	20



Period	Authors
13-Q1	84
13-Q2	103
13-Q3	123
13-Q4	151
14-Q1	204
14-Q2	199
14-Q3	226
14-Q4	180



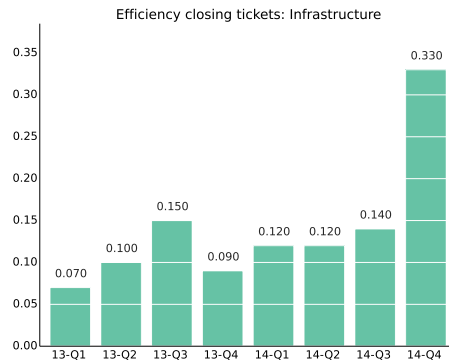
He was an Austrian physicist famous for his founding contributions in the fields of statistical mechanics and statistical thermodynamics. He was one of the most important advocates for atomic theory at a time when that scientific model was still highly controversial.

Commit (s)	Author
60	Andreas Jaeger
60	Michael Krotscheck
54	Jeremy Stanley
46	Matthew Treinish
46	Sean Dague
43	Clark Boylan
37	Marton Kiss
33	Matt Riedemann
24	Ian Wienand
22	Davanum Srinivas

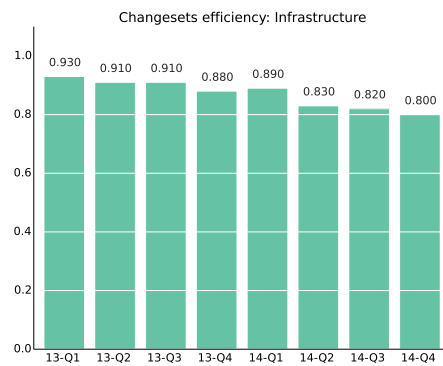
Commit (s)	Organizations
278	HP
117	Red Hat
80	IBM
68	OpenStack Foundation
61	SUSE
38	Rackspace
37	Mirantis
37	Xemeti Kft.
28	Canonical
12	Bitergia

**Process:** Efficiency closing changesets and tickets, time to review (mean and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.

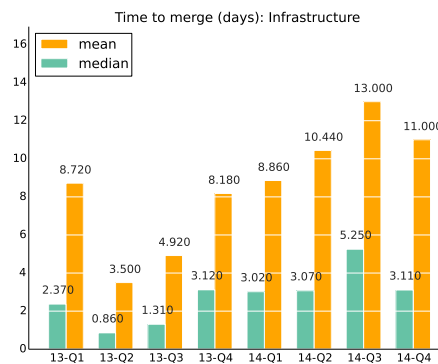
## 2.6. INFRASTRUCTURE



Period	Closed/Opened
13-Q1	0.07
13-Q2	0.1
13-Q3	0.15
13-Q4	0.09
14-Q1	0.12
14-Q2	0.12
14-Q3	0.14
14-Q4	0.33



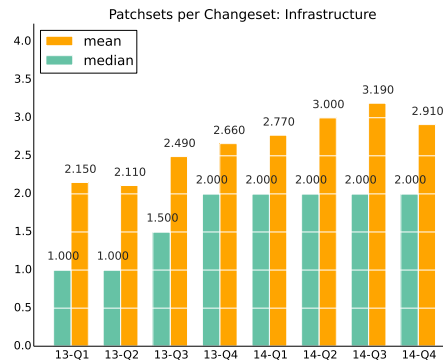
Period	Closed/Opened
13-Q1	0.93
13-Q2	0.91
13-Q3	0.91
13-Q4	0.88
14-Q1	0.89
14-Q2	0.83
14-Q3	0.82
14-Q4	0.8



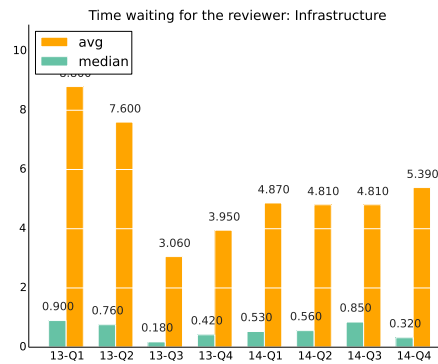
Period	Median	Mean
13-Q1	2.37	8.72
13-Q2	0.86	3.5
13-Q3	1.31	4.92
13-Q4	3.12	8.18
14-Q1	3.02	8.86
14-Q2	3.07	10.44
14-Q3	5.25	13.0
14-Q4	3.11	11.0



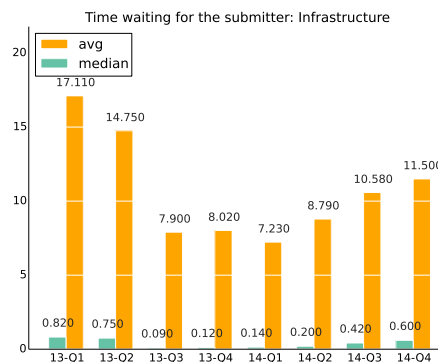
## 2.6. INFRASTRUCTURE



Period	Median	Mean
13-Q1	1.0	2.15
13-Q2	1.0	2.11
13-Q3	1.5	2.49
13-Q4	2.0	2.66
14-Q1	2.0	2.77
14-Q2	2.0	3.0
14-Q3	2.0	3.19
14-Q4	2.0	2.91



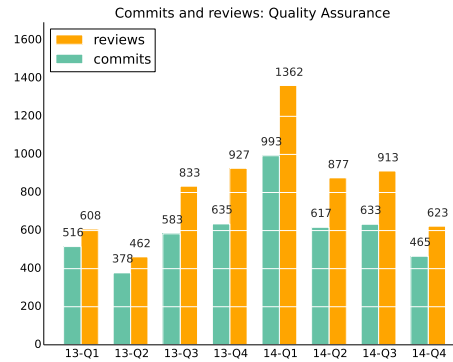
Period	Median	Mean
13-Q1	0.9	8.8
13-Q2	0.76	7.6
13-Q3	0.18	3.06
13-Q4	0.42	3.95
14-Q1	0.53	4.87
14-Q2	0.56	4.81
14-Q3	0.85	4.81
14-Q4	0.32	5.39



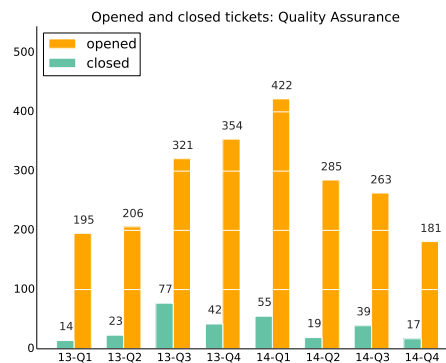
Period	Median	Mean
13-Q1	0.82	17.11
13-Q2	0.75	14.75
13-Q3	0.09	7.9
13-Q4	0.12	8.02
14-Q1	0.14	7.23
14-Q2	0.2	8.79
14-Q3	0.42	10.58
14-Q4	0.6	11.5

## 2.7 Quality Assurance

**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.

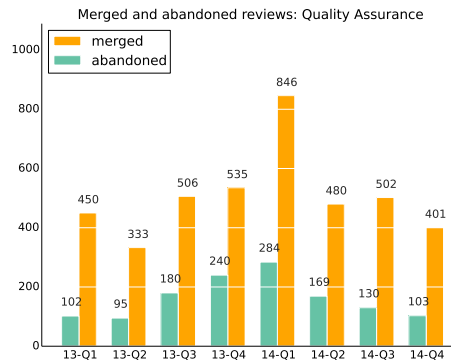


Period	Commits	Reviews
13-Q1	516	608
13-Q2	378	462
13-Q3	583	833
13-Q4	635	927
14-Q1	993	1362
14-Q2	617	877
14-Q3	633	913
14-Q4	465	623



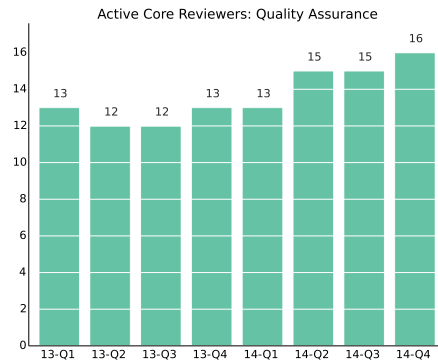
Period	Closed	Opened
13-Q1	14	195
13-Q2	23	206
13-Q3	77	321
13-Q4	42	354
14-Q1	55	422
14-Q2	19	285
14-Q3	39	263
14-Q4	17	181

## 2.7. QUALITY ASSURANCE



Period	Merged	Abandoned
13-Q1	450	102
13-Q2	333	95
13-Q3	506	180
13-Q4	535	240
14-Q1	846	284
14-Q2	480	169
14-Q3	502	130
14-Q4	401	103

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	13
13-Q2	12
13-Q3	12
13-Q4	13
14-Q1	13
14-Q2	15
14-Q3	15
14-Q4	16

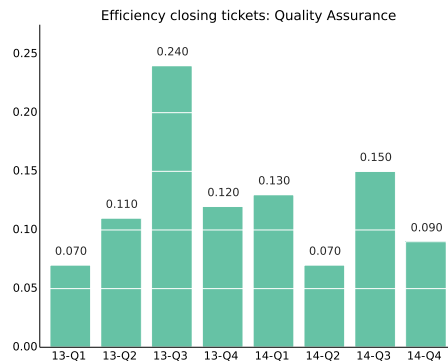


Period	Authors
13-Q1	105
13-Q2	110
13-Q3	140
13-Q4	140
14-Q1	207
14-Q2	147
14-Q3	169
14-Q4	131

Commit (s)	Author
39	Sean Dague
32	Adam Gandelman
25	Ken'ichi Ohmichi
21	Matthew Treinish
16	Dean Troyer
16	Ghanshyam Mann
14	Chris Dent
13	Joe Gordon
12	Andrea Frittoli
12	Ian Wienand

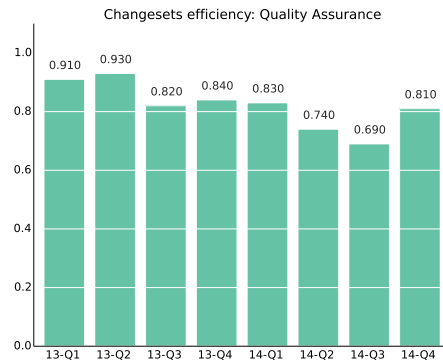
Commit (s)	Organizations
107	HP
96	Red Hat
51	NEC
39	IBM
32	Canonical
16	Nebula
12	Cisco Systems
9	Citrix
8	VA Linux
7	Comcast

**Process:** Efficiency closing changesets and tickets, time to review (mean and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review process.

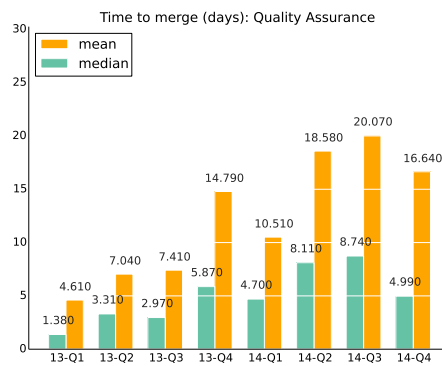


Period	Closed/Opened
13-Q1	0.07
13-Q2	0.11
13-Q3	0.24
13-Q4	0.12
14-Q1	0.13
14-Q2	0.07
14-Q3	0.15
14-Q4	0.09

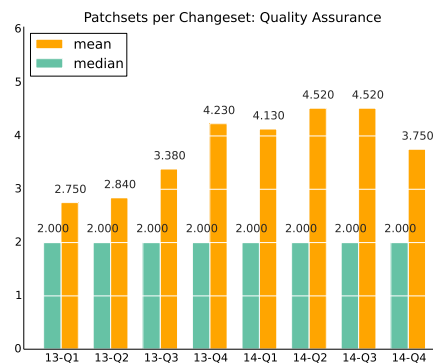
## 2.7. QUALITY ASSURANCE



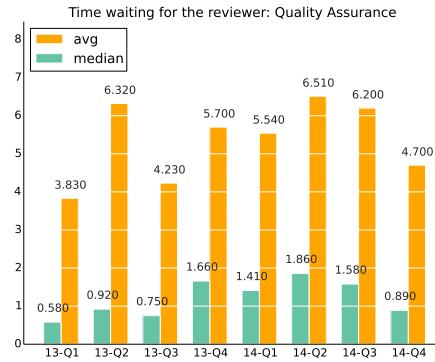
Period	Closed/Opened
13-Q1	0.91
13-Q2	0.93
13-Q3	0.82
13-Q4	0.84
14-Q1	0.83
14-Q2	0.74
14-Q3	0.69
14-Q4	0.81



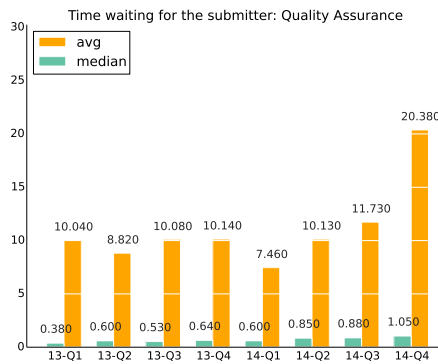
Period	Median	Mean
13-Q1	1.38	4.61
13-Q2	3.31	7.04
13-Q3	2.97	7.41
13-Q4	5.87	14.79
14-Q1	4.7	10.51
14-Q2	8.11	18.58
14-Q3	8.74	20.07
14-Q4	4.99	16.64



Period	Median	Mean
13-Q1	2.0	2.75
13-Q2	2.0	2.84
13-Q3	2.0	3.38
13-Q4	2.0	4.23
14-Q1	2.0	4.13
14-Q2	2.0	4.52
14-Q3	2.0	4.52
14-Q4	2.0	3.75



Period	Median	Mean
13-Q1	0.58	3.83
13-Q2	0.92	6.32
13-Q3	0.75	4.23
13-Q4	1.66	5.7
14-Q1	1.41	5.54
14-Q2	1.86	6.51
14-Q3	1.58	6.2
14-Q4	0.89	4.7

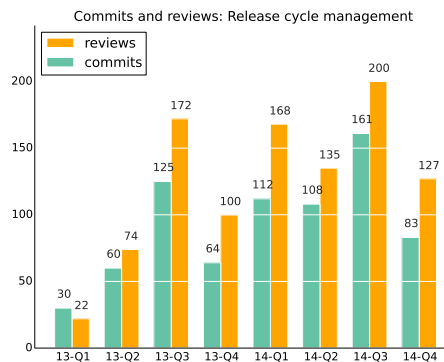


Period	Median	Mean
13-Q1	0.38	10.04
13-Q2	0.6	8.82
13-Q3	0.53	10.08
13-Q4	0.64	10.14
14-Q1	0.6	7.46
14-Q2	0.85	10.13
14-Q3	0.88	11.73
14-Q4	1.05	20.38

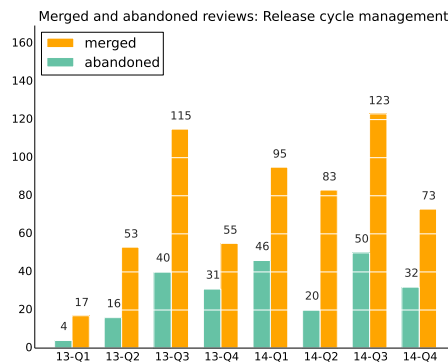
## 2.8 Release Cycle Management

Tickets activity information is not available. This affects the activity of opened and closed tickets and the BMI chart.

**Activity:** Commits in Git, submitted, merged and abandoned reviews in Gerrit and opened and closed issues in Launchpad.

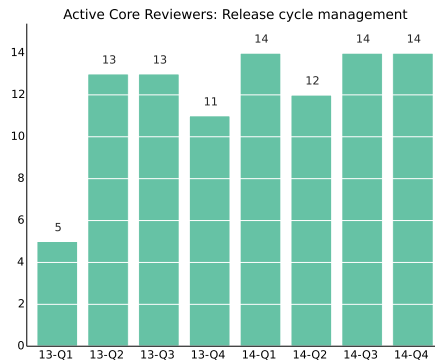


Period	Commits	Reviews
13-Q1	30	22
13-Q2	60	74
13-Q3	125	172
13-Q4	64	100
14-Q1	112	168
14-Q2	108	135
14-Q3	161	200
14-Q4	83	127

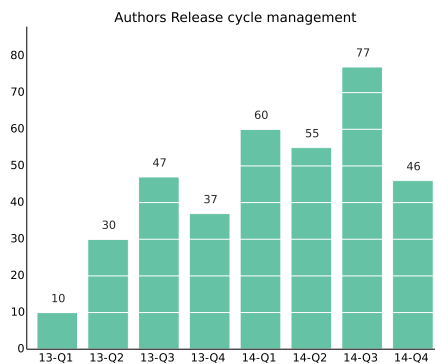


Period	Merged	Abandoned
13-Q1	17	4
13-Q2	53	16
13-Q3	115	40
13-Q4	55	31
14-Q1	95	46
14-Q2	83	20
14-Q3	123	50
14-Q4	73	32

**Community:** Active core reviewers in Gerrit, active authors in Git, top authors and organizations in the last quarter



Period	Active Core
13-Q1	5
13-Q2	13
13-Q3	13
13-Q4	11
14-Q1	14
14-Q2	12
14-Q3	14
14-Q4	14



Period	Authors
13-Q1	10
13-Q2	30
13-Q3	47
13-Q4	37
14-Q1	60
14-Q2	55
14-Q3	77
14-Q4	46

Commit (s)	Author
7	Davanum Srinivas
6	Doug Hellmann
6	Matthew Treinish
4	Adam Gandelman
3	Andreas Jaeger
3	Joshua Harlow
3	Kiall Mac Innes
3	Sean Dague
2	Alan Pevec
2	Angus Lees

Commit (s)	Organizations
19	HP
10	Red Hat
9	IBM
6	DreamHost
5	Canonical
4	Mirantis
4	VMware
4	Yahoo!
3	OpenStack Foundation
3	Rackspace

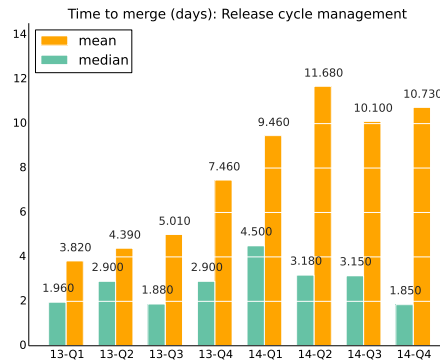
**Process:** Efficiency closing changesets and tickets, time to review (mean and median), number of patchsets (iterations) per changeset and study on the time waiting for a reviewer or submitter action in the patchset review



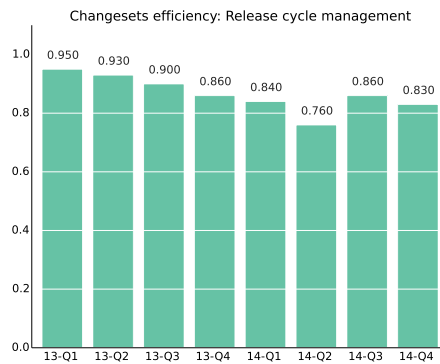
## 2.8. RELEASE CYCLE MANAGEMENT



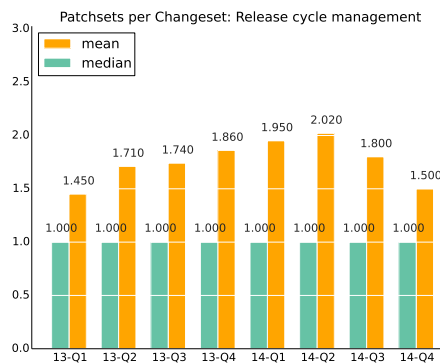
process.



Period	Median	Mean
13-Q1	1.96	3.82
13-Q2	2.9	4.39
13-Q3	1.88	5.01
13-Q4	2.9	7.46
14-Q1	4.5	9.46
14-Q2	3.18	11.68
14-Q3	3.15	10.1
14-Q4	1.85	10.73

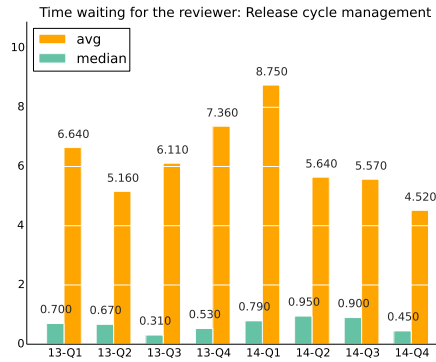


Period	Closed/Opened
13-Q1	0.95
13-Q2	0.93
13-Q3	0.9
13-Q4	0.86
14-Q1	0.84
14-Q2	0.76
14-Q3	0.86
14-Q4	0.83

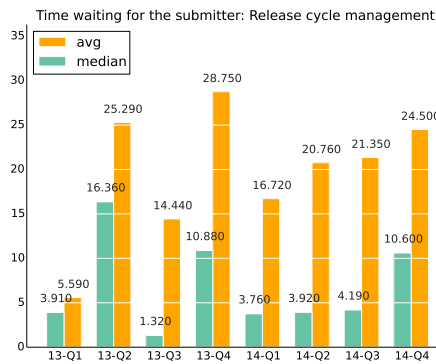


Period	Median	Mean
13-Q1	1.0	1.45
13-Q2	1.0	1.71
13-Q3	1.0	1.74
13-Q4	1.0	1.86
14-Q1	1.0	1.95
14-Q2	1.0	2.02
14-Q3	1.0	1.8
14-Q4	1.0	1.5

## 2.8. RELEASE CYCLE MANAGEMENT



Period	Median	Mean
13-Q1	0.7	6.64
13-Q2	0.67	5.16
13-Q3	0.31	6.11
13-Q4	0.53	7.36
14-Q1	0.79	8.75
14-Q2	0.95	5.64
14-Q3	0.9	5.57
14-Q4	0.45	4.52

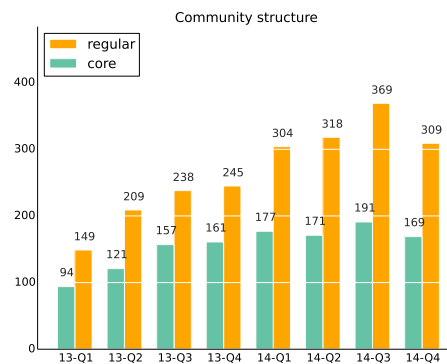


Period	Median	Mean
13-Q1	3.91	5.59
13-Q2	16.36	25.29
13-Q3	1.32	14.44
13-Q4	10.88	28.75
14-Q1	3.76	16.72
14-Q2	3.92	20.76
14-Q3	4.19	21.35
14-Q4	10.6	24.5

## Chapter 3

# General Activity and Community Evolution

### 3.1 Git Community Structure



Period	Core	Regular	Occasional
13-Q1	94	149	250
13-Q2	121	209	291
13-Q3	157	238	390
13-Q4	161	245	366
14-Q1	177	304	488
14-Q2	171	318	453
14-Q3	191	369	584
14-Q4	169	309	409

#### Main Git Contributors

Last quarter of 2013 and first quarter of 2014

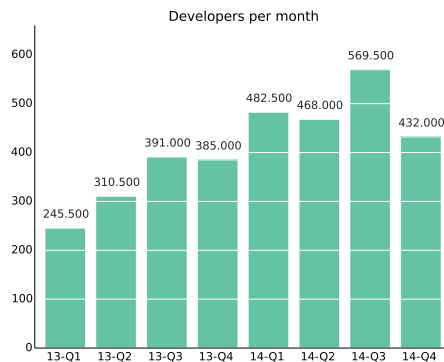
Commit (s)	Author
506	Andreas Jaeger
320	James E. Blair
291	Jeremy Stanley
262	Sean Dague
252	rbtnollins
200	Brant Knudson
188	Armando Migliaccio
186	Sergey Lukjanov
182	Joe Gordon
180	arosen

Last two quarters main git contributors

Commit (s)	Author
413	Andreas Jaeger
281	Sean Dague
240	Clark Boylan
221	Ihar Hrachyshka
203	Kevin Benton
169	Christian Berendt
164	James E. Blair
148	Joe Gordon
146	Joshua Harlow
145	Monty Taylor

Commit (s)	Author
527	Andreas Jaeger
299	Christian Berendt
224	James E. Blair
188	Kevin Benton
177	Jeremy Stanley
159	Clark Boylan
157	Flavio Percoco
146	Matt Riedemann
142	Armando Migliaccio
138	Steve Martinelli

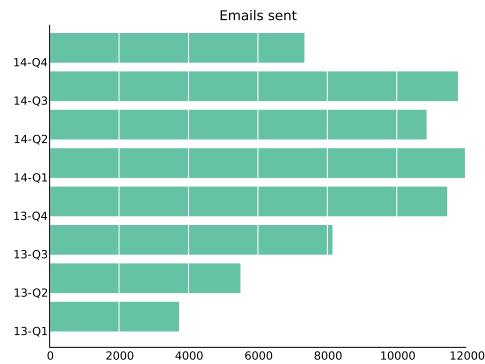
Developers per Month



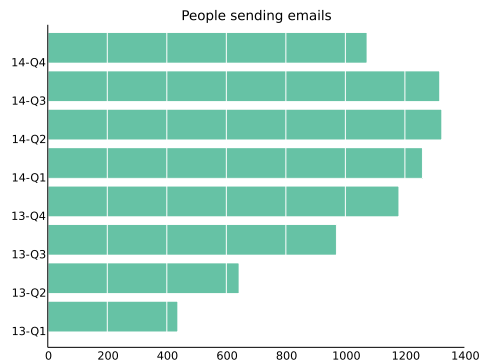
Commit (s)	Author
148	Jeremy Stanley
137	Andreas Jaeger
122	Joshua Harlow
116	Sean Dague
99	Kevin Benton
94	Matthew Treinish
89	garyk
81	Christian Berendt
81	Davanum Srinivas
80	Julien Danjou

Period	Authors per month
13-Q1	245.5
13-Q2	310.5
13-Q3	391.0
13-Q4	385.0
14-Q1	482.5
14-Q2	468.0
14-Q3	569.5
14-Q4	432.0

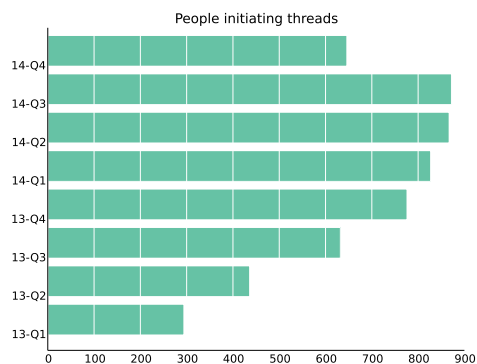
## 3.2 Mailing Lists



Period	Emails
13-Q1	3743
13-Q2	5511
13-Q3	8162
13-Q4	11466
14-Q1	11977
14-Q2	10872
14-Q3	11775
14-Q4	7354



Period	People
13-Q1	437
13-Q2	643
13-Q3	970
13-Q4	1180
14-Q1	1259
14-Q2	1324
14-Q3	1317
14-Q4	1073

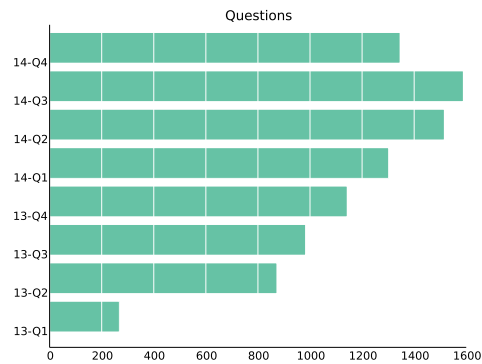


Period	People
13-Q1	294
13-Q2	436
13-Q3	632
13-Q4	776
14-Q1	827
14-Q2	867
14-Q3	872
14-Q4	646

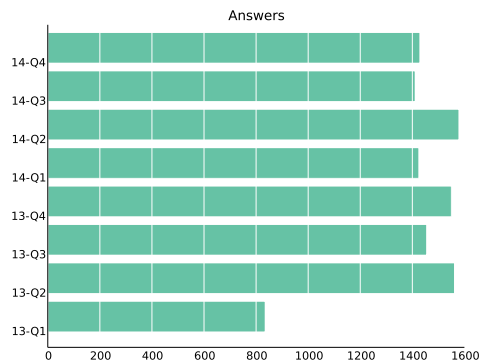
Initial Author and Date	Subject	Number Messages
alawson 2014-10-13	[openstack-dev] [Nova] Auto- matic evacuate	58
Angus Lees 2014-10-14	[openstack-dev] [kolla] on Dockerfile patterns	49
azemlyanov 2014-11-05	[openstack-dev] [Fuel] fuel master monitoring	41
Doug Hellmann 2014-10-02	[openstack-dev] [all][tc] gover- nance changes for "big tent" model	37
Richard Jones 2014-11-11	[openstack-dev] [Horizon] the future of angularjs develop- ment in Horizon	35
Alexis Lee 2014-11-05	[openstack-dev] [Heat] New function: first <sub>n</sub> onnull	33
Everett Toews 2014-10-08	[openstack-dev] [api] Forming the API Working Group	32
Michael Still 2014-12-05	[openstack-dev] [Nova] Spring cleaning nova-core	31
Michael Krotscheck 2014-12-02	[openstack-dev] [Fuel][Nailgun] Web frame- work	29
Salvatore Orlando 2014-10-03	[openstack-dev] Quota man- agement and enforcement across projects	29

Initial Author and Date	Subject	Diff. People
Anita Kuno 2014-12-04	[openstack-dev] [neutron] Changes to the core team	23
Craig Tracey 2014-11-08	[Openstack-operators] Proposal for an 'Operations' project	17
Sylvain Bauza 2014-10-14	[openstack-dev] [Nova] Automatic evacuate	17
Angus Salkeld 2014-10-17	[openstack-dev] [all] add cyclomatic complexity check to pep8 target	16
vishvananda 2014-12-10	[openstack-dev] [Nova] Spring clean- ing nova-core	15
Kevin Benton 2014-12-12	[openstack-dev] [Neutron] Unique- Constraint for name and tenant, <i>dissecuritygroup</i>	15
ERROR 2014-11-21	[openstack-dev] [Fuel] fuel master monitoring	15
rbtcollins 2014-11-25	[openstack-dev] [tc][neutron] Pro- posal to split Neutron into separate repositories	15
e.aslan@logicom.com.tr 2014-11-28	[Openstack-operators] Operations project: Packaging	14
Chris Yeoh 2014-10-14	[openstack-dev] [api] Forming the API Working Group	14

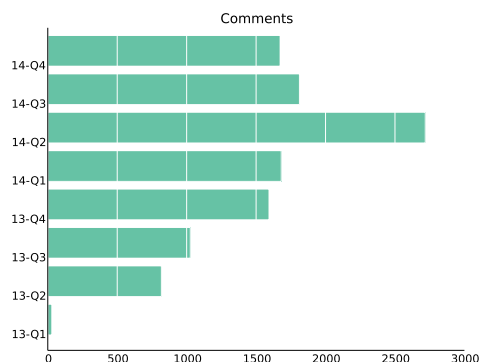
### 3.3 Questions and Answers



Period	Questions
13-Q1	268
13-Q2	873
13-Q3	983
13-Q4	1143
14-Q1	1302
14-Q2	1516
14-Q3	1589
14-Q4	1346

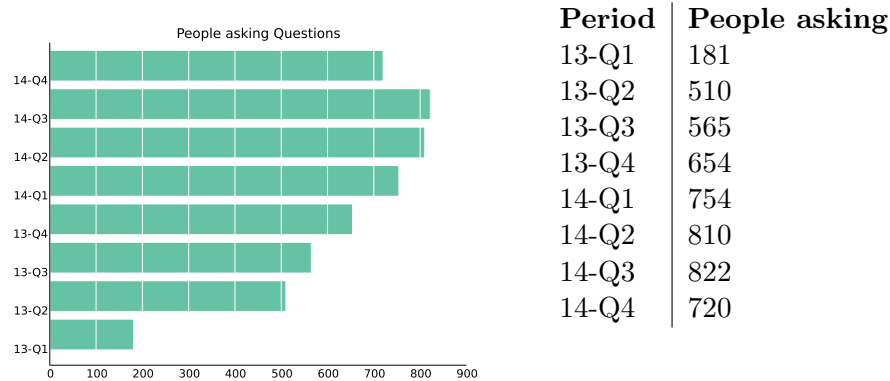


Period	Answers
13-Q1	835
13-Q2	1562
13-Q3	1455
13-Q4	1550
14-Q1	1425
14-Q2	1579
14-Q3	1411
14-Q4	1429



Period	Comments
13-Q1	29
13-Q2	818
13-Q3	1026
13-Q4	1593
14-Q1	1681
14-Q2	2718
14-Q3	1812
14-Q4	1673





- Top visited questions.

Question subject	Visits
nova list error httpconnectionpoolhostcontroller port8774 max+	1027
how to extend the time allowed+	892
mongodbpp error when installing rdo on+	830
rdo installation problem on centos 7+	556
error connectionerror httpconnectionpool-	478
hostopenstack port8774 max retries+	
rdo deploy openstack error execution of+	420
devstack not starting because of	402
urllib3connectionpool+	
juno error while launching instance+	370
how can i get information on+	370
distributed virtual router all compute hosts+	369

- Top questions with more comments.

Question subject	Comments
block device mapping is invalid first+	5
how to increase the number of+	5
could not find the datastore references+	5
32 core cpu with 64 thread+	5
rdo quickstart packstack failure files not+	5
lvmmiscsidriver 200 config name lvm driver+	5
the screen shows cannot get disk+	5
no available ports for floating ips+	5
dhcp issue rdo aio juno+	5
not create a listening tcp socket+	5

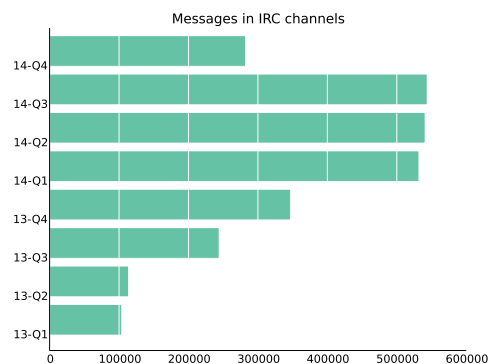
- Top questions with the highest number of different people participating.

Question subject	People participating
cant create instances status got error+	9
mongodbpp error when installing rdo on+	8
rdo deploy openstack error execution of+	7
juno error while launching instance+	7
nova list error httpconnectionpoolhostcontroller port8774 max+	7
error in creating instances+	7
juno glance invalid openstack identity credentials+	6
can i install a basic openstack+	6
unable to create instancelibvirterror internal error+	6
whats the difference between flat gre+	6

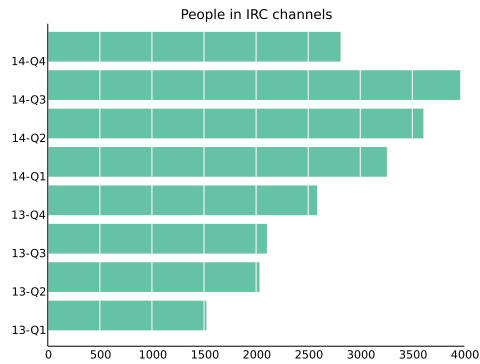
- Top tags

Tag name	Ocurrences
forum	1346
OpenStack	1346
community	1142
Ask	1117
gerrit	900
cloud	853
stackforge	548
iaas	501
ovs	287
branch	276
qemu	95
create	82
unreachable	74
soft-lockup	70
neutron	66

### 3.4 IRC



Period	Messages
13-Q1	103851
13-Q2	113730
13-Q3	244193
13-Q4	347085
14-Q1	531899
14-Q2	540845
14-Q3	543772
14-Q4	282124



Period	People
13-Q1	1528
13-Q2	2038
13-Q3	2109
13-Q4	2591
14-Q1	3260
14-Q2	3611
14-Q3	3965
14-Q4	2816

### IRC id

clarkb  
 Jeremy Stanley  
 ayoung  
 morganfainberg  
 Anita Kuno  
 jroll  
 flaper87  
 Angus Salkeld  
 sdake  
 Thierry Carrez  
 Devananda  
 Sam-I-Am  
 mtreinish  
 dhellmann  
 NoBodyCam

### Messages sent

7224  
 5970  
 5403  
 4989  
 4421  
 3585  
 3332  
 3282  
 3131  
 2961  
 2858  
 2800  
 2776  
 2659  
 2548

## Appendix A

# Metrics Definitions

Metrics depicted in each OpenStack program:

- Commit: this is defined as the action(s) that performs a change in the source code. Bots, merges and other type of automatic activity is removed from the records. Besides, when aggregating several Gits, this metric only counts unique revisions (unique hashes found in the Git repositories). Finally, all branches are aggregated to the analysis.
- Submitted changeset: a changeset is the process of peer reviewing source code changes. A commit is not merged to the master code of a given project till this is approved for at least one core reviewer of such project. A submitted changeset is defined as any changeset submitted to the Gerrit system. However, given the limitations of the current version of the tool, with at least 5,900 changesets detected as having an erroneous creation date, this metric counts the first patchset upload action.
- Merged and abandoned changsets: a merge is defined as the patchset that was finally submitted to the source code. An abandoned changeset is a potential merge that was finally dismissed by developers as being part of the source code. This status is found in the status of the final patchset. However, although a patchset can be merged or abandoned, this action can be reverted. If a patchset presents several of these changes in the same period of time, only one of them is counted (the very last one). On the other hand, if those changes take place in different periods of analysis, both status would be counted.
- Open and closed ticket: a ticket in Launchpad is counted as closed if

the status of such ticket is defined as 'Fix Released'. The rest of the tickets are counted as opened tickets.

- **Active Core Reviewer:** a core reviewer has the possibility to use +2 or -2 actions when reviewing the code. However, if there are developers that for some period do not use those actions, those can not be measured as core reviewer. Thus, this metric provides information about 'active' core reviewers. This can be also defined as those developers that actively have used the +2 or -2 review action. Besides, this metric is filtered by branch of activity, only using 'master'. This helps to detect actual core reviewers in each of the projects.
- **Authors:** a developer is defined as author if she is the owner of the patchset sent for reviewing and this is merged into the source code. As previously indicated, automatic commits such bot's are removed from this analysis.
- **Efficiency closing issues:** this metric is a derivation of the Backlog Management Index (BMI) that measures the number of closed tickets out of the opened tickets in a period of time. Values under 1.0 indicates that the number of closing issues is lower than the number of opened issues arriving. On the contrary, higher charts would indicate better maintenance effort by the community.
- **Efficiency closing changesets:** this metric is a derivation of the Backlog Management Index as it is named as Review efficiency index (REI). As similarly used in the BMI index, this metrics measures the number of closed changesets (merged or abandoned) out of the total number of new changesets.
- **Time to Merge:** this time consists of the time between the first upload of the first patchset (as defined as a submitted changeset) till the last patchset of the changeset is merged into the code and this is indicated in the comments side of the Gerrit tool. This metric is provided in number of days.
- **Patchsets per changeset:** this metric calculates the total number of iterations in a changeset till this is abandoned or merged.
- **Time waiting for the reviewer or the submitter:** a changeset is waiting for a reviewer action if a new patchset upload or a new changset arrives to the system. On the other hand, a submitter action is required when

a specific negative verification or reviewing action takes place (Verified -1/-2 or Code-Review -1/-2). In addition, when a Code-Review +2 action takes place, it is assumed that the changset is closing and no more times are registered either for the reviewer or the submitter. For this analysis, those patchsets flagged as work in progress are ignored.

Metrics depicted in the general overview:

- Community structure, core, regular and casual developers: developers are ordered in descendant order by the number of commits authored for a given period. Core developers are defined as the list of developers that reach 80% of the total commits. Regular is the set of developers that are between that 80% and 95% of the commits. Casual developers are found in the rest of the 5%. Bots are ignored in this list of developers.
- Developer per month: average of developers per month ignoring bots.
- Emails sent: number of emails sent by people to the several mailing lists. Bots are not registered.
- People sending emails: number of people sending those emails ignoring bots.
- People initiating threads: a thread is defined as a list of emails that has the same root. There may exist threads of one email.
- Top threads: this list provides the longest threads in terms of number of emails that have a common root email.
- Questions, answers and comments in Askbot.
- People asking questions in Askbot: number of people sending a new question.
- Top visited questions.
- Top tags: each of the questions has a list of associated tags. The top tags are those with the highest number of repetitions aggregating all of the questions.
- Messages and people in IRC: this analysis ignores as a message those entries in the IRC channels that provide information about people entering or leaving the system.

## Appendix B

# Source Code and Data Sources

The data source used to provide the data of this analysis can be found at the GrimoireLib library. Specifically the `openstack_report.py` file<sup>1</sup>.

With respect to the list of analyzed repositories per project, the following table lists all of them. There are three data sources: git activity (scm), tickets activity (its) and review activity (scr). This information is based on the information listed in the yaml organizational file<sup>2</sup> provided by the OpenStack Foundation.

Program	Data source	Repository
barbican	its	<a href="https://bugs.launchpad.net/barbican">https://bugs.launchpad.net/barbican</a>
barbican	scm	<a href="https://git.openstack.org/openstack/barbican">git://git.openstack.org/openstack/barbican</a>
barbican	scm	<a href="https://git.openstack.org/openstack/castellan">git://git.openstack.org/openstack/castellan</a>
barbican	scm	<a href="https://git.openstack.org/openstack/kite">git://git.openstack.org/openstack/kite</a>
barbican	scr	<a href="https://review.openstack.org/openstack/barbican">review.openstack.org_openstack/barbican</a>
barbican	scr	<a href="https://review.openstack.org/openstack/castellan">review.openstack.org_openstack/castellan</a>
barbican	scr	<a href="https://review.openstack.org/openstack/kite">review.openstack.org_openstack/kite</a>
ceilometer	its	<a href="https://bugs.launchpad.net/ceilometer">https://bugs.launchpad.net/ceilometer</a>
ceilometer	scm	<a href="https://github.com/openstack/ceilometer.git">https://github.com/openstack/ceilometer.git</a>
ceilometer	scr	<a href="https://review.openstack.org/openstack/ceilometer">review.openstack.org_openstack/ceilometer</a>
cinder	its	<a href="https://bugs.launchpad.net/cinder">https://bugs.launchpad.net/cinder</a>

<sup>1</sup>[https://github.com/VizGrimoire/GrimoireLib/blob/master/vizGrimoireJS/openstack\\_report.py](https://github.com/VizGrimoire/GrimoireLib/blob/master/vizGrimoireJS/openstack_report.py).  
In order to download the exact version used for this analysis with the hash `xxxx`

<sup>2</sup>[urlhttp://git.openstack.org/cgit/openstack/governance/tree/reference/programs.yaml](http://git.openstack.org/cgit/openstack/governance/tree/reference/programs.yaml)



cinder	scm	<a href="https://github.com/openstack/cinder.git">https://github.com/openstack/cinder.git</a>
cinder	scr	<a href="https://review.openstack.org/openstack/cinder">review.openstack.org_openstack/cinder</a>
clients	its	<a href="https://bugs.launchpad.net/python-ceilometerclient">https://bugs.launchpad.net/python-ceilometerclient</a>
clients	its	<a href="https://bugs.launchpad.net/python-cinderclient">https://bugs.launchpad.net/python-cinderclient</a>
clients	its	<a href="https://bugs.launchpad.net/python-designateclient">https://bugs.launchpad.net/python-designateclient</a>
clients	its	<a href="https://bugs.launchpad.net/python-glanceclient">https://bugs.launchpad.net/python-glanceclient</a>
clients	its	<a href="https://bugs.launchpad.net/python-heatclient">https://bugs.launchpad.net/python-heatclient</a>
clients	its	<a href="https://bugs.launchpad.net/python-keystoneclient">https://bugs.launchpad.net/python-keystoneclient</a>
clients	its	<a href="https://bugs.launchpad.net/python-neutronclient">https://bugs.launchpad.net/python-neutronclient</a>
clients	its	<a href="https://bugs.launchpad.net/python-novaclient">https://bugs.launchpad.net/python-novaclient</a>
clients	its	<a href="https://bugs.launchpad.net/python-saharaclient">https://bugs.launchpad.net/python-saharaclient</a>
clients	its	<a href="https://bugs.launchpad.net/python-swiftclient">https://bugs.launchpad.net/python-swiftclient</a>
clients	its	<a href="https://bugs.launchpad.net/python-zaqarclient">https://bugs.launchpad.net/python-zaqarclient</a>
clients	scm	<a href="https://git.openstack.org/openstack-dev/heat-cfnclient">git://git.openstack.org/openstack-dev/heat-cfnclient</a>
clients	scm	<a href="https://git.openstack.org/openstack/python-kiteclient">git://git.openstack.org/openstack/python-kiteclient</a>
clients	scm	<a href="https://git.openstack.org/openstack/python-saharaclient">git://git.openstack.org/openstack/python-saharaclient</a>
clients	scm	<a href="https://git.openstack.org/openstack/python-zaqarclient">git://git.openstack.org/openstack/python-zaqarclient</a>
clients	scm	<a href="https://github.com/openstack/python-ceilometerclient.git">https://github.com/openstack/python-ceilometerclient.git</a>
clients	scm	<a href="https://github.com/openstack/python-cinderclient.git">https://github.com/openstack/python-cinderclient.git</a>
clients	scm	<a href="https://github.com/openstack/python-glanceclient.git">https://github.com/openstack/python-glanceclient.git</a>
clients	scm	<a href="https://github.com/openstack/python-heatclient.git">https://github.com/openstack/python-heatclient.git</a>
clients	scm	<a href="https://github.com/openstack/python-ironicclient.git">https://github.com/openstack/python-ironicclient.git</a>
clients	scm	<a href="https://github.com/openstack/python-keystoneclient.git">https://github.com/openstack/python-keystoneclient.git</a>
clients	scm	<a href="https://github.com/openstack/python-neutronclient.git">https://github.com/openstack/python-neutronclient.git</a>
clients	scm	<a href="https://github.com/openstack/python-novaclient.git">https://github.com/openstack/python-novaclient.git</a>
clients	scm	<a href="https://github.com/openstack/python-swiftclient.git">https://github.com/openstack/python-swiftclient.git</a>
clients	scm	<a href="https://github.com/openstack/python-troveclient.git">https://github.com/openstack/python-troveclient.git</a>
clients	scr	<a href="https://review.openstack.org_openstack/python-ceilometerclient">review.openstack.org_openstack/python-ceilometerclient</a>
clients	scr	<a href="https://review.openstack.org_openstack/python-cinderclient">review.openstack.org_openstack/python-cinderclient</a>
clients	scr	<a href="https://review.openstack.org_openstack/python-glanceclient">review.openstack.org_openstack/python-glanceclient</a>
clients	scr	<a href="https://review.openstack.org_openstack/python-heatclient">review.openstack.org_openstack/python-heatclient</a>
clients	scr	<a href="https://review.openstack.org_openstack/python-ironicclient">review.openstack.org_openstack/python-ironicclient</a>
clients	scr	<a href="https://review.openstack.org_openstack/python-keystoneclient">review.openstack.org_openstack/python-keystoneclient</a>
clients	scr	<a href="https://review.openstack.org_openstack/python-kiteclient">review.openstack.org_openstack/python-kiteclient</a>
clients	scr	<a href="https://review.openstack.org_openstack/python-neutronclient">review.openstack.org_openstack/python-neutronclient</a>
clients	scr	<a href="https://review.openstack.org_openstack/python-novaclient">review.openstack.org_openstack/python-novaclient</a>
clients	scr	<a href="https://review.openstack.org_openstack/python-saharaclient">review.openstack.org_openstack/python-saharaclient</a>
clients	scr	<a href="https://review.openstack.org_openstack/python-swiftclient">review.openstack.org_openstack/python-swiftclient</a>
clients	scr	<a href="https://review.openstack.org_openstack/python-troveclient">review.openstack.org_openstack/python-troveclient</a>
clients	scr	<a href="https://review.openstack.org_openstack/python-zaqarclient">review.openstack.org_openstack/python-zaqarclient</a>

clients	scr	<a href="https://review.openstack.org/stackforge/python-designateclient">review.openstack.org_stackforge/python-designateclient</a>
Common Libraries	its	<a href="https://bugs.launchpad.net/hacking">https://bugs.launchpad.net/hacking</a>
Common Libraries	its	<a href="https://bugs.launchpad.net/oslo.messaging">https://bugs.launchpad.net/oslo.messaging</a>
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manila	its	<a href="https://bugs.launchpad.net/manila">https://bugs.launchpad.net/manila</a>
manila	scm	<a href="https://git.openstack.org/openstack/manila">git://git.openstack.org/openstack/manila</a>
manila	scr	<a href="https://review.openstack.org/openstack/manila">review.openstack.org_openstack/manila</a>
neutron	its	<a href="https://bugs.launchpad.net/neutron">https://bugs.launchpad.net/neutron</a>
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others	its	<a href="https://bugs.launchpad.net/swift-bench">https://bugs.launchpad.net/swift-bench</a>

others	its	<a href="https://bugs.launchpad.net/tuskar-ui">https://bugs.launchpad.net/tuskar-ui</a>
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Quality Assurance	its	<a href="https://bugs.launchpad.net/devstack">https://bugs.launchpad.net/devstack</a>
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Release cycle management	scm	<a href="https://git.openstack.org/openstack-infra/release-tools">git://git.openstack.org/openstack-infra/release-tools</a>
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trove	its	<a href="https://bugs.launchpad.net/trove">https://bugs.launchpad.net/trove</a>
trove	scm	<a href="https://github.com/openstack/trove.git">https://github.com/openstack/trove.git</a>
trove	scr	<a href="https://review.openstack.org/openstack/trove">review.openstack.org_openstack/trove</a>

zaqar	its	<a href="https://bugs.launchpad.net/zaqar">https://bugs.launchpad.net/zaqar</a>
zaqar	scm	<a href="https://git.openstack.org/openstack/zaqar">git://git.openstack.org/openstack/zaqar</a>
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