FG Resource Report

Release 0.4

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Fugang Wang   **Geoffrey C. Fox**

May 22, 2014

CONTENTS

Date Created: Wed, 14 May 2014

SUMMARY REPORT (ALL)

- Period: January 01 – March 31, 2014

- Cloud(india.futuregrid.org): eucalyptus, openstack

- Cloud(sierra.futuregrid.org): eucalyptus, nimbus

- Cloud(hotel.futuregrid.org): nimbus

- Cloud(alamo.futuregrid.org): nimbus

- Cloud(foxtrot.futuregrid.org): nimbus

- Metrics: VMs count, Users count, Wall hours, Distribution by Wall Hours, Project, Project Leader, and Institution, and Systems

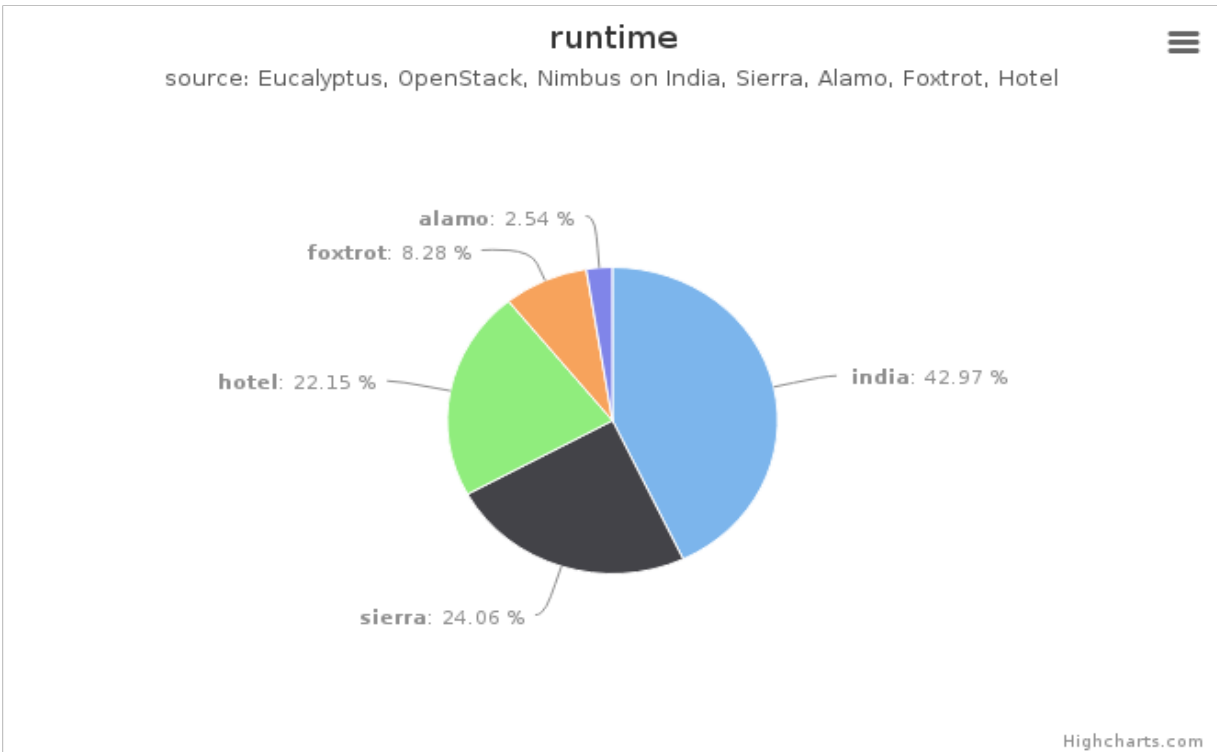## 1.1 Wall Hours by Clusters (Total, monthly)

Figure 1. Wall time (hours) by Clusters
This chart represents overall usage of wall time (hours).

- Period: January 01 – March 31, 2014
- **Cloud:**
    - india: Eucalyptus, Openstack
    - sierra: Eucalyptus, Nimbus
    - hotel: Nimbus
    - alamo: Nimbus
    - foxtrot: Nimbus

Table 1.1: Wall time
(hours) by Clusters

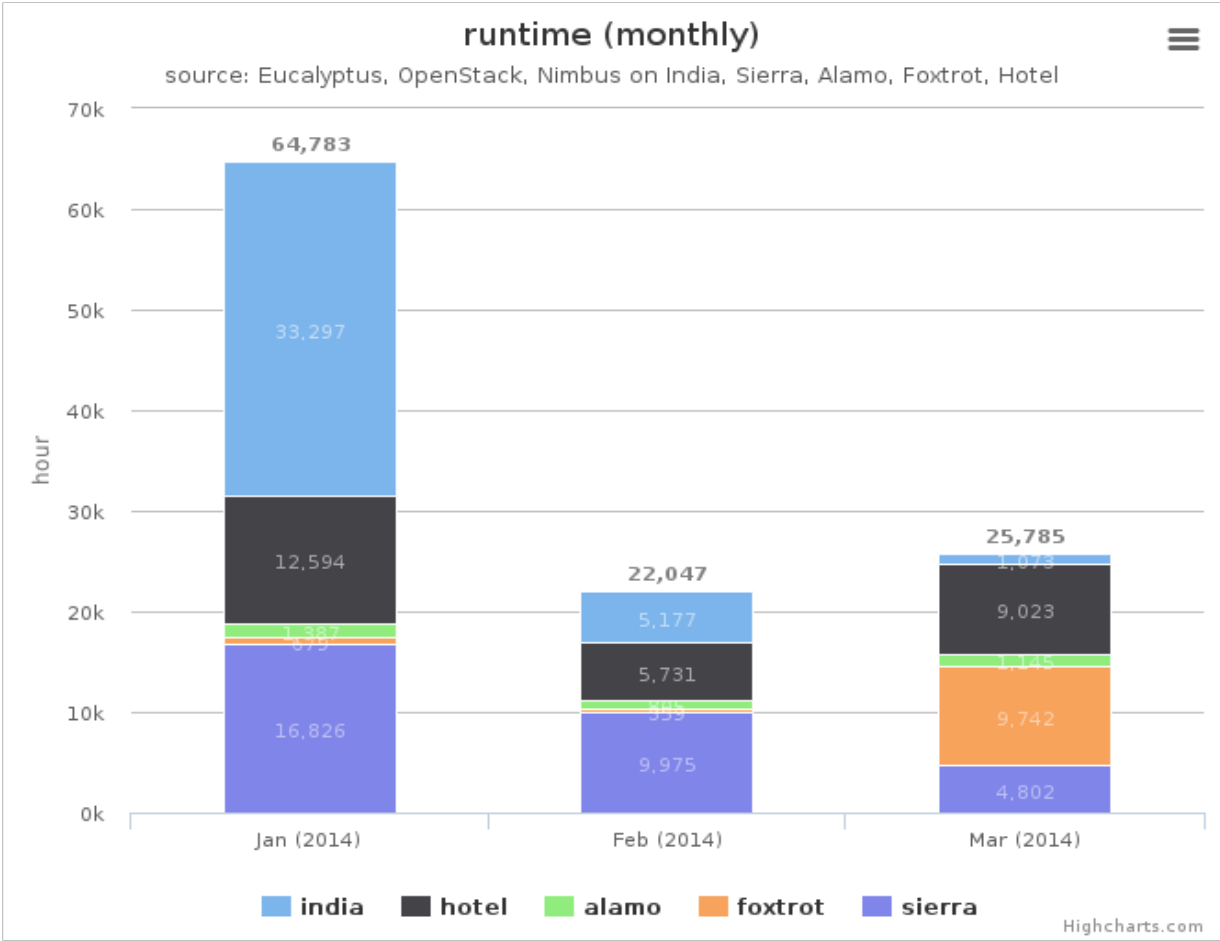| Total	Value
india	56522.0
sierra	31654.0
hotel	29134.0
foxtrot	10893.0
alamo	3337.0

Figure 2. Wall time (hours) by Clusters (monthly)

This stacked column chart represents average monthly usage of wall time (hours).

- Period: January 01 – March 31, 2014
- **Cloud:**

    - india: Eucalyptus, Openstack

    - sierra: Eucalyptus, Nimbus

    - hotel: Nimbus

    - alamo: Nimbus

    - foxtrot: Nimbus
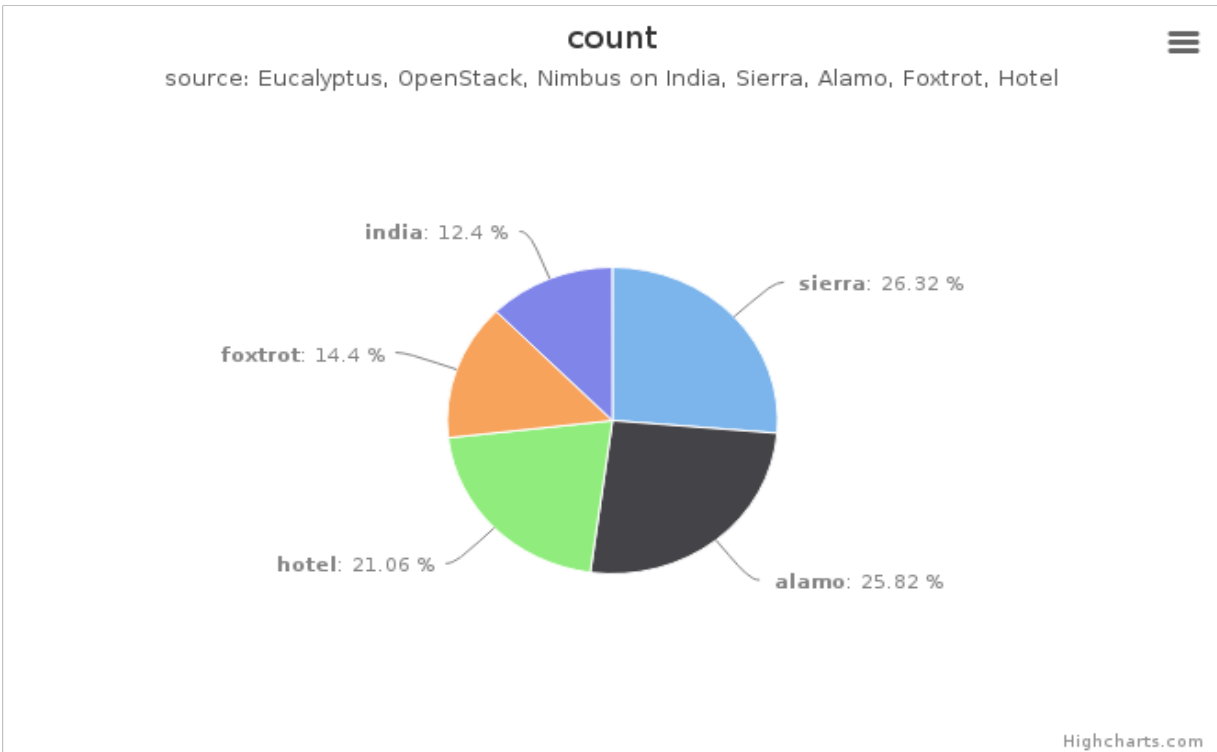
1.2 VM Count by Clusters (Total, monthly)

Figure 3. VMs count by Clusters
This chart represents overall VM instances count during the period.

- Period: January 01 – March 31, 2014
- **Cloud:**

    – india: Eucalyptus, Openstack

    – sierra: Eucalyptus, Nimbus

    – hotel: Nimbus

    – alamo: Nimbus

    – foxtrot: Nimbus

Table 1.2: VM instance count by Clusters

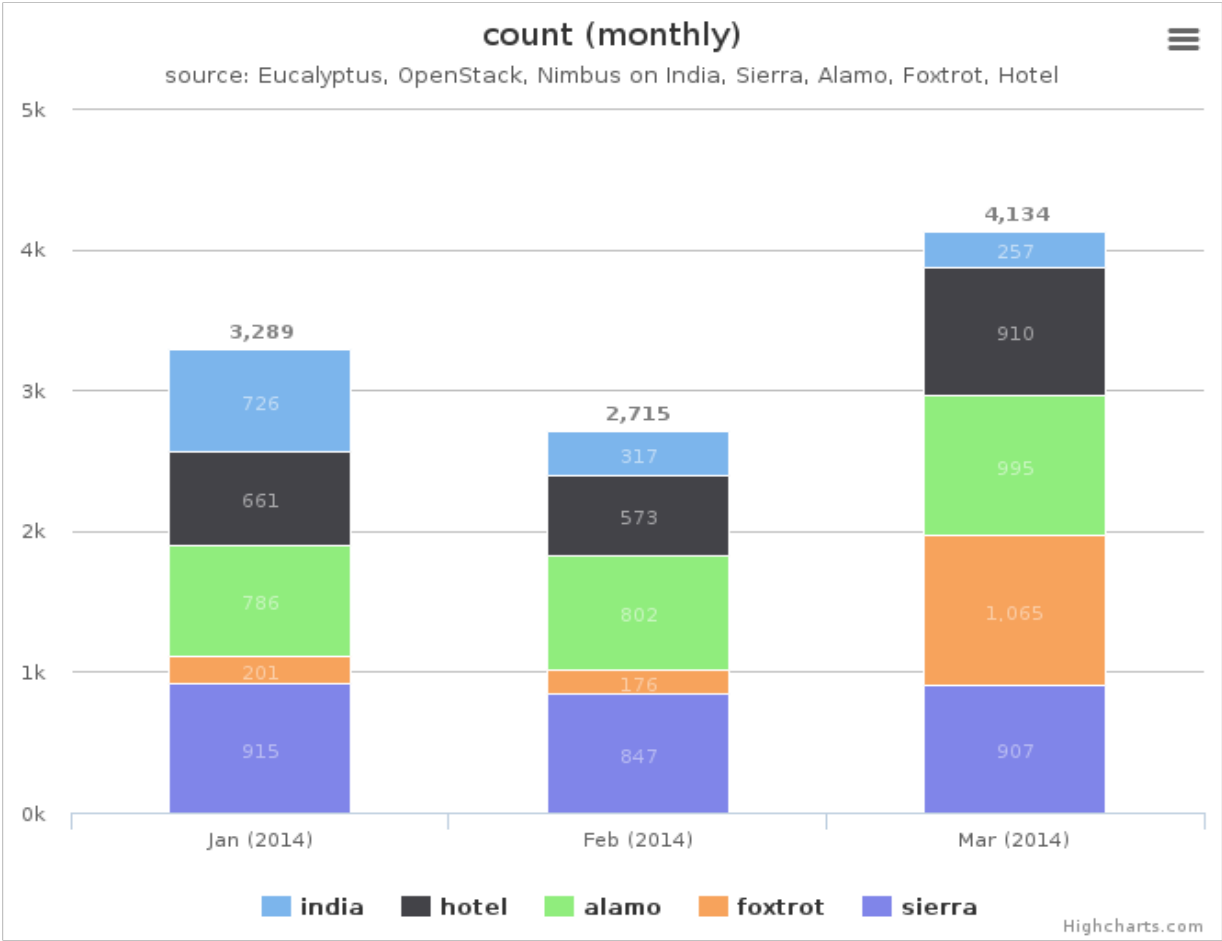| Total	Value
sierra	2633
alamo	2583
hotel	2106
foxtrot	1440
india	1240

Figure 4. VMs count by Clusters (monthly)

This stacked column chart represents average VM instances count per month.

- Period: January 01 – March 31, 2014
- **Cloud:**
    - india: Eucalyptus, Openstack
    - sierra: Eucalyptus, Nimbus
    - hotel: Nimbus
    - alamo: Nimbus
    - foxtrot: Nimbus

1.3 Users Count by Clusters (Total, monthly)

Figure 5. Unique User count by Clusters
This chart represents total number of unique active users.

- Period: January 01 – March 31, 2014
- **Cloud:**
    - india: Eucalyptus, Openstack
    - sierra: Eucalyptus, Nimbus
    - hotel: Nimbus
    - alamo: Nimbus
    - foxtrot: Nimbus
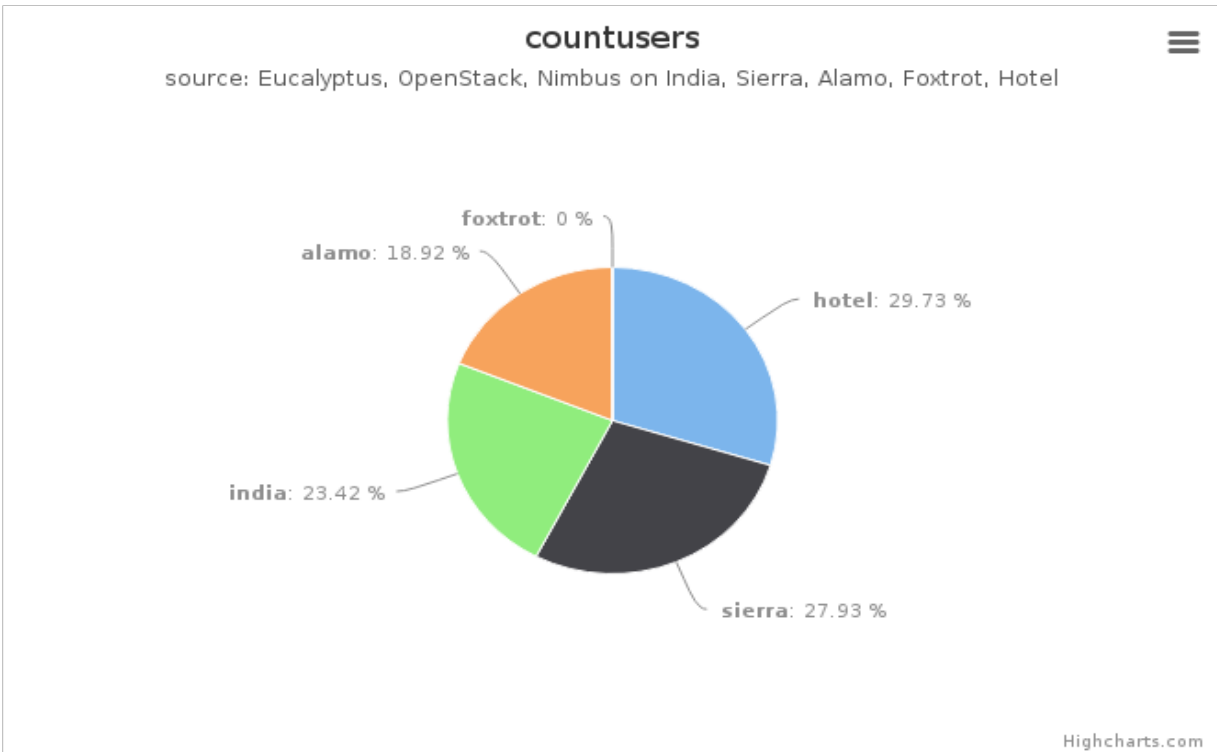
Table 1.3: Unique
User count by Clusters

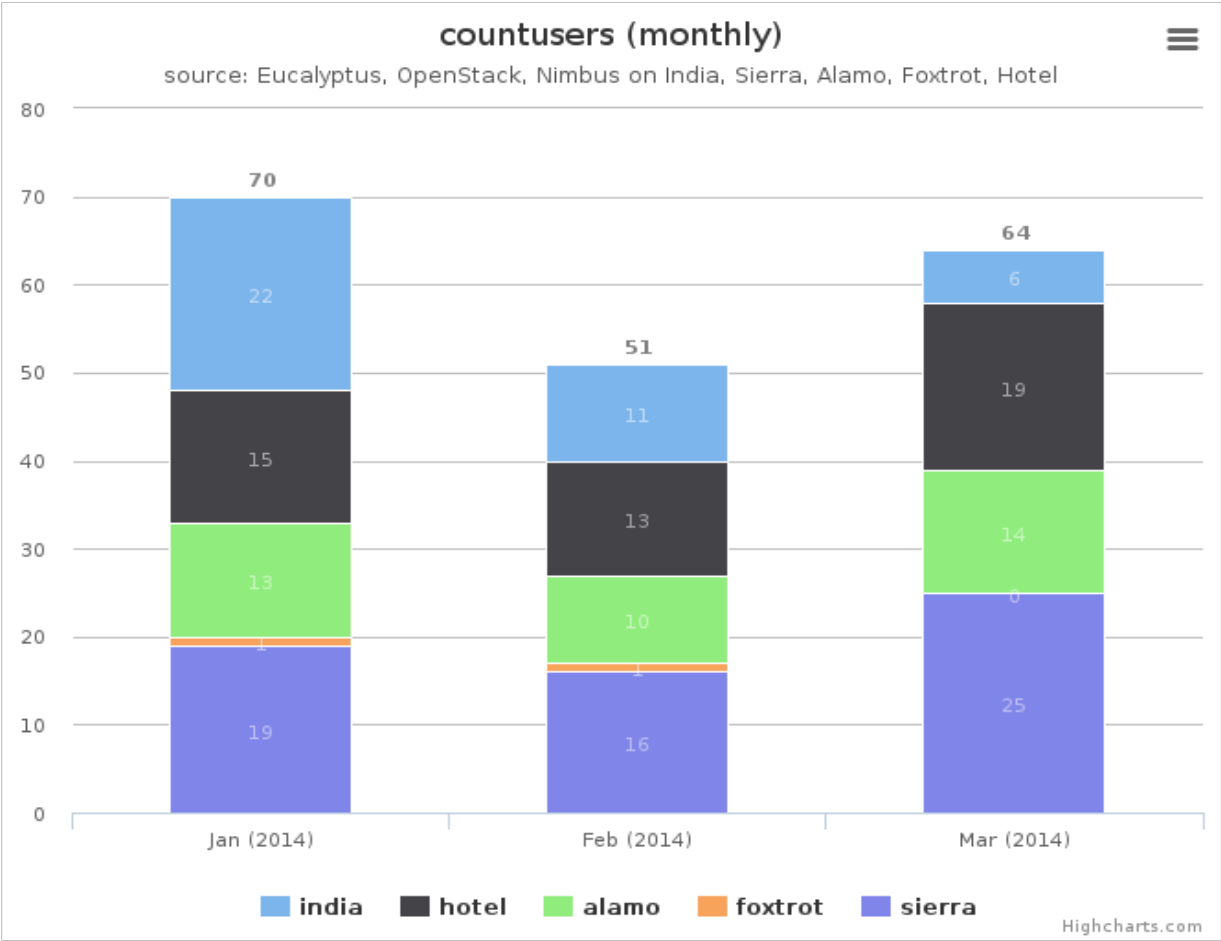| Total	Value
hotel	33
sierra	31
india	26
alamo	21
foxtrot	0

Figure 6. Users count by Clusters (Monthly)

This stacked column chart represents average count of active users per month.

- Period: January 01 – March 31, 2014
- **Cloud:**
    - india: Eucalyptus, Openstack
    - sierra: Eucalyptus, Nimbus
    - hotel: Nimbus
    - alamo: Nimbus
    - foxtrot: Nimbus

USAGE REPORT SIERRA

- Period: January 01 – March 31, 2014

- Hostname: sierra.futuregrid.org

- Services: nimbus, openstack, eucalyptus

- Metrics: VMs count, Users count, Wall time (hours), Distribution by wall time, project, project leader, and institution, and systems
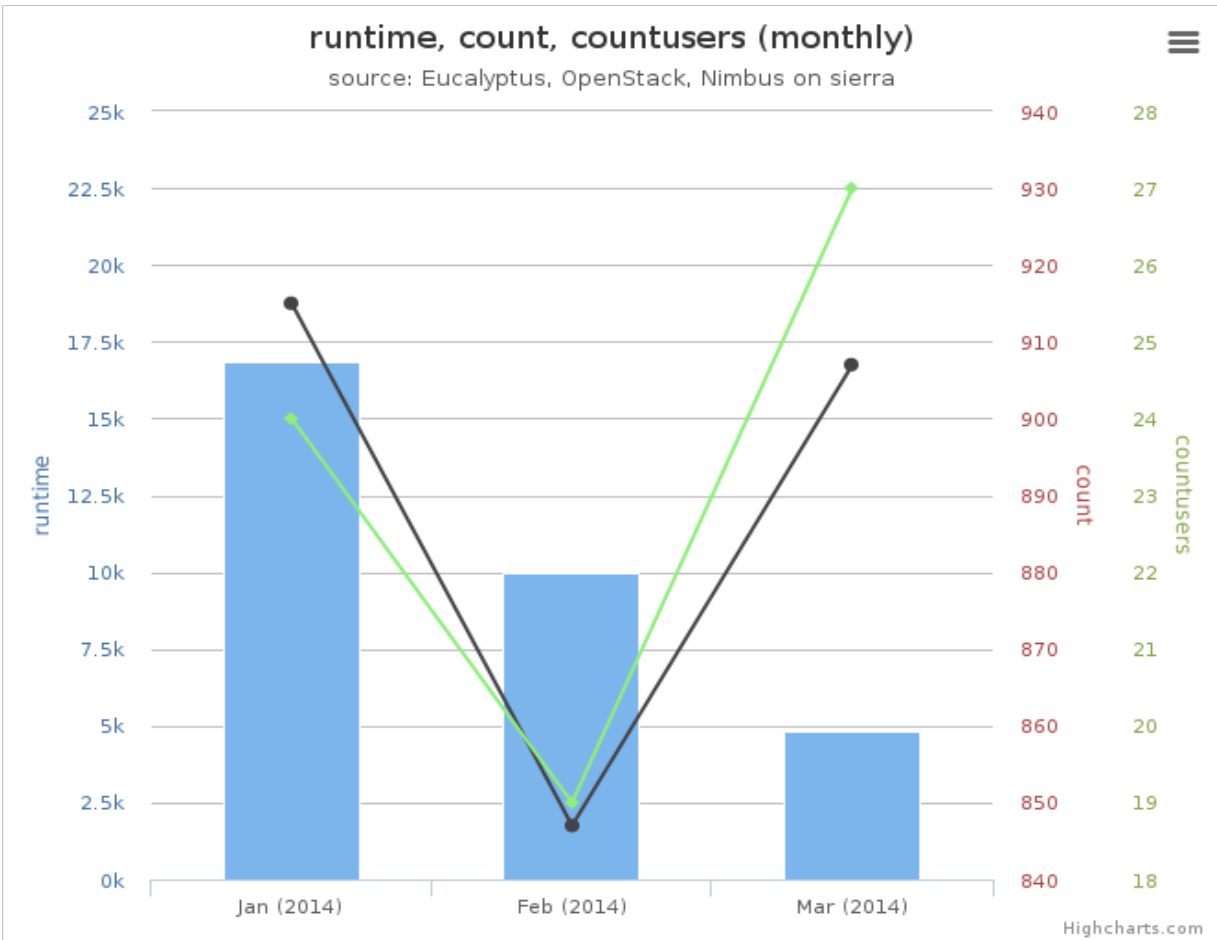
2.1 Histogram

2.1.1 Summary (Monthly)

Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)

This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus, openstack, eucalyptus

- Hostname: sierra

- **Metric:**

    – Runtime (Wall time hours): Sum of time elapsed from launch to termination of VM instances

    – Count (VM count): The number of launched VM instances

    – User count (Active): The number of users who launched VMs
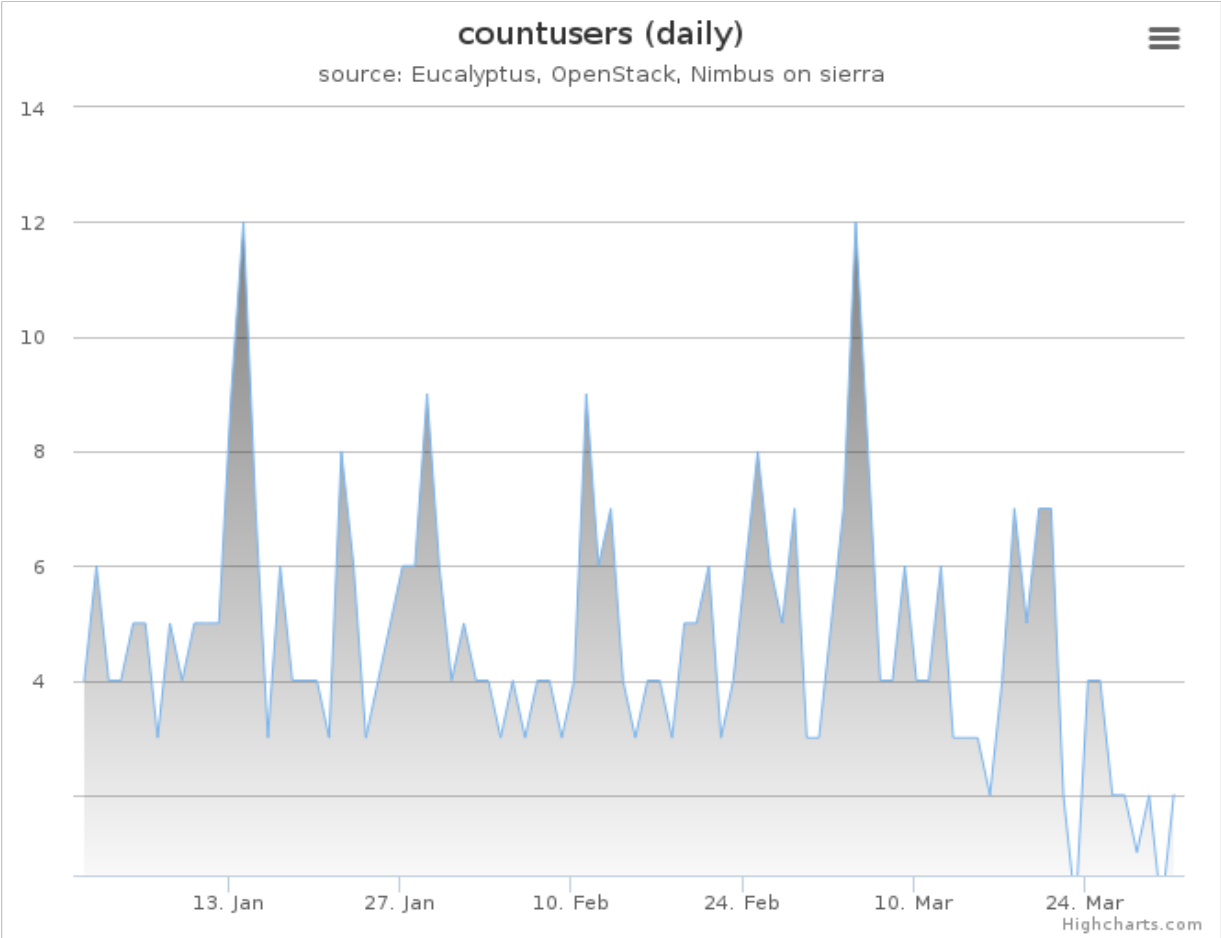
2.1.2 Summary (Daily)

Figure 2: Users count

This time series chart represents daily active user count for cloud services and shows historical changes during the period.

- Period: January 01 – March 31, 2014
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

Figure 3: VMs count

This time series chart represents the number of daily launched VM instances for cloud services and shows historical changes during the period.

- Period: January 01 – March 31, 2014
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

Figure 4: Wall time (hours)

This time series chart represents daily wall time (hours) for cloud services and shows historical changes during the period.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus, openstack, eucalyptus
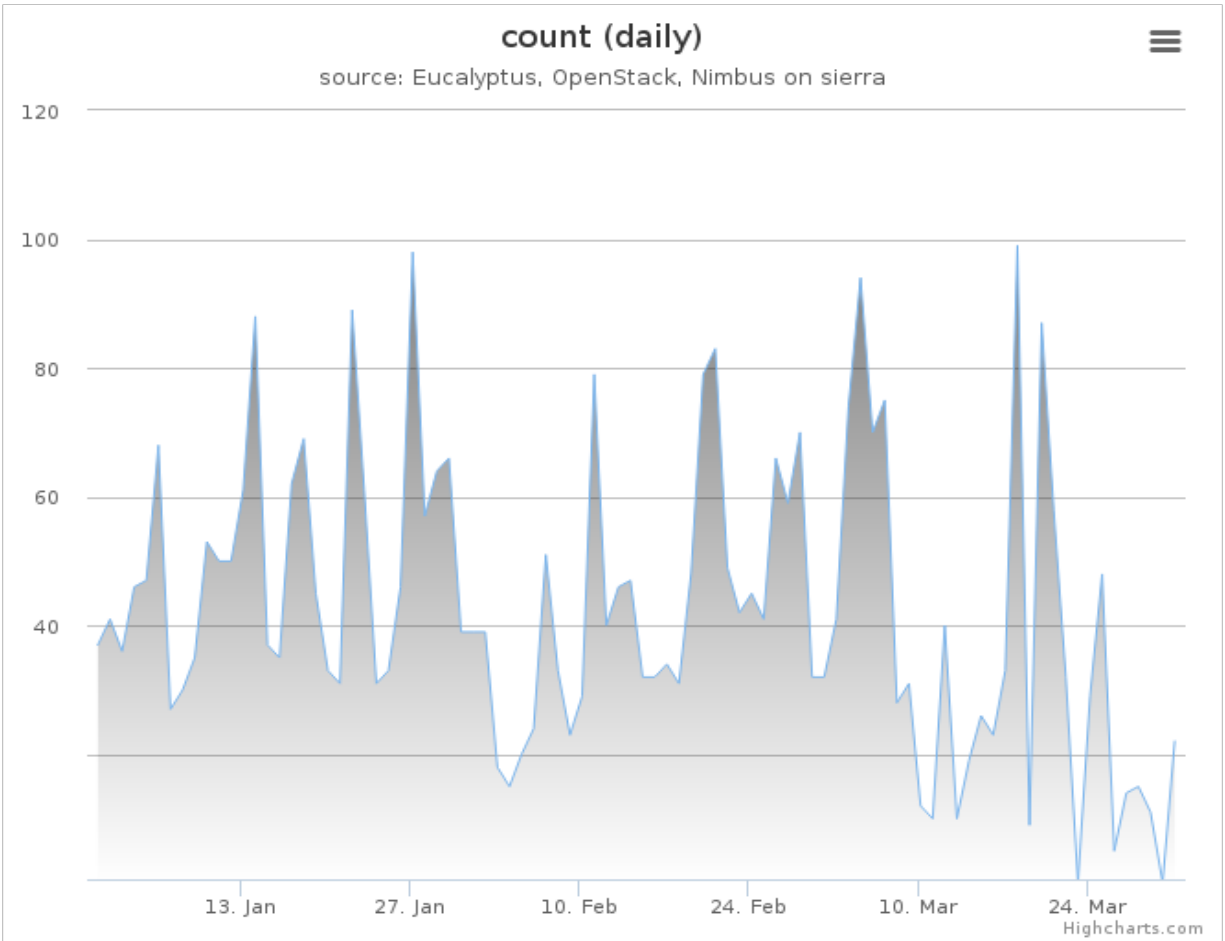
- Hostname: sierra
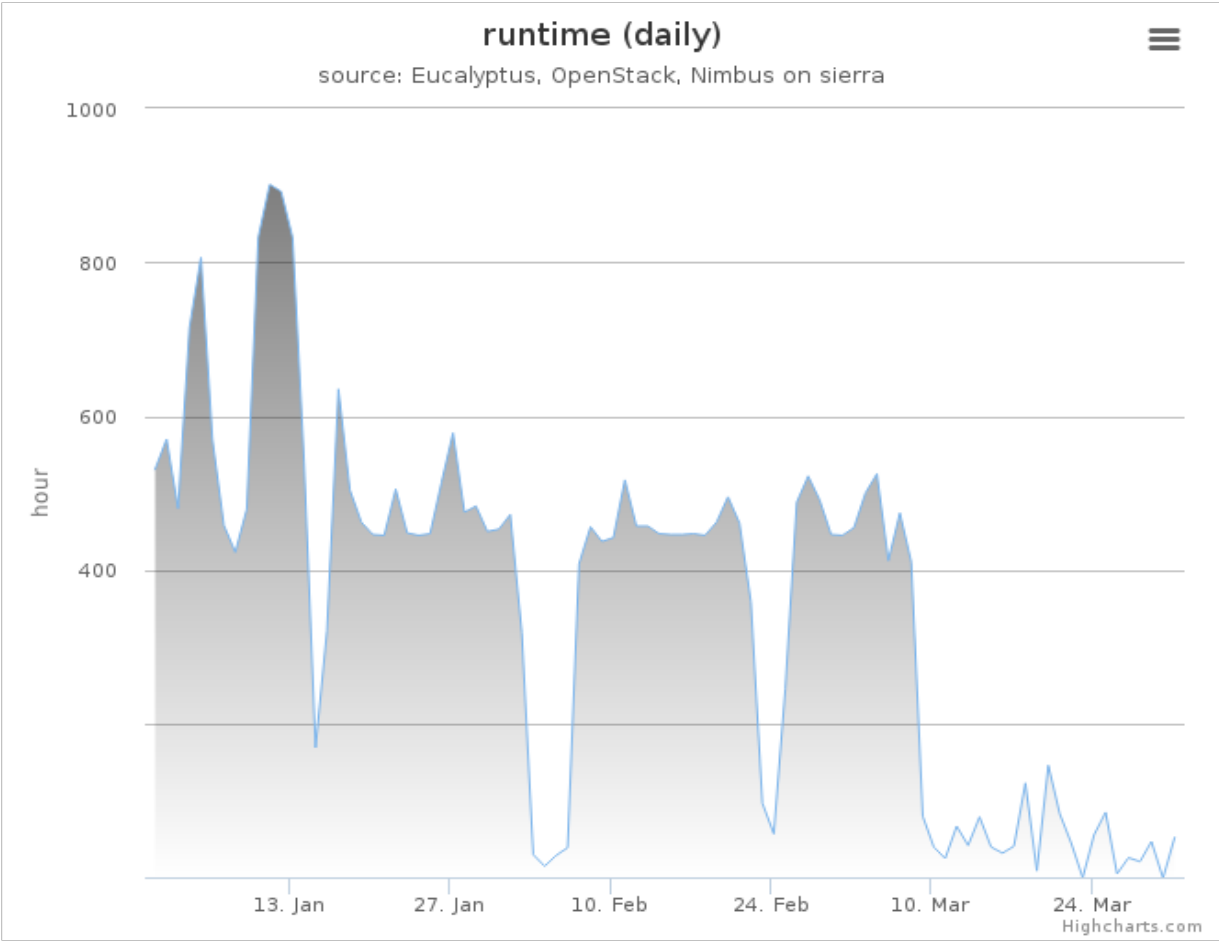
2.2 Distribution
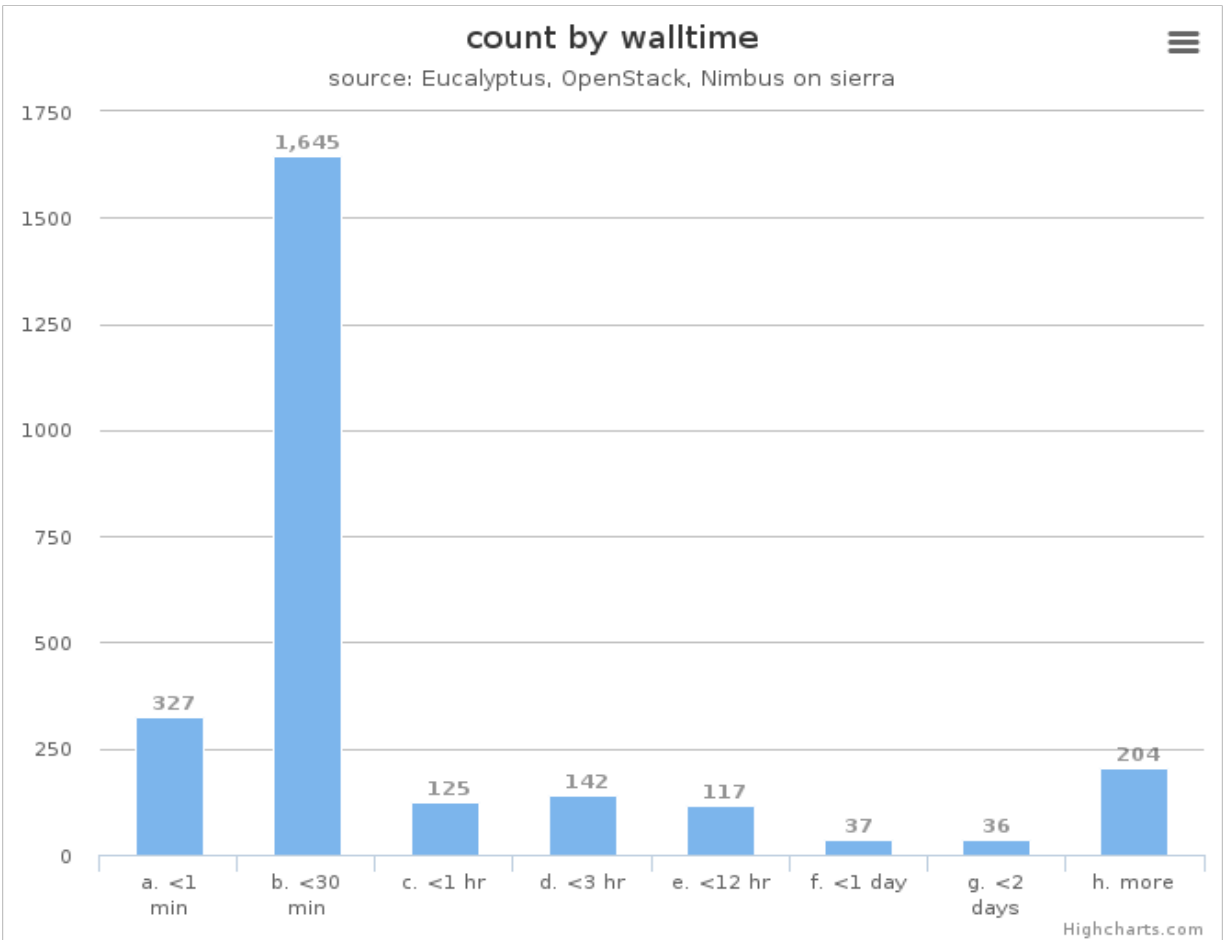
Figure 5: VM count by wall time
This chart illustrates usage patterns of VM instances in terms of running wall time.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus, openstack, eucalyptus

- Hostname: sierra

Figure 6: VMs count by project

This chart illustrates the proportion of launched VM instances by project groups. The same data in tabular form follows.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus, openstack, eucalyptus

- Hostname: sierra

Table 2.1: VMs count by project

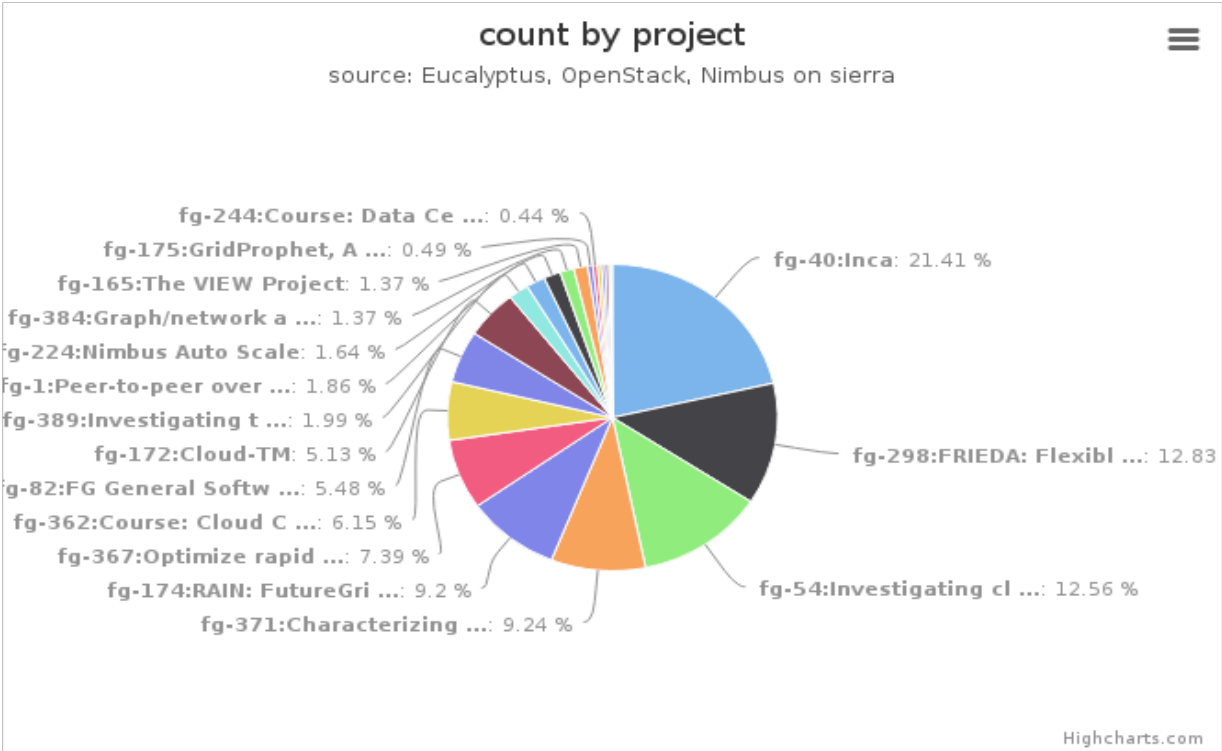| Project	Value
fg-40:Inca	484
fg-298:FRIEDA: Flexible Robust Intelligent Elastic Data Management	290
fg-54:Investigating cloud computing as a solution for analyzing particle physics data	284
fg-371:Characterizing Infrastructure Cloud Performance for Scientific Computing	209
fg-174:RAIN: FutureGrid Dynamic provisioning Framework	208
fg-367:Optimize rapid deployment and updating of VM images at the remote compute cluster	167
fg-362:Course: Cloud Computing and Storage (UF)	139
fg-82:FG General Software Development	124
fg-172:Cloud-TM	116
fg-389:Investigating the Apache Big Data Stack	45
fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters	42
fg-224:Nimbus Auto Scale	37
fg-384:Graph/network analysis Resource manager	31
fg-165:The VIEW Project	31
fg-175:GridProphet, A workflow execution time prediction system for the Grid	11
fg-244:Course: Data Center Scale Computing	10
fg-382:Reliability Analysis using Hadoop and MapReduce	9
fg-372:Mobile Device Computation Offloading over SocialVPNs	8
fg-10:TeraGrid XD TIS(Technology Insertion Service) Technology Evaluation Laboratory	8
fg-316:Course: Cloud Computing Class - third edition	5
fg-136:JGC-DataCloud-2012 paper experiments	3

count by projectleader

source: Eucalyptus, OpenStack, Nimbus on sierra

Carl Walasek: 0.4 %
Dirk Grunwald: 0.44 %
Thomas Fahringer: 0.49 %
Tirtha Bhattacharjee: 1.37 %
Shiyong Lu: 1.37 %
Pierre Riteau: 1.64 %
ibrahim hallac: 1.99 %
Renato Figueiredo: 2.21 %
Paolo Romano: 5.13 %
Andy Li: 6.15 %
Jan Balewski: 7.39 %
Theron Voran: 9.24 %
Randall Sobie: 12.56 %

Shava Smallen: 21.41 %
Gregor von Laszewski: 14.68 %
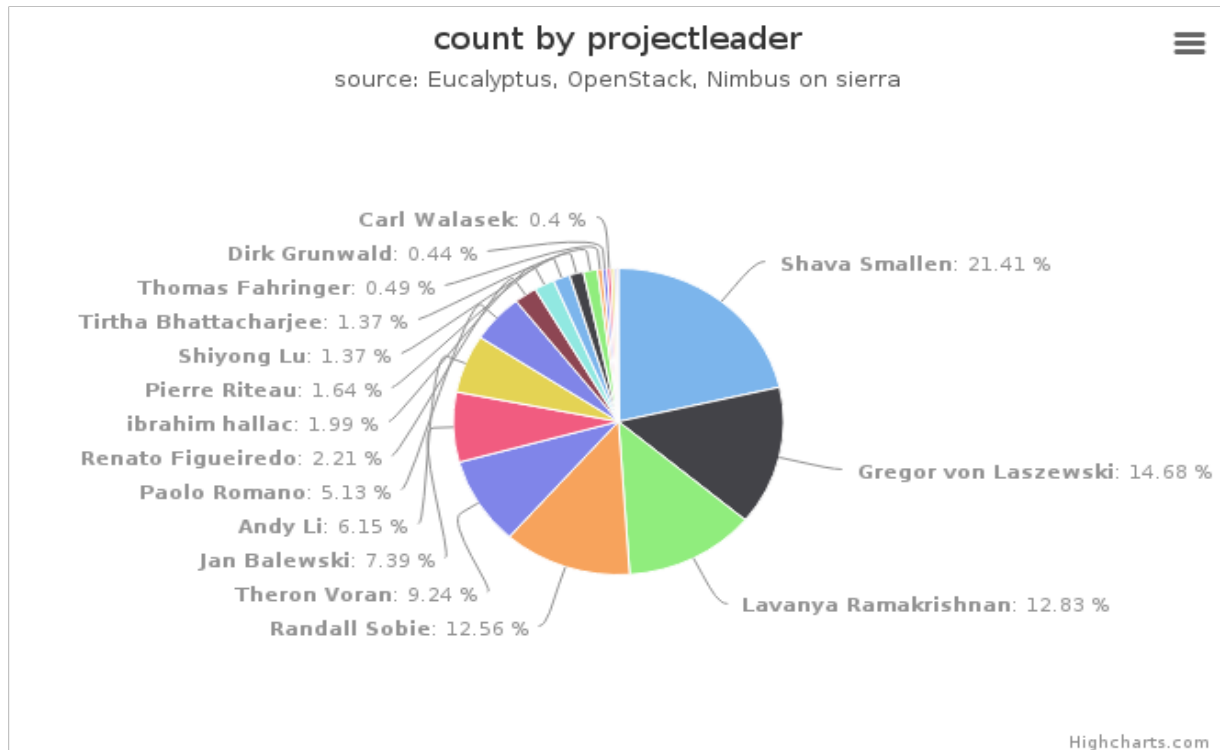Lavanya Ramakrishnan: 12.83 %

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Figure 7: VMs count by project leader

This chart also illustrates the proportion of launched VM instances by project Leader. The same data in tabular form follows.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus, openstack, eucalyptus

- Hostname: sierra

Table 2.2: VMs count by project leader

| Projectleader	Value
Shava Smallen	484
Gregor von Laszewski	332
Lavanya Ramakrishnan	290
Randall Sobie	284
Theron Voran	209
Jan Balewski	167
Andy Li	139
Paolo Romano	116
Renato Figueiredo	50
ibrahim hallac	45
Pierre Riteau	37
Shiyong Lu	31
Tirtha Bhattacharjee	31
Thomas Fahringer	11
Dirk Grunwald	10
Carl Walasek	9
John Lockman	8
Massimo Canonico	5
Mats Rynge	3
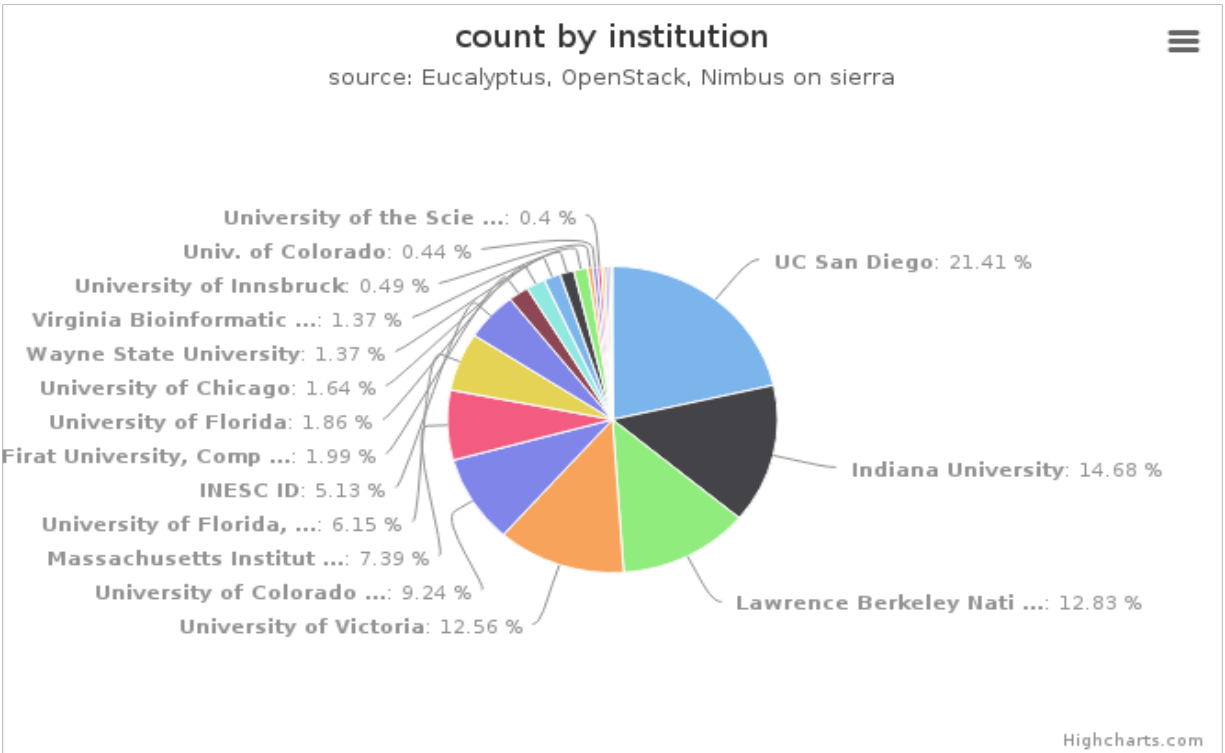
Figure 8: VMs count by institution
This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus, openstack, eucalyptus

- Hostname: sierra

Table 2.3: VMs count by institution

| Institution	Value
UC San Diego	484
Indiana University	332
Lawrence Berkeley National Lab	290
University of Victoria	284
University of Colorado at Boulder, Computer Science Department	209
Massachusetts Institute of Technology, Laboratory for Nuclear Sc	167
University of Florida, Department of Electrical and Computer Eng	139
INESC ID	116
Firat University, Computer Science Department	45
University of Florida	42
University of Chicago	37
Wayne State University	31
Virginia Bioinformatics Institute, Virginia Polytechnic Institut	31
University of Innsbruck	11
Univ. of Colorado	10
University of the Sciences , Mathematics, Physics, and Statistic	9
University of Texas at Austin	8
University of Florida, Electrical and Computer Engineering	8
University of Piemonte Orientale, Computer Science Department	5
USC	3
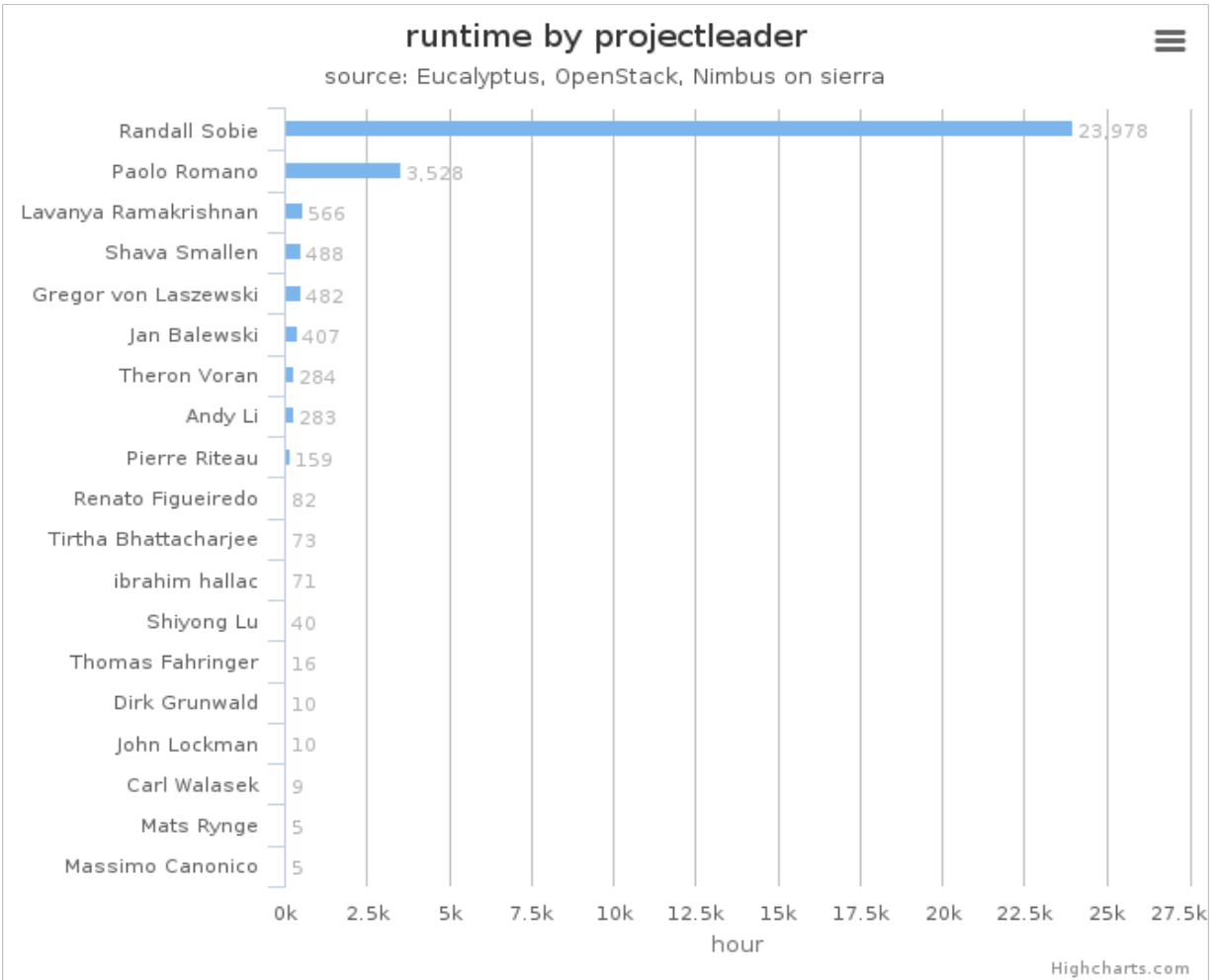
Figure 9: Wall time (hours) by project leader

This chart illustrates proportionate total run times by project leader.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus, openstack, eucalyptus

- Hostname: sierra

2.3 System information

System information shows utilization distribution as to VMs count and wall time. Each cluster represents a compute node.
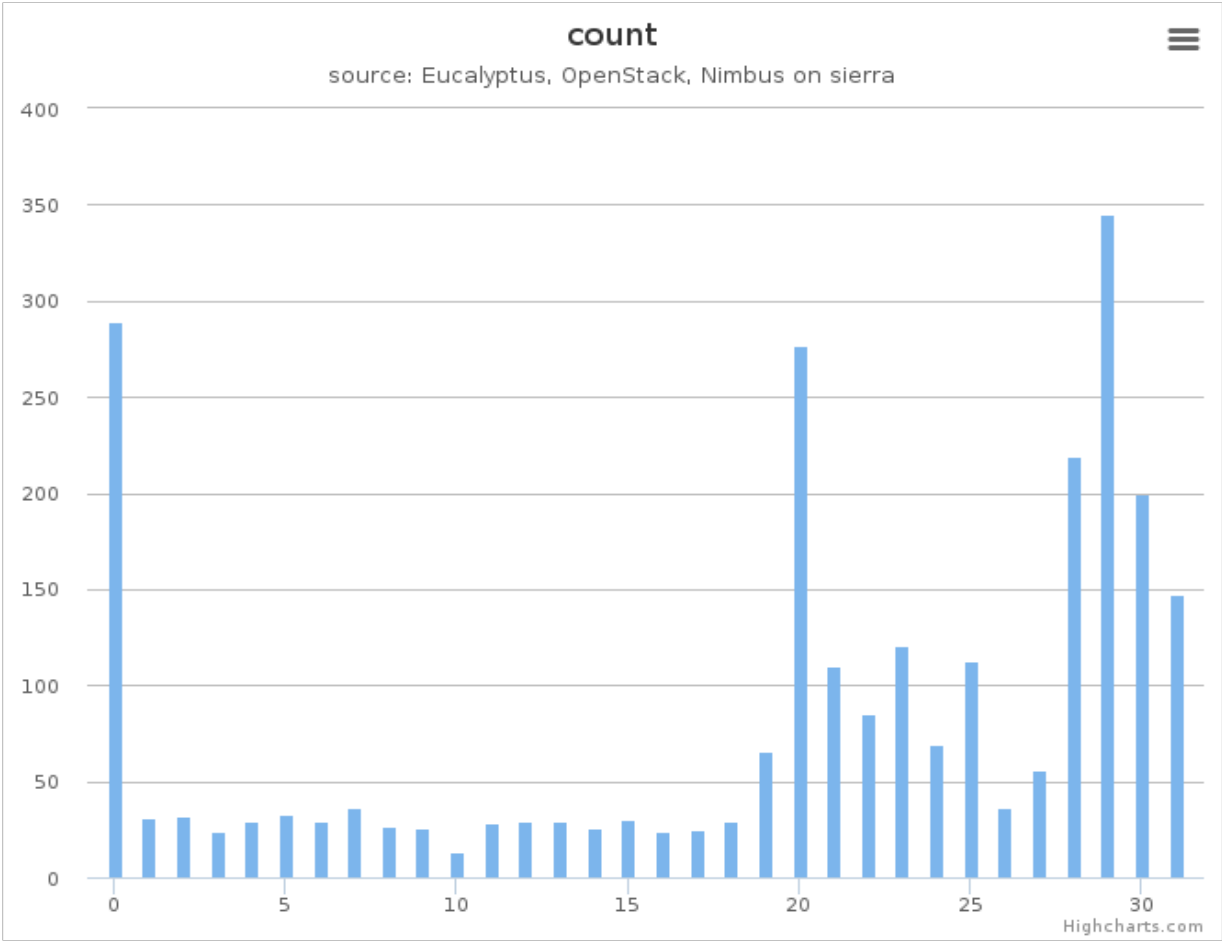
Figure 10: VMs count by systems (compute nodes) in Cluster (sierra)

This column chart represents VMs count among systems.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus, openstack, eucalyptus

- Hostname: sierra

Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (sierra)
This column chart represents wall time among systems.

- Period: January 01 – March 31, 2014
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

USAGE REPORT INDIA

- Period: January 01 – March 31, 2014

- Hostname: india.futuregrid.org

- Services: openstack, eucalyptus

- Metrics: VMs count, Users count, Wall time (hours), Distribution by wall time, project, project leader, and institution, and systems
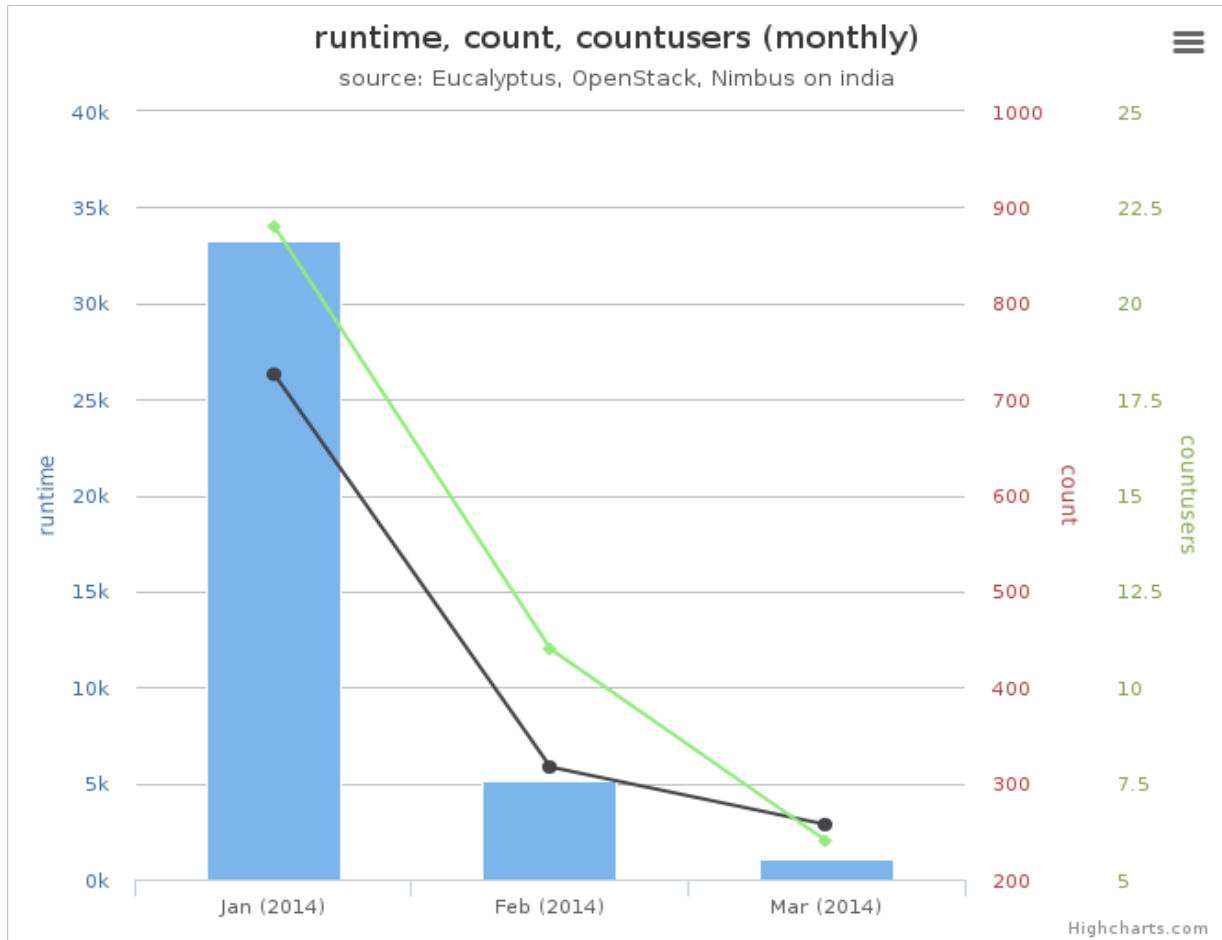
3.1 Histogram

3.1.1 Summary (Monthly)

Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)

This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): openstack, eucalyptus

- Hostname: india

- **Metric:**

    - Runtime (Wall time hours): Sum of time elapsed from launch to termination of VM instances

    - Count (VM count): The number of launched VM instances

    - User count (Active): The number of users who launched VMs
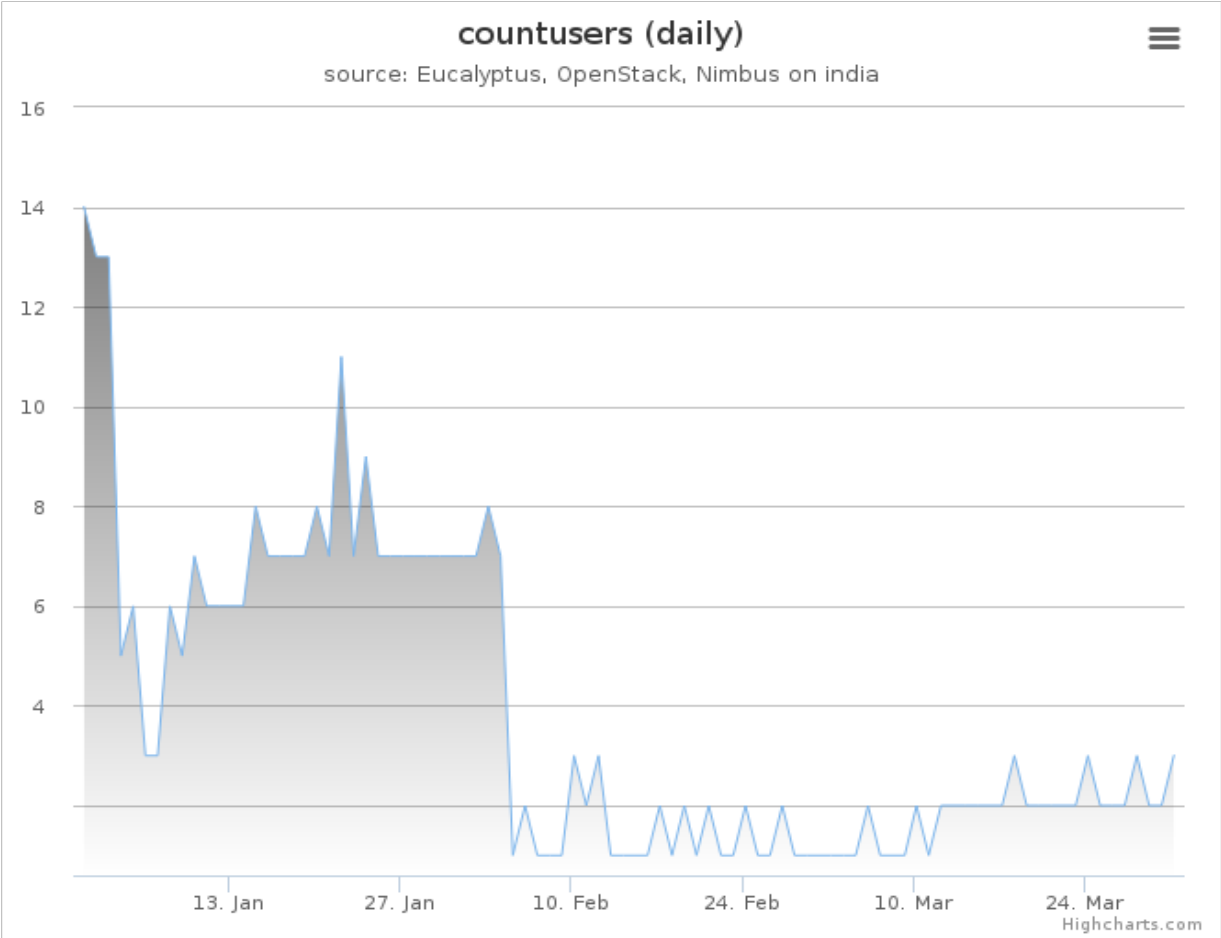
3.1.2 Summary (Daily)

Figure 2: Users count

This time series chart represents daily active user count for cloud services and shows historical changes during the period.

- Period: January 01 – March 31, 2014
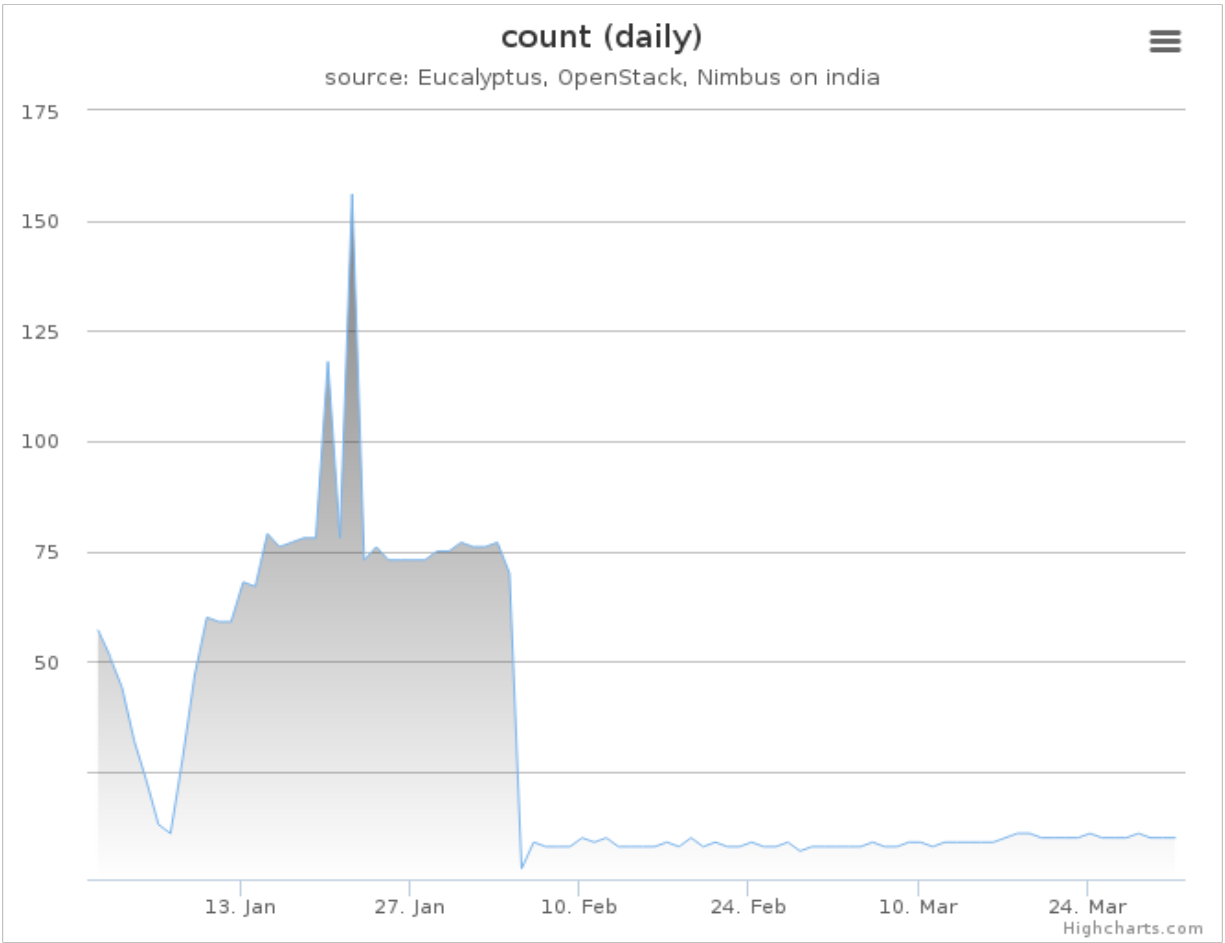- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

Figure 3: VMs count

This time series chart represents the number of daily launched VM instances for cloud services and shows historical changes during the period.

- Period: January 01 – March 31, 2014

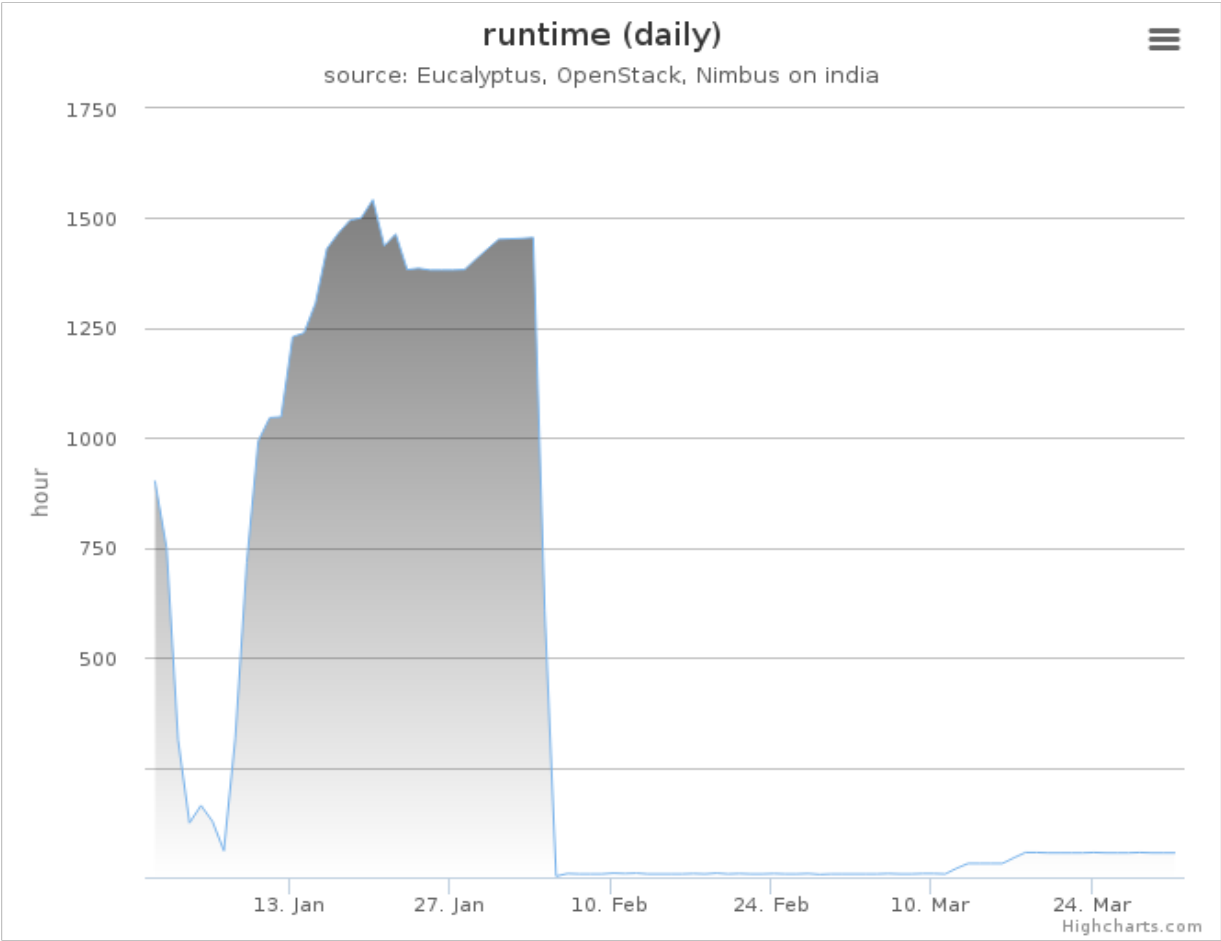- Cloud(IaaS): openstack, eucalyptus

- Hostname: india

Figure 4: Wall time (hours)

This time series chart represents daily wall time (hours) for cloud services and shows historical changes during the period.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): openstack, eucalyptus

- Hostname: india
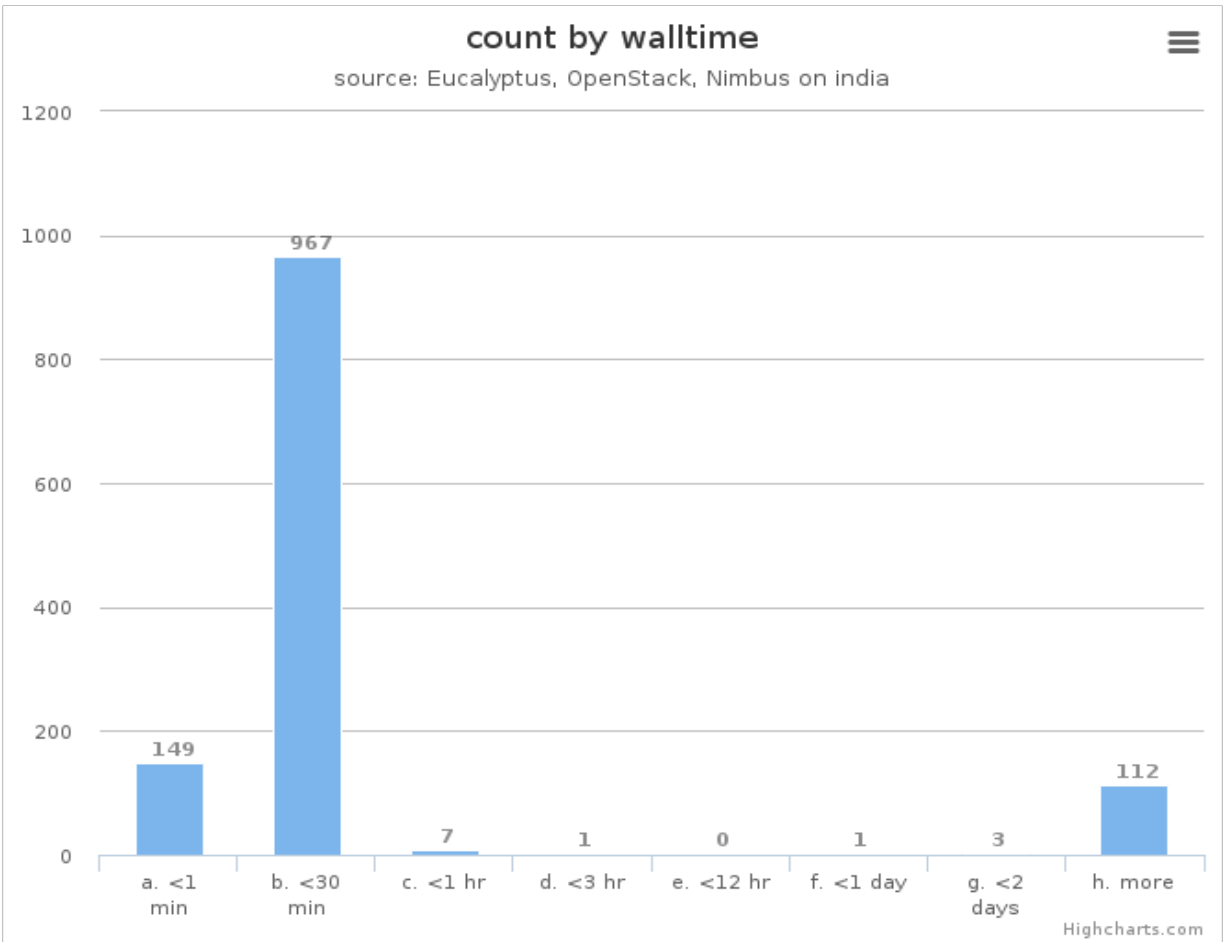
3.2 Distribution

Figure 5: VM count by wall time
This chart illustrates usage patterns of VM instances in terms of running wall time.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): openstack, eucalyptus
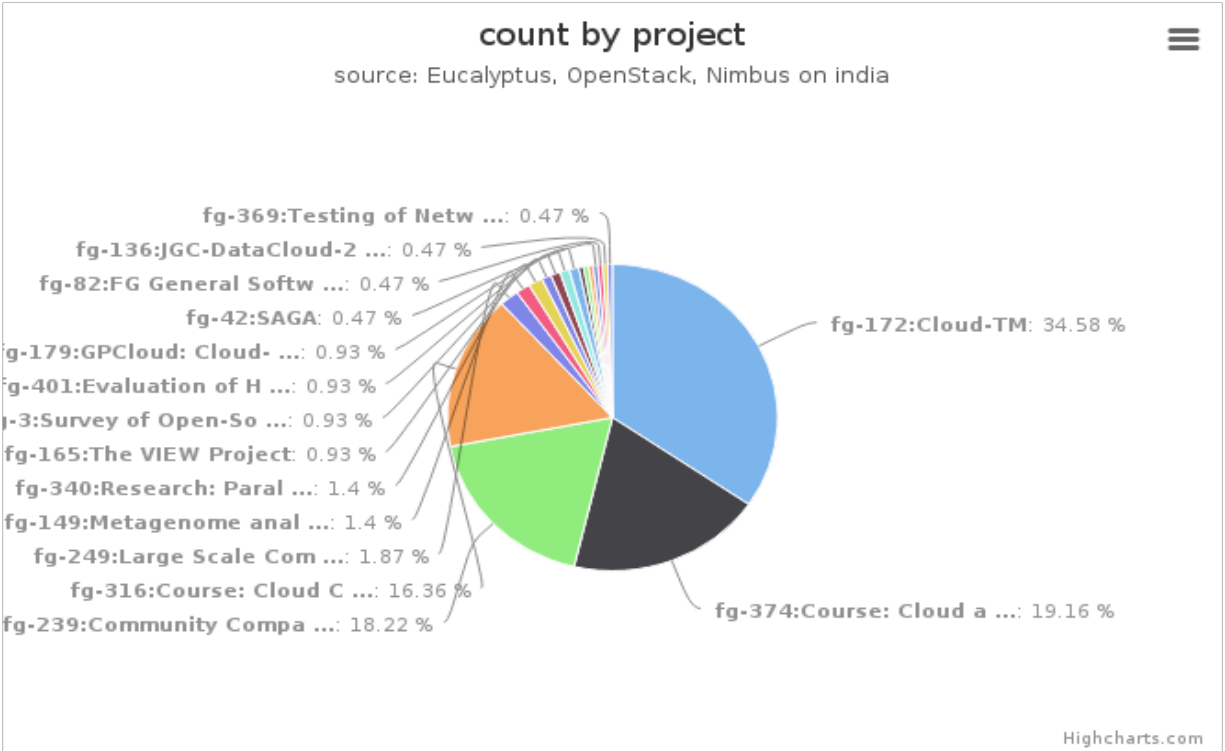
- Hostname: india

Figure 6: VMs count by project

This chart illustrates the proportion of launched VM instances by project groups. The same data in tabular form follows.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): openstack, eucalyptus

- Hostname: india

Table 3.1: VMs count by project

| Project	Value
fg-172:Cloud-TM	74
fg-374:Course: Cloud and Distributed Computing	41
fg-239:Community Comparison of Cloud frameworks	39
fg-316:Course: Cloud Computing Class - third edition	35
fg-249:Large Scale Computing Infrastructure 2012 Master class	4
fg-149:Metagenome analysis of benthic marine invertebrates	3
fg-340:Research: Parallel Computing for Machine Learning	3
fg-165:The VIEW Project	2
fg-3:Survey of Open-Source Cloud Infrastructure using FutureGrid Testbed	2
fg-401:Evaluation of HPC Applications on Cloud Resources	2
fg-179:GPCloud: Cloud-based Automatic Repair of Real-World Software Bugs	2
fg-398:Ensuring Data Security and Accountability for Data Sharing in the Cloud	1
fg-384:Graph/network analysis Resource manager	1
fg-253:Characterizing Performance of Infrastructure Clouds	1
fg-42:SAGA	1
fg-82:FG General Software Development	1
fg-136:JGC-DataCloud-2012 paper experiments	1
fg-369:Testing of Network Facing Services for the Open Science Grid	1
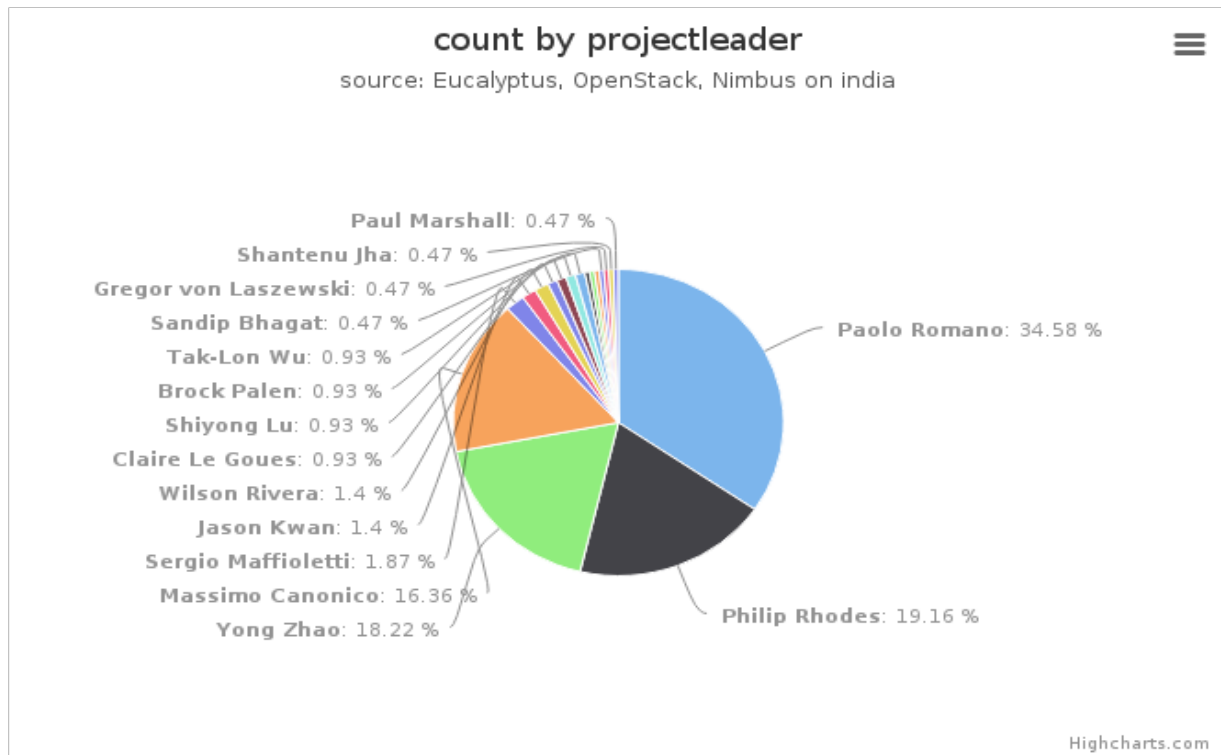
Figure 7: VMs count by project leader

This chart also illustrates the proportion of launched VM instances by project Leader. The same data in tabular form follows.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): openstack, eucalyptus

- Hostname: india

Table 3.2: VMs count by project leader

Projectleader	Value
Paolo Romano	74
Philip Rhodes	41
Yong Zhao	39
Massimo Canonico	35
Sergio Maffioletti	4
Jason Kwan	3
Wilson Rivera	3
Claire Le Goues	2
Shiyong Lu	2
Brock Palen	2
Tak-Lon Wu	2
Mats Rynge	1
Igor Sfiligoi	1
Tirtha Bhattacharjee	1
Sandip Bhagat	1
Gregor von Laszewski	1
Shantenu Jha	1
Paul Marshall	1

count by institution
source: Eucalyptus, OpenStack, Nimbus on india

Virginia Bioinformatic ...: 0.47 %
University of Californ ...: 0.47 %
Veermata Jijabai Techn ...: 0.47 %
Louisiana State Univer ...: 0.47 %
University of Virginia: 0.93 %
U of Michigan / Xsede, ...: 0.93 %
Wayne State University: 0.93 %
University of Utah: 1.4 %
University of Puerto R ...: 1.4 %
Indiana University: 1.4 %
University of Zurich: 1.87 %
University of Piemonte ...: 16.36 %
University of Electron ...: 18.22 %
INESC ID: 34.58 %
University of Mississi ...: 19.16 %

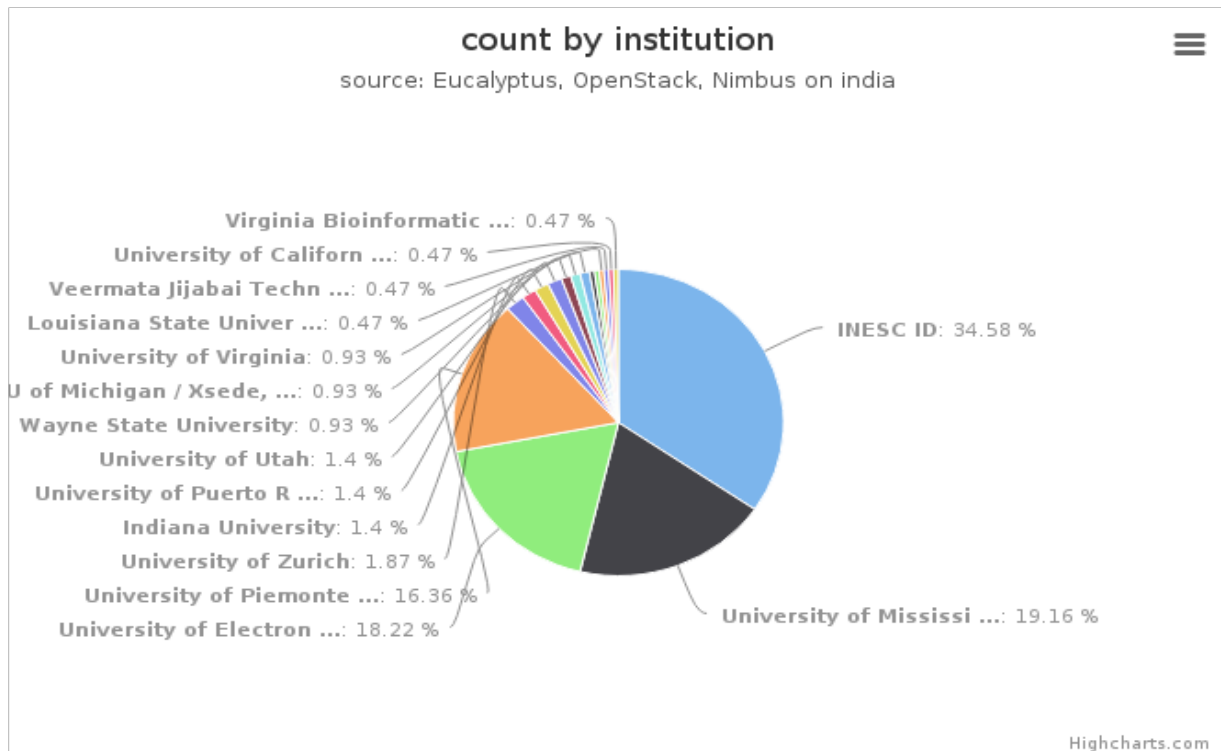Highcharts.com

3.2. Distribution 33

Figure 8: VMs count by institution

This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): openstack, eucalyptus

- Hostname: india

Table 3.3: VMs count by institution

| Institution	Value
INESC ID	74
University of Mississippi, Department of Computer Science	41
University of Electronic Science and Technology	39
University of Piemonte Orientale, Computer Science Department	35
University of Zurich	4
Indiana University	3
University of Puerto Rico, Electrical and Computer Emgineering D	3
University of Utah	3
Wayne State University	2
U of Michigan / Xsede, CAEN HPC	2
University of Virginia	2
USC	1
University of Colorado at Boulder	1
Louisiana State University	1
Veermata Jijabai Technological University, Mumbai India. , Veerm	1
University of California San Diego, Physics Department	1
Virginia Bioinformatics Institute, Virginia Polytechnic Institut	1
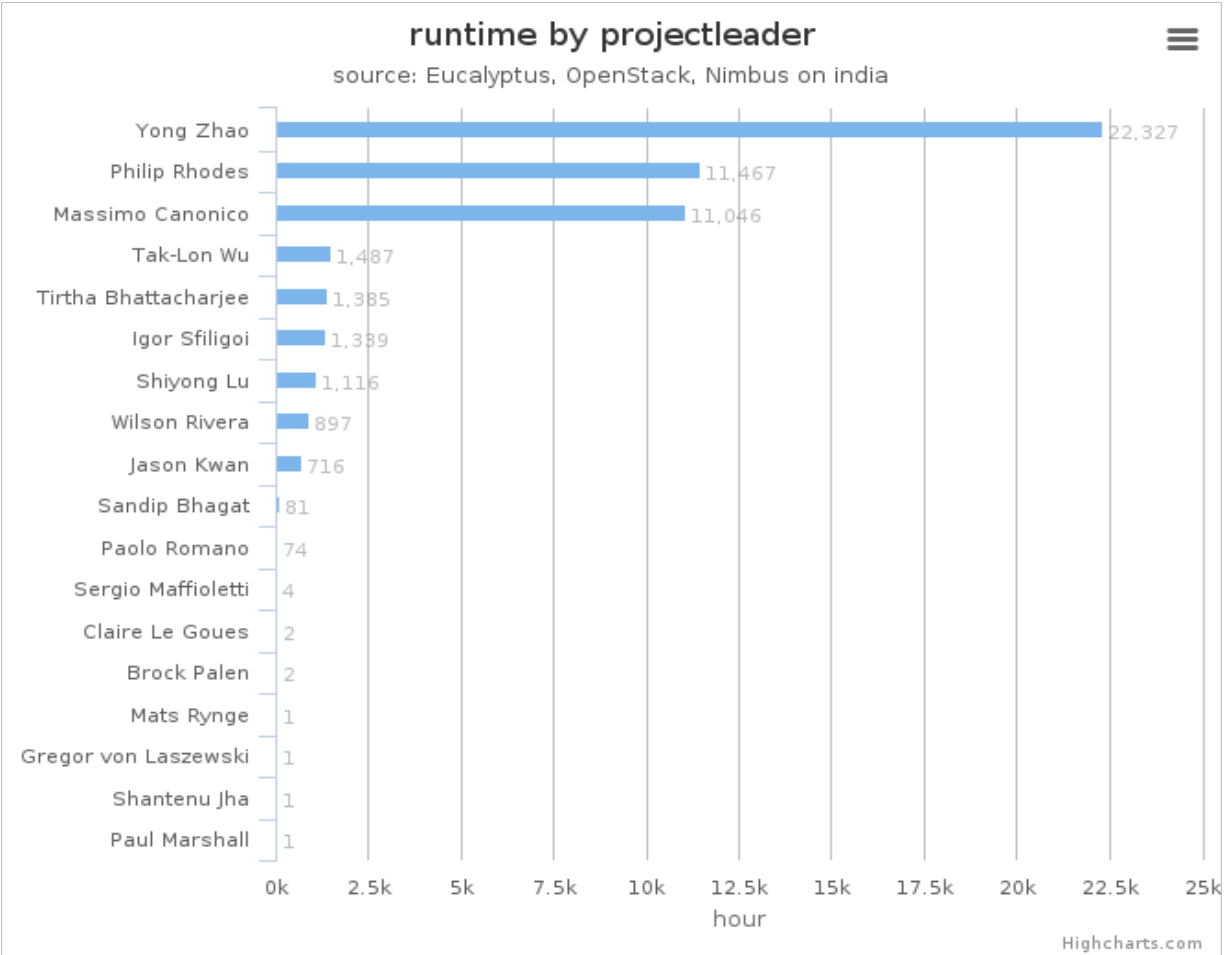
Figure 9: Wall time (hours) by project leader

This chart illustrates proportionate total run times by project leader.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): openstack, eucalyptus

- Hostname: india

3.3 System information

System information shows utilization distribution as to VMs count and wall time. Each cluster represents a compute node.
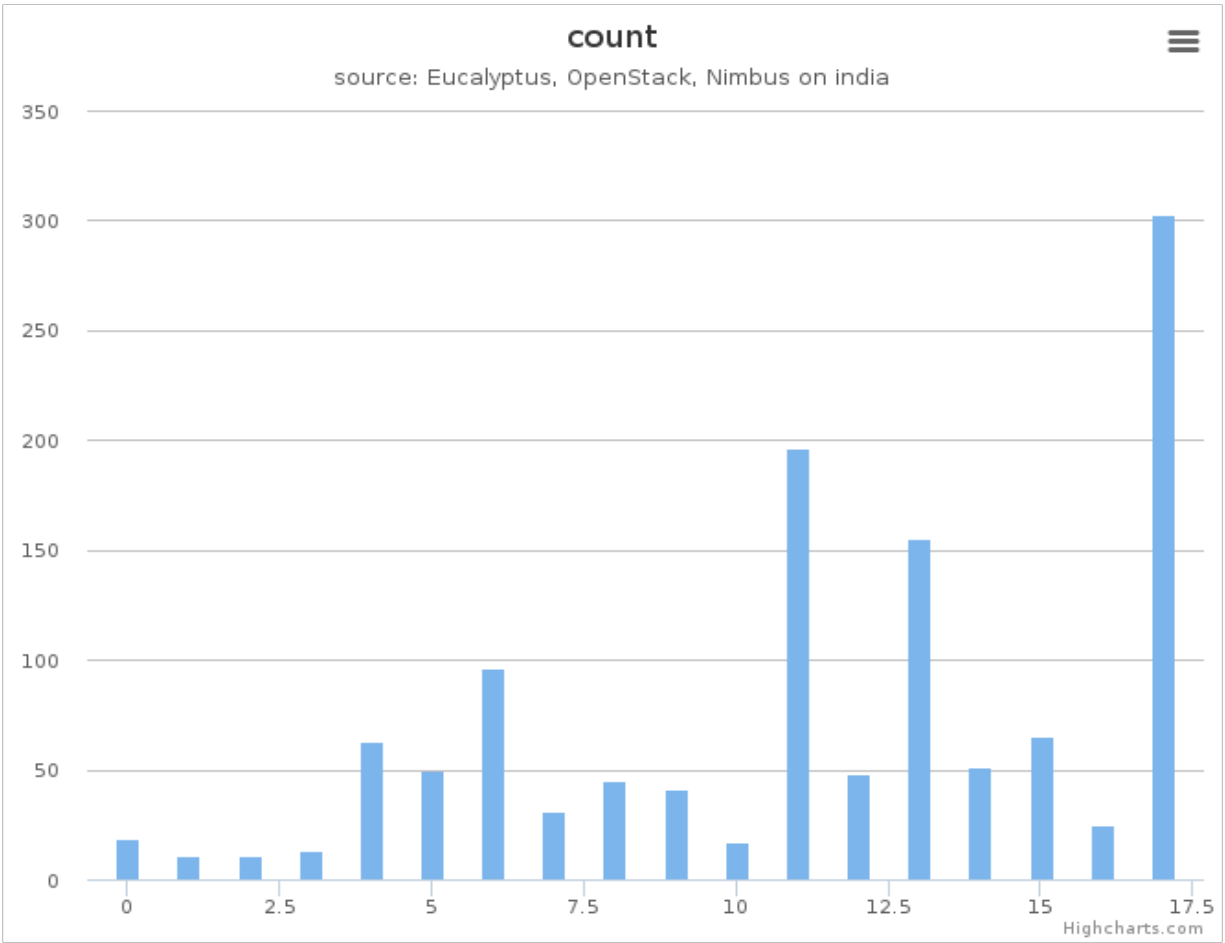
Figure 10: VMs count by systems (compute nodes) in Cluster (india)

This column chart represents VMs count among systems.

- Period: January 01 – March 31, 2014
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india
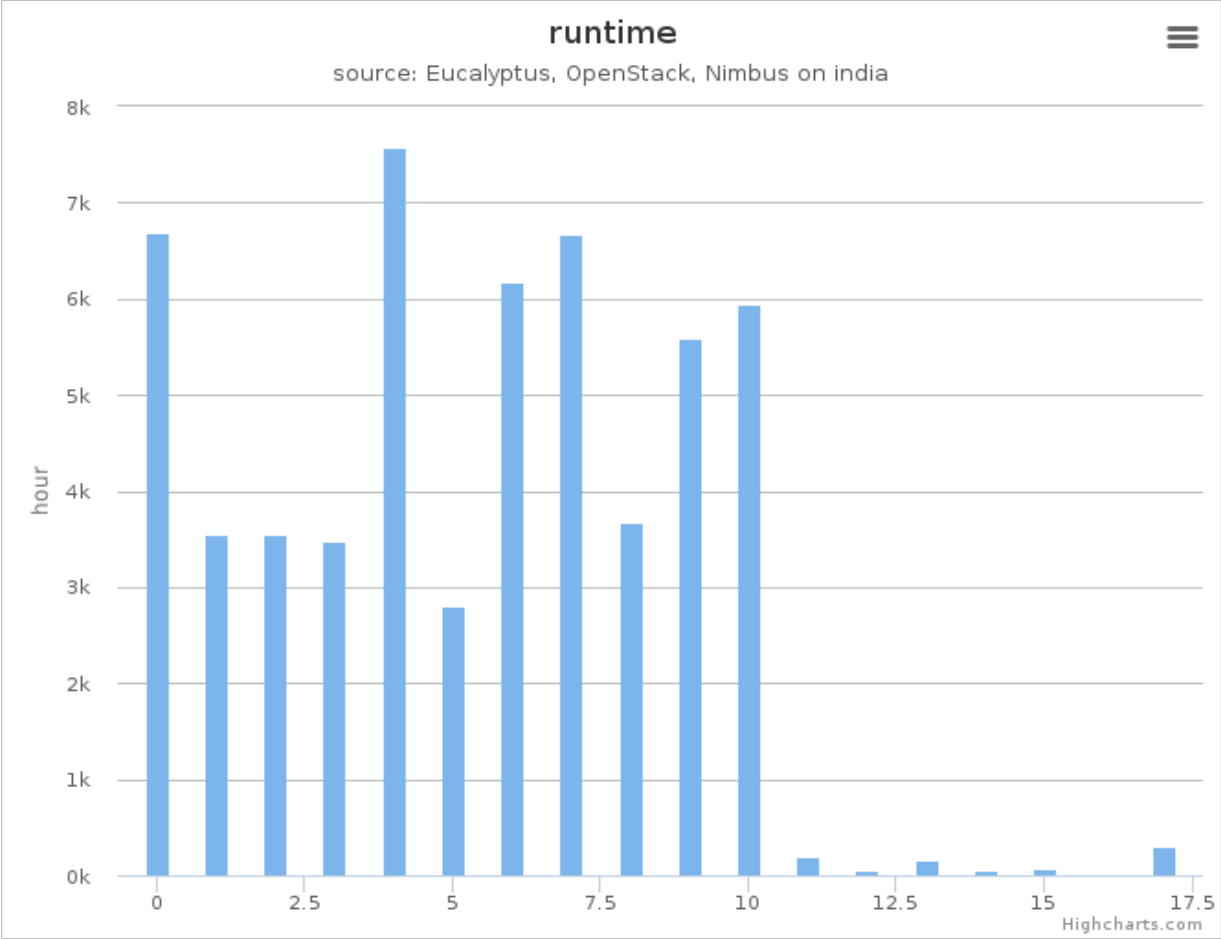
Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (india)
This column chart represents wall time among systems.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): openstack, eucalyptus

- Hostname: india

USAGE REPORT HOTEL

- Period: January 01 – March 31, 2014

- Hostname: hotel.futuregrid.org

- Services: nimbus

- Metrics: VMs count, Users count, Wall time (hours), Distribution by wall time, project, project leader, and institution, and systems

4.1 Histogram

4.1.1 Summary (Monthly)
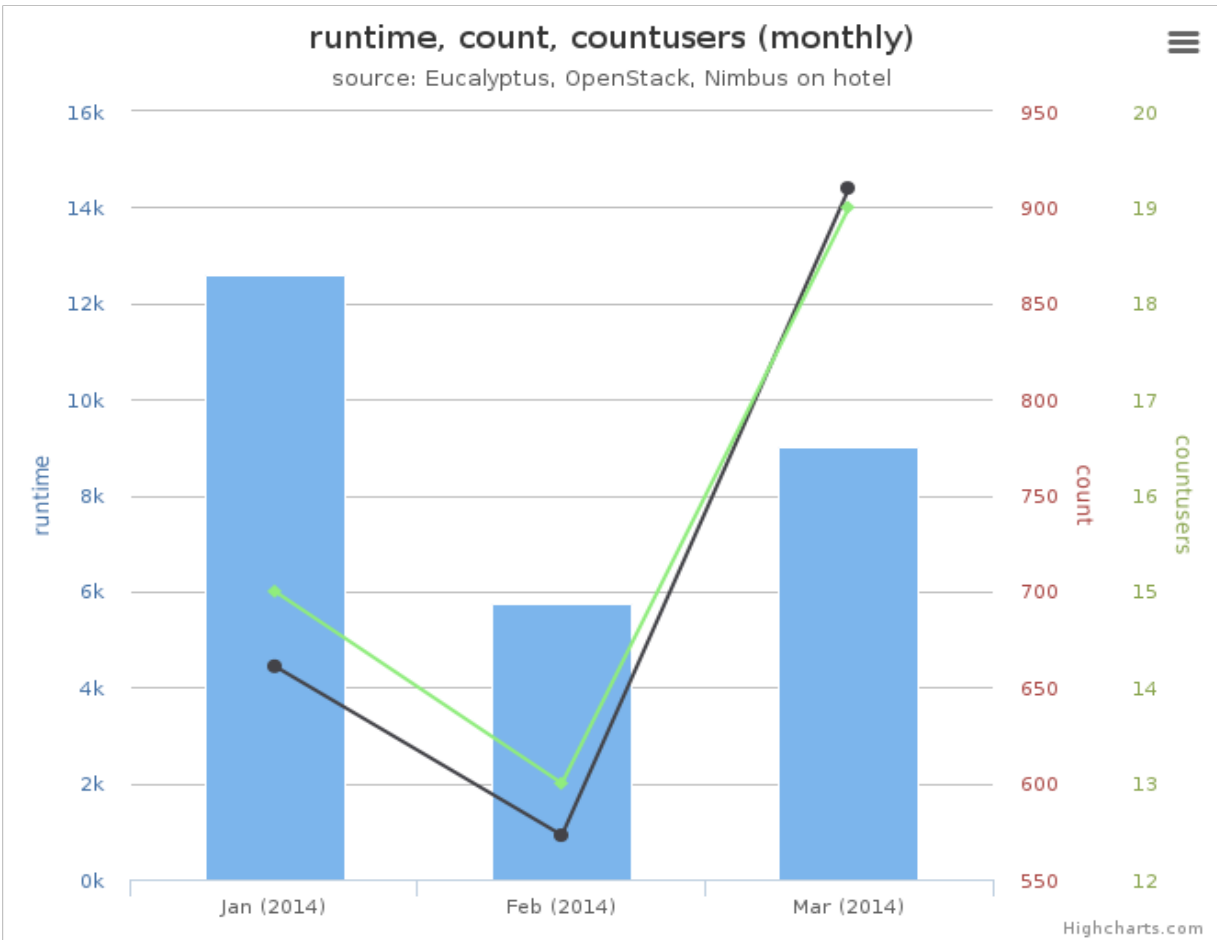
Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)

This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus

- Hostname: hotel

- **Metric:**

    - Runtime (Wall time hours): Sum of time elapsed from launch to termination of VM instances

    - Count (VM count): The number of launched VM instances

    - User count (Active): The number of users who launched VMs
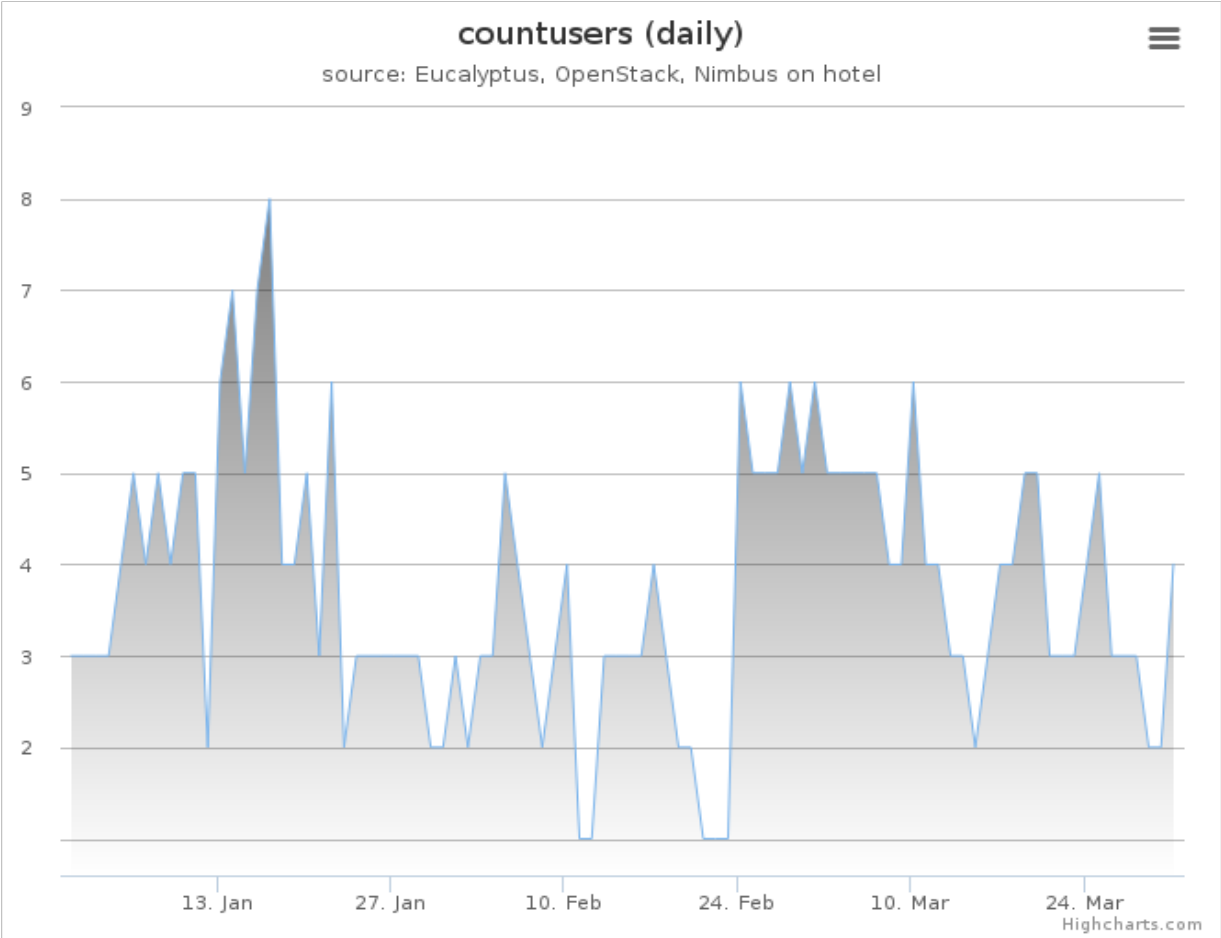
4.1.2 Summary (Daily)

Figure 2: Users count

This time series chart represents daily active user count for cloud services and shows historical changes during the period.

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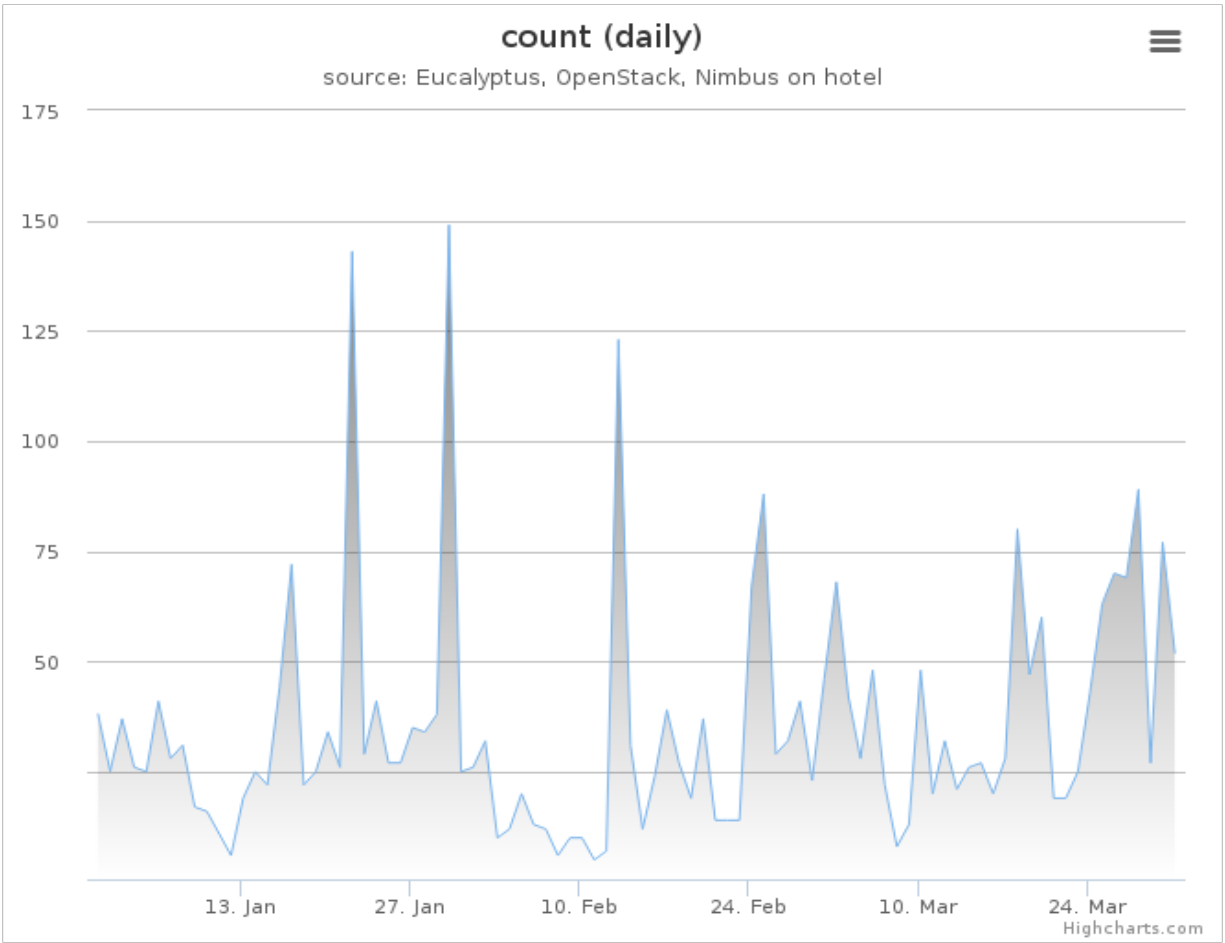- Cloud(IaaS): nimbus
- Hostname: hotel

Figure 3: VMs count

This time series chart represents the number of daily launched VM instances for cloud services and shows historical changes during the period.

- Period: January 01 – March 31, 2014
- Cloud(IaaS): nimbus
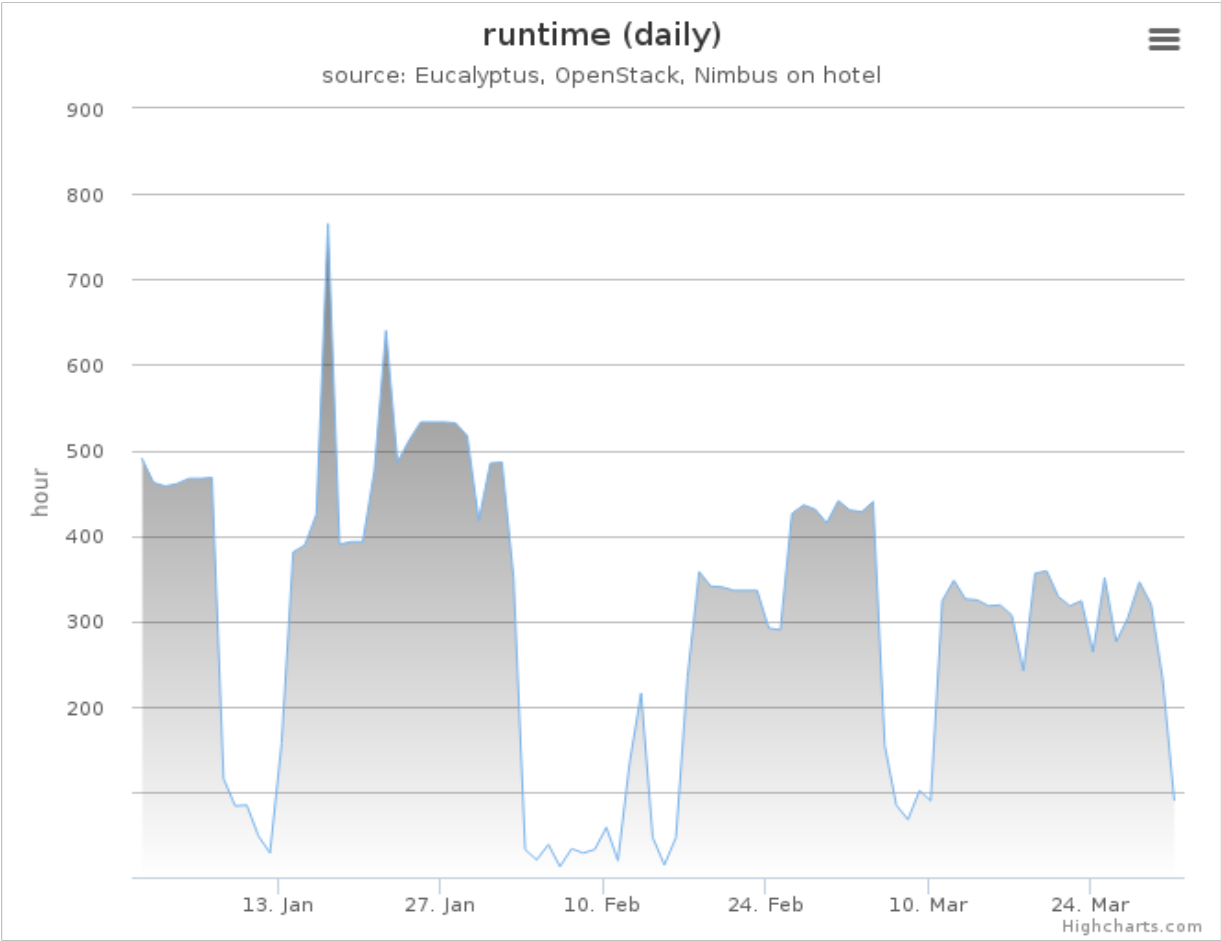- Hostname: hotel

Figure 4: Wall time (hours)

This time series chart represents daily wall time (hours) for cloud services and shows historical changes during the period.

- Period: January 01 – March 31, 2014

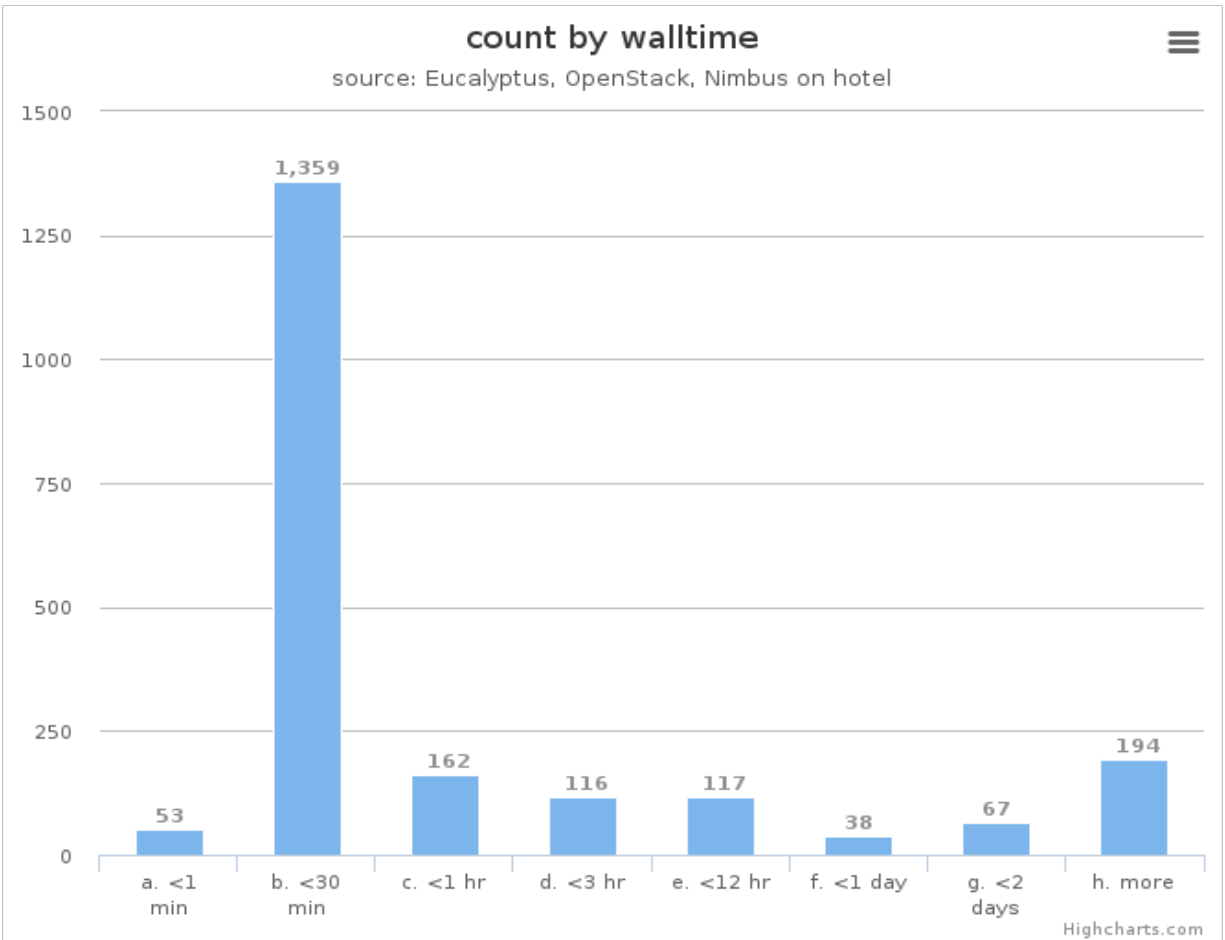- Cloud(IaaS): nimbus

- Hostname: hotel

4.2 Distribution

Figure 5: VM count by wall time

This chart illustrates usage patterns of VM instances in terms of running wall time.

- Period: January 01 – March 31, 2014
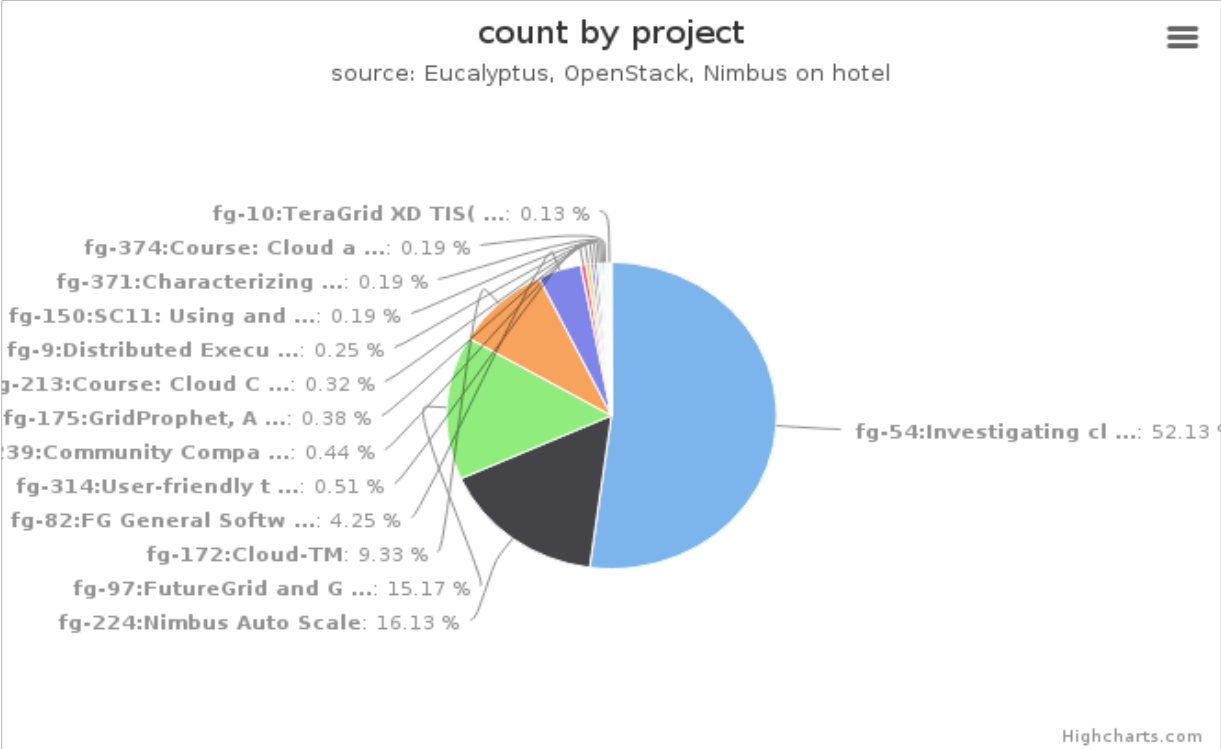
- Cloud(IaaS): nimbus

- Hostname: hotel

Figure 6: VMs count by project

This chart illustrates the proportion of launched VM instances by project groups. The same data in tabular form follows.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus

- Hostname: hotel

Table 4.1: VMs count by project

| Project	Value
fg-54:Investigating cloud computing as a solution for analyzing particle physics data	821
fg-224:Nimbus Auto Scale	254
fg-97:FutureGrid and Grid'5000 Collaboration	239
fg-172:Cloud-TM	147
fg-82:FG General Software Development	67
fg-314:User-friendly tools to play with cloud platforms	8
fg-239:Community Comparison of Cloud frameworks	7
fg-175:GridProphet, A workflow execution time prediction system for the Grid	6
fg-213:Course: Cloud Computing class - second edition	5
fg-9:Distributed Execution of Kepler Scientific Workflow on Future Grid	4
fg-150:SC11: Using and Building Infrastructure Clouds for Science	3
fg-371:Characterizing Infrastructure Cloud Performance for Scientific Computing	3
fg-374:Course: Cloud and Distributed Computing	3
fg-298:FRIEDA: Flexible Robust Intelligent Elastic Data Management	2
fg-165:The VIEW Project	2
fg-10:TeraGrid XD TIS(Technology Insertion Service) Technology Evaluation Laboratory	2
fg-362:Course: Cloud Computing and Storage (UF)	1
fg-401:Evaluation of HPC Applications on Cloud Resources	1
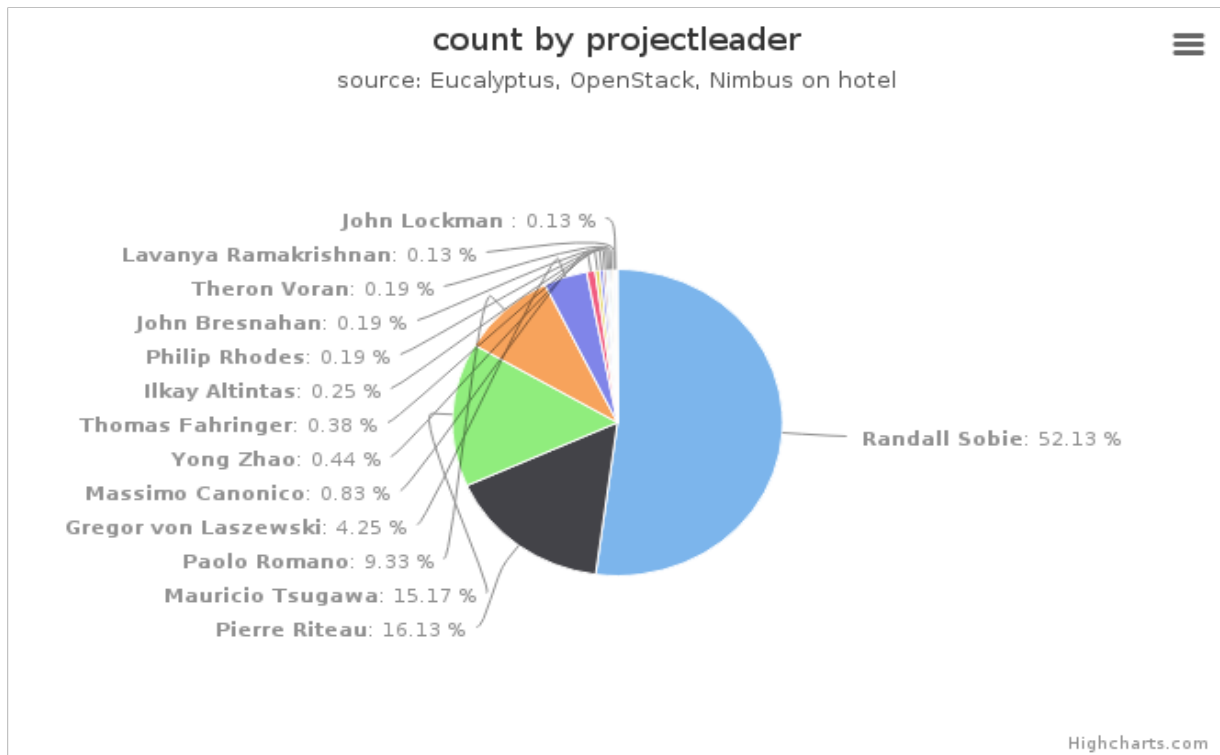
Figure 7: VMs count by project leader

This chart also illustrates the proportion of launched VM instances by project Leader. The same data in tabular form follows.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus

- Hostname: hotel

Table 4.2: VMs count by project leader

Projectleader	Value
Randall Sobie	821
Pierre Riteau	254
Mauricio Tsugawa	239
Paolo Romano	147
Gregor von Laszewski	67
Massimo Canonico	13
Yong Zhao	7
Thomas Fahringer	6
Ilkay Altintas	4
Philip Rhodes	3
John Bresnahan	3
Theron Voran	3
Shiyong Lu	2
Lavanya Ramakrishnan	2
John Lockman	2
Brock Palen	1
Andy Li	1

count by institution

source: Eucalyptus, OpenStack, Nimbus on hotel

Wayne State University: 0.13 %
University of Mississi ...: 0.19 %
University of Colorado ...: 0.19 %
Nimbus: 0.19 %
UCSD: 0.25 %
University of Piemonte ...: 0.32 %
University of Innsbruck: 0.38 %
University of Electron ...: 0.44 %
University of Piemonte ...: 0.51 %
Indiana University: 4.25 %
INESC ID: 9.33 %
University of Florida: 15.17 %
University of Chicago: 16.13 %
University of Victoria: 52.13 %
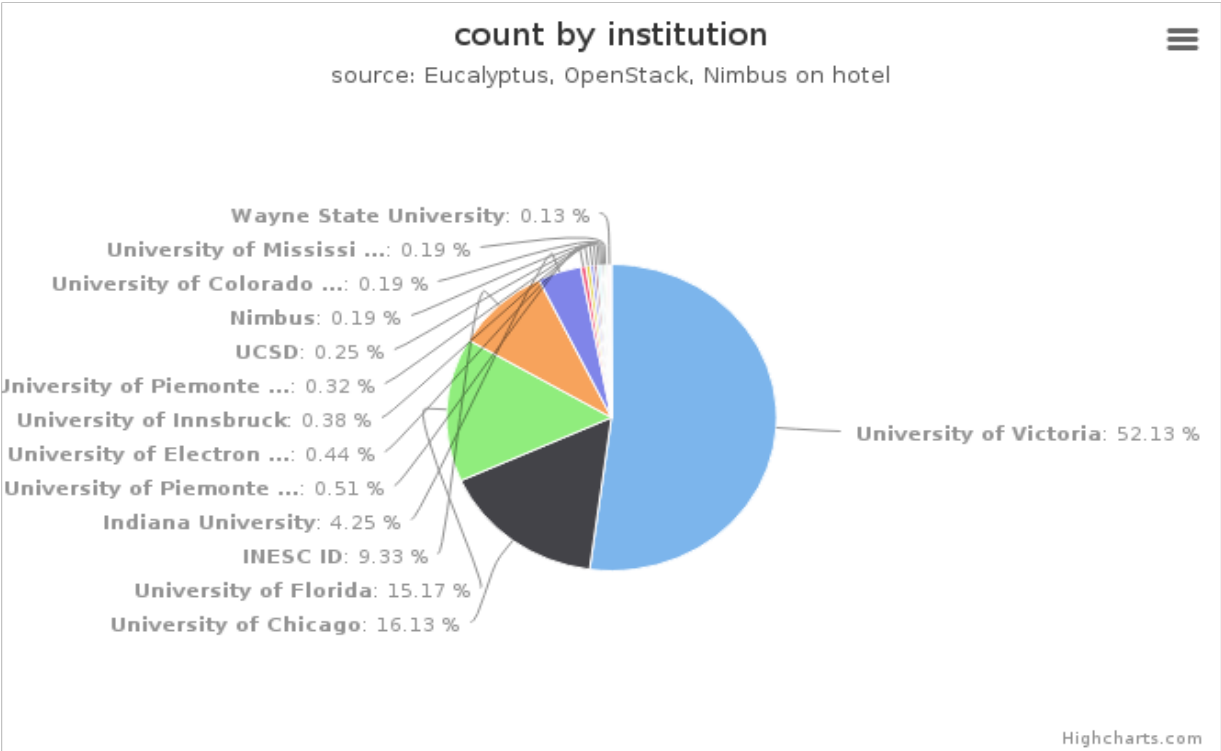
Highcharts.com

Figure 8: VMs count by institution
This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus

- Hostname: hotel

Table 4.3: VMs count by institution

Institution	Value
University of Victoria	821
University of Chicago	254
University of Florida	239
INESC ID	147
Indiana University	67
University of Piemonte Orientale, Computer Science Department	8
University of Electronic Science and Technology	7
University of Innsbruck	6
University of Piemonte Orientale	5
UCSD	4
Nimbus	3
University of Colorado at Boulder, Computer Science Department	3
University of Mississippi, Department of Computer Science	3
University of Texas at Austin	2
Lawrence Berkeley National Lab	2
Wayne State University	2
U of Michigan / Xsede, CAEN HPC	1
University of Florida, Department of Electrical and Computer Eng	1
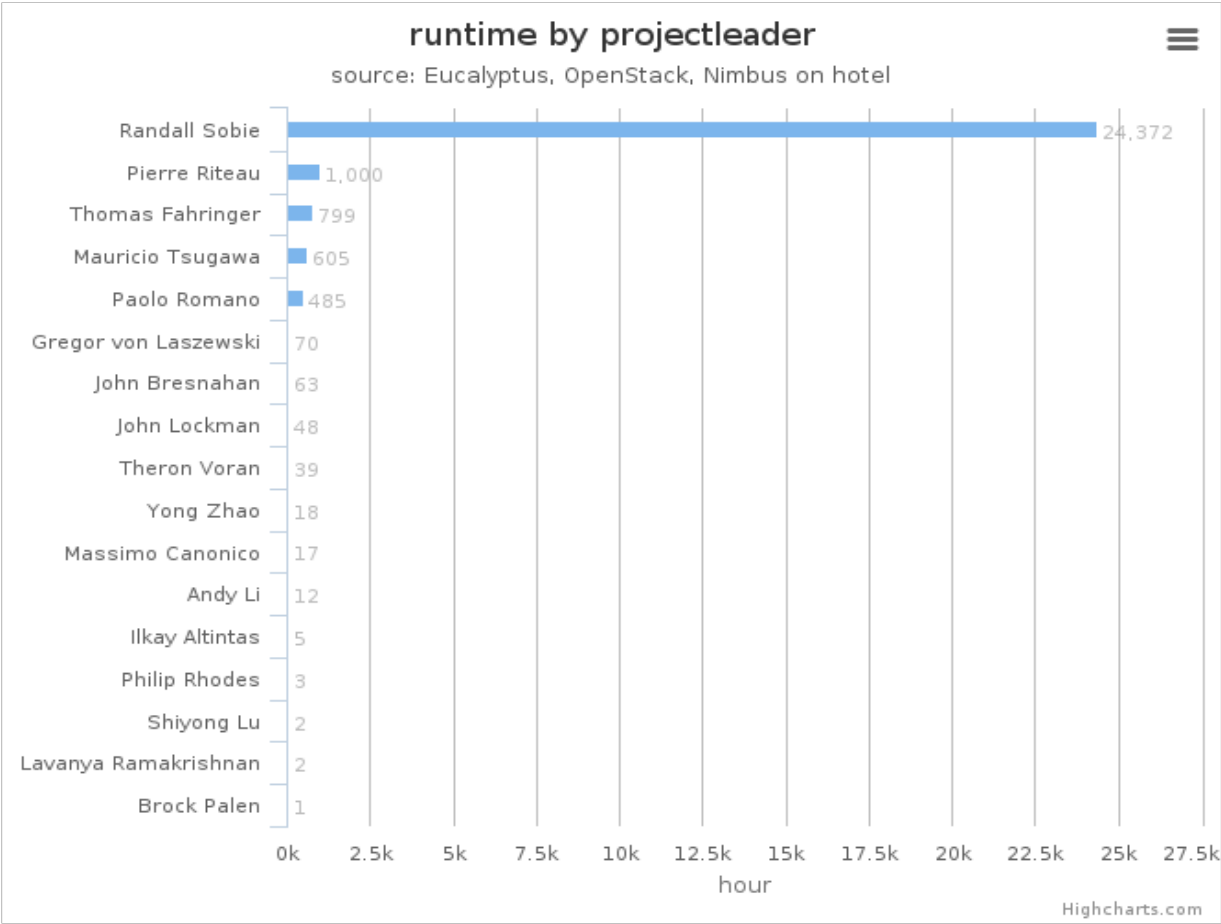
Figure 9: Wall time (hours) by project leader

This chart illustrates proportionate total run times by project leader.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus

- Hostname: hotel

4.3 System information

System information shows utilization distribution as to VMs count and wall time. Each cluster represents a compute node.
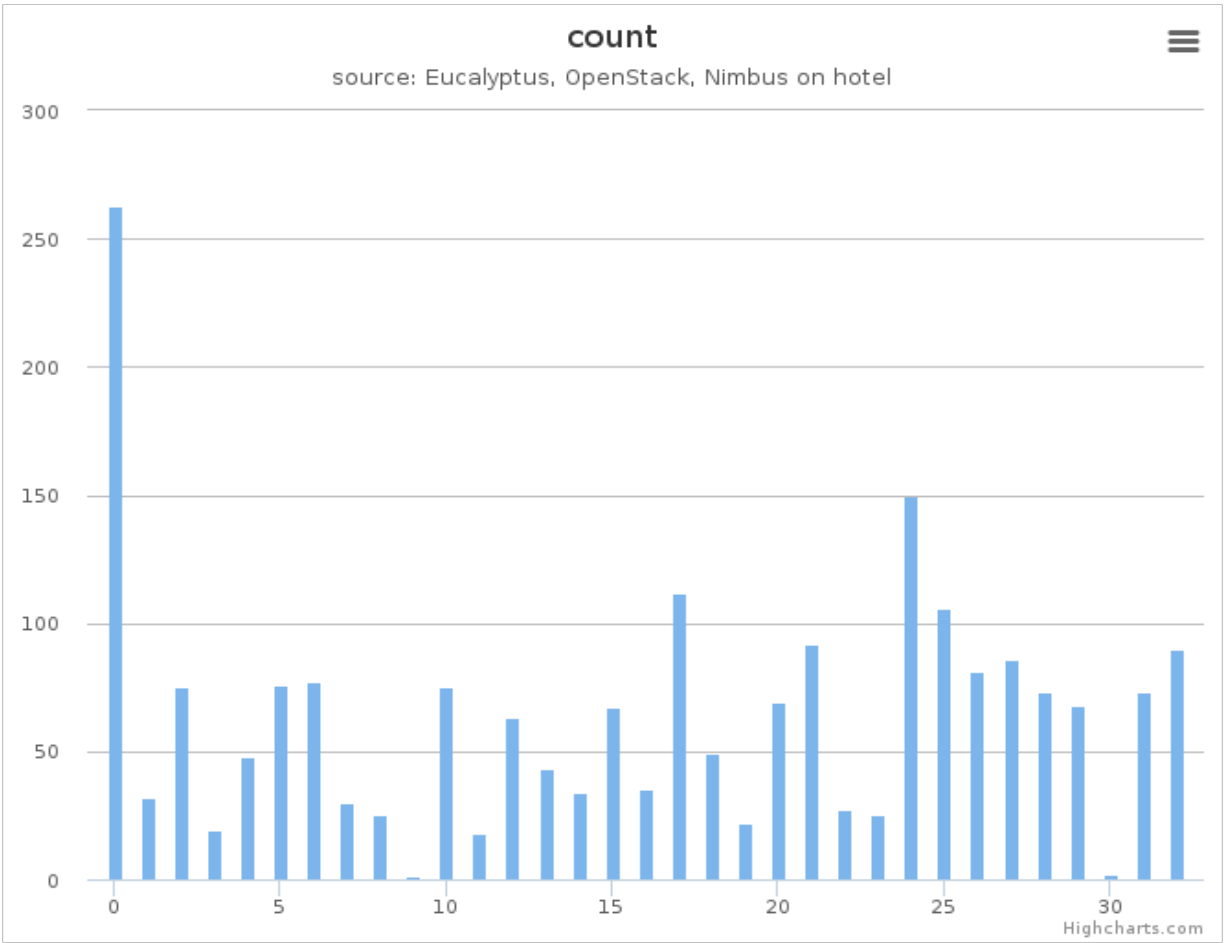
Figure 10: VMs count by systems (compute nodes) in Cluster (hotel)

This column chart represents VMs count among systems.

- Period: January 01 – March 31, 2014
- Cloud(IaaS): nimbus
- Hostname: hotel
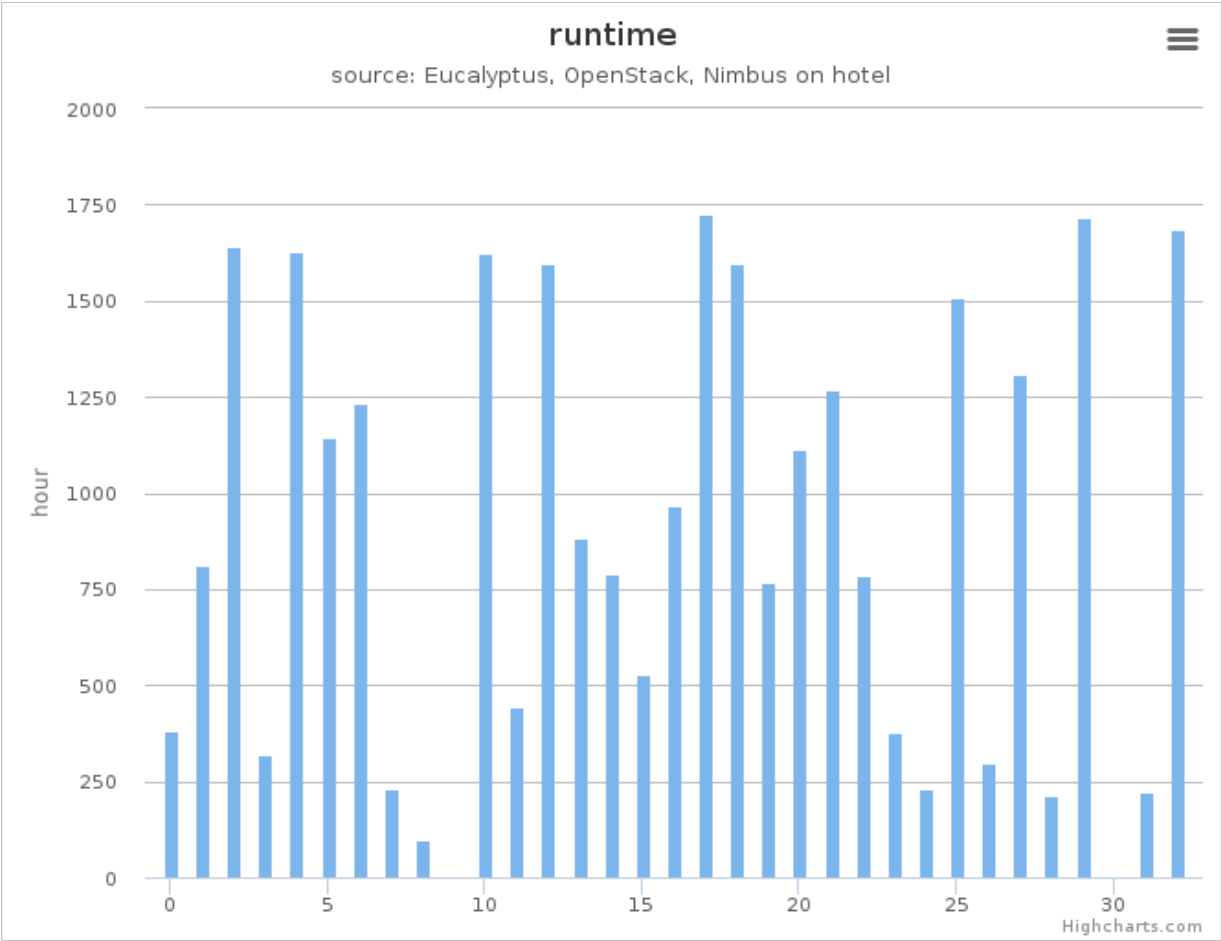
Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (hotel)
This column chart represents wall time among systems.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus

- Hostname: hotel

USAGE REPORT ALAMO

- Period: January 01 – March 31, 2014

- Hostname: alamo.futuregrid.org

- Services: nimbus, openstack

- Metrics: VMs count, Users count, Wall time (hours), Distribution by wall time, project, project leader, and institution, and systems

5.1 Histogram

5.1.1 Summary (Monthly)
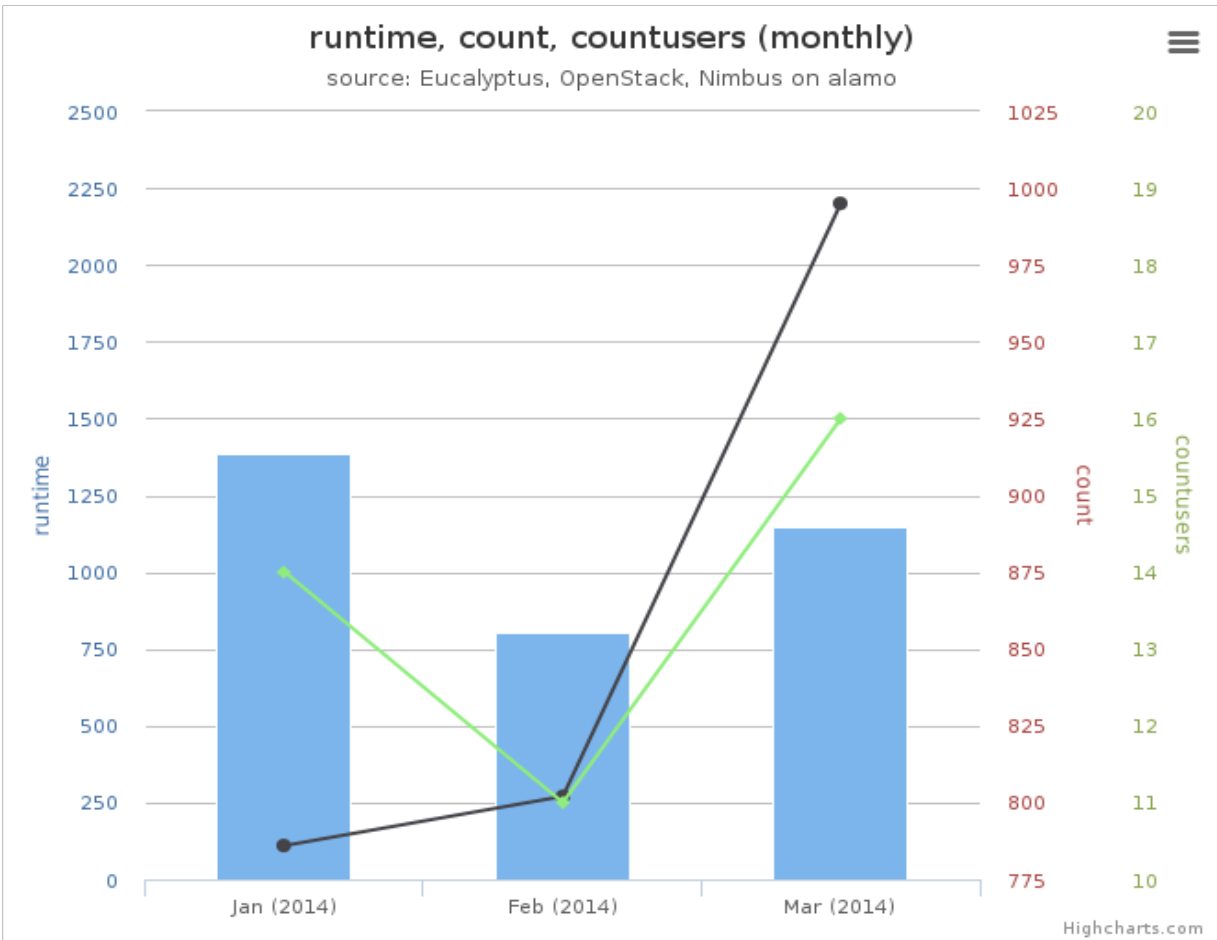
Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)

This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus, openstack

- Hostname: alamo

- **Metric:**

    - Runtime (Wall time hours): Sum of time elapsed from launch to termination of VM instances

    - Count (VM count): The number of launched VM instances

    - User count (Active): The number of users who launched VMs

5.1.2 Summary (Daily)
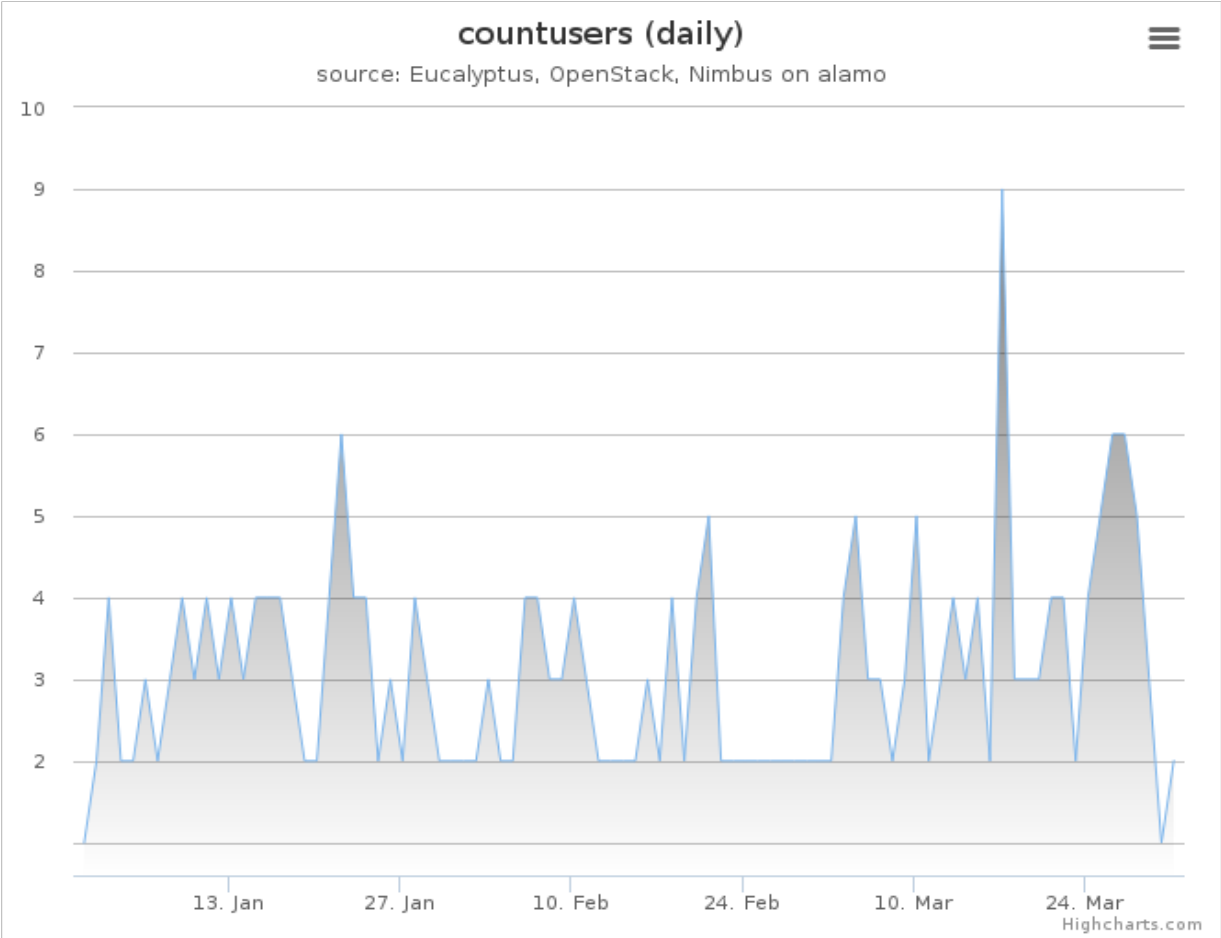
Figure 2: Users count

This time series chart represents daily active user count for cloud services and shows historical changes during the period.

- Period: January 01 – March 31, 2014
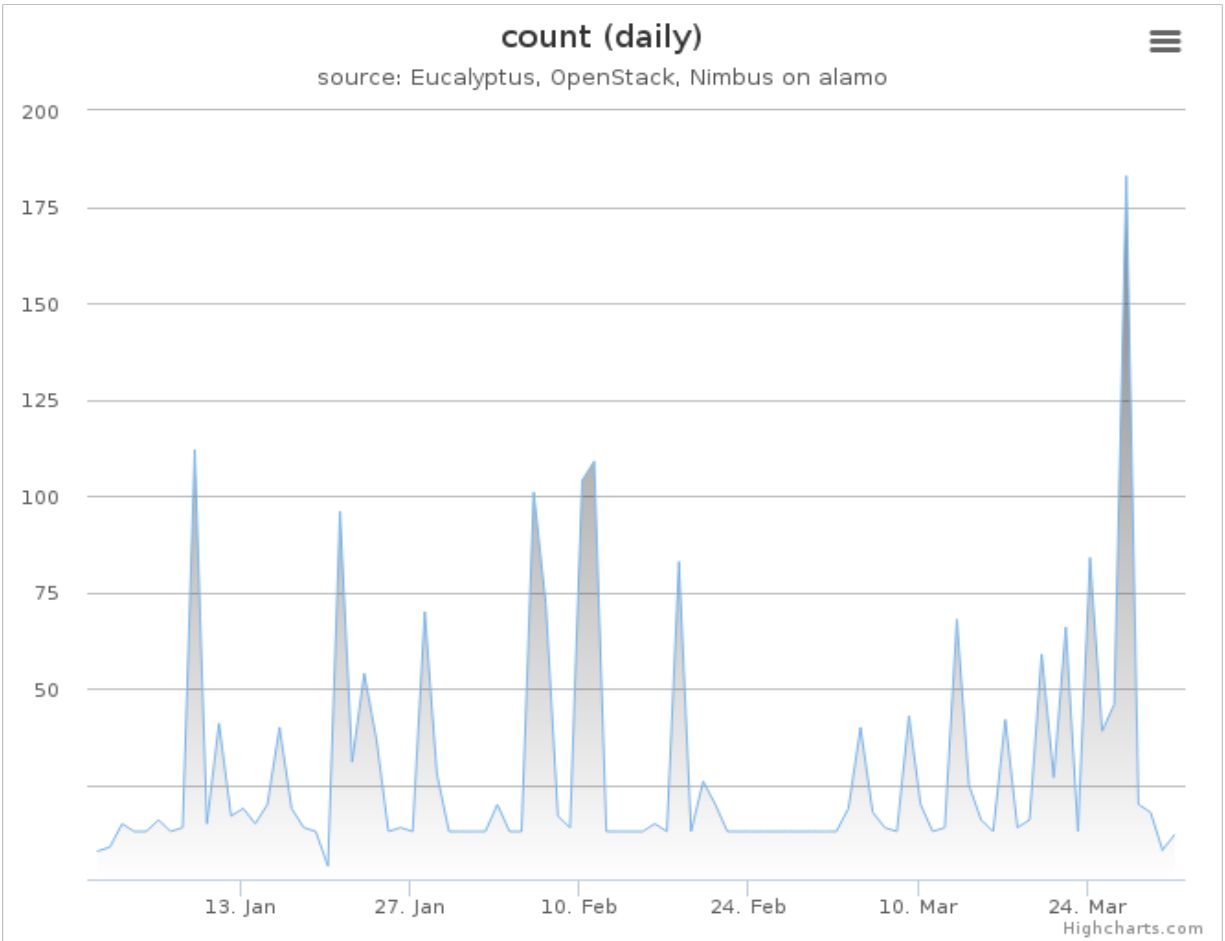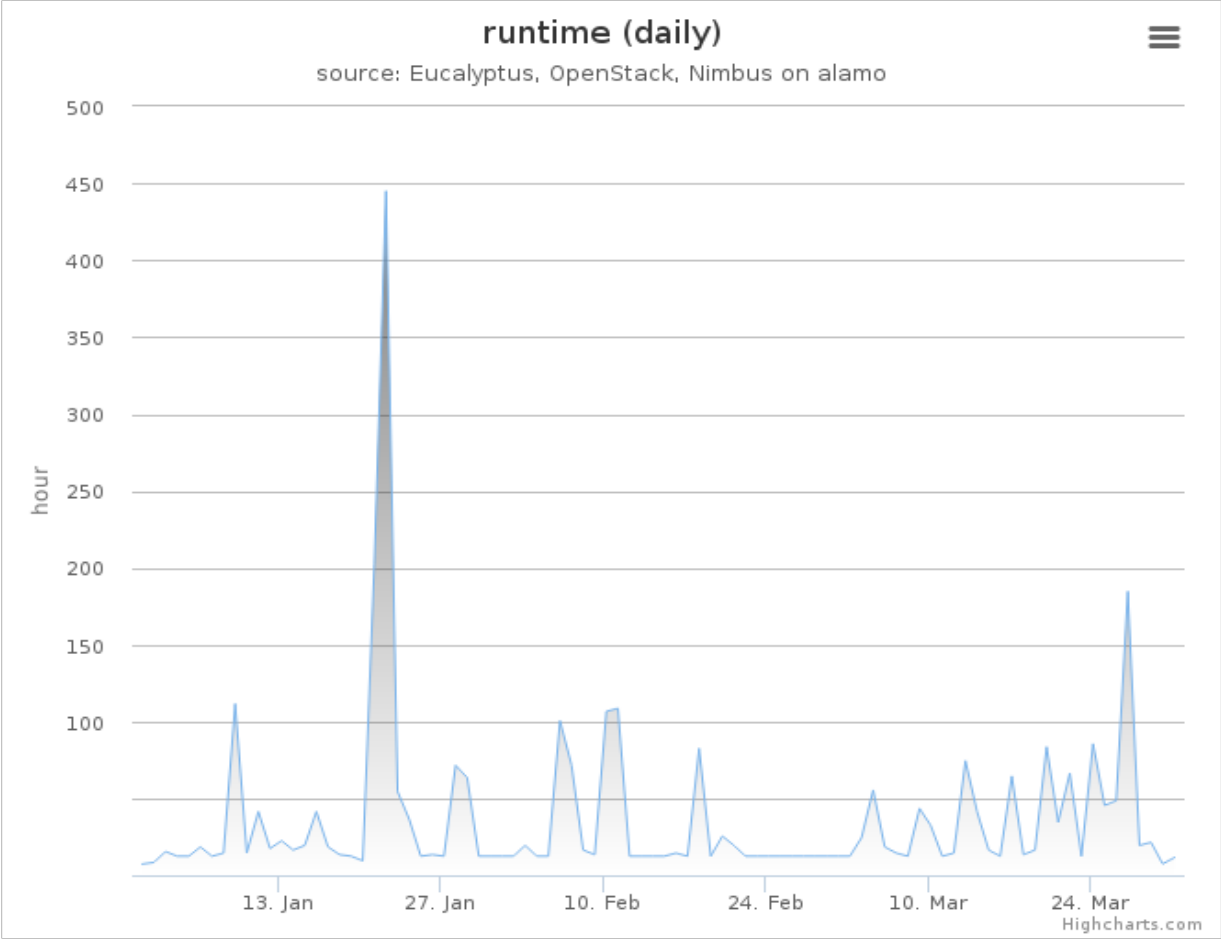- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

Figure 3: VMs count

This time series chart represents the number of daily launched VM instances for cloud services and shows historical changes during the period.

- Period: January 01 – March 31, 2014
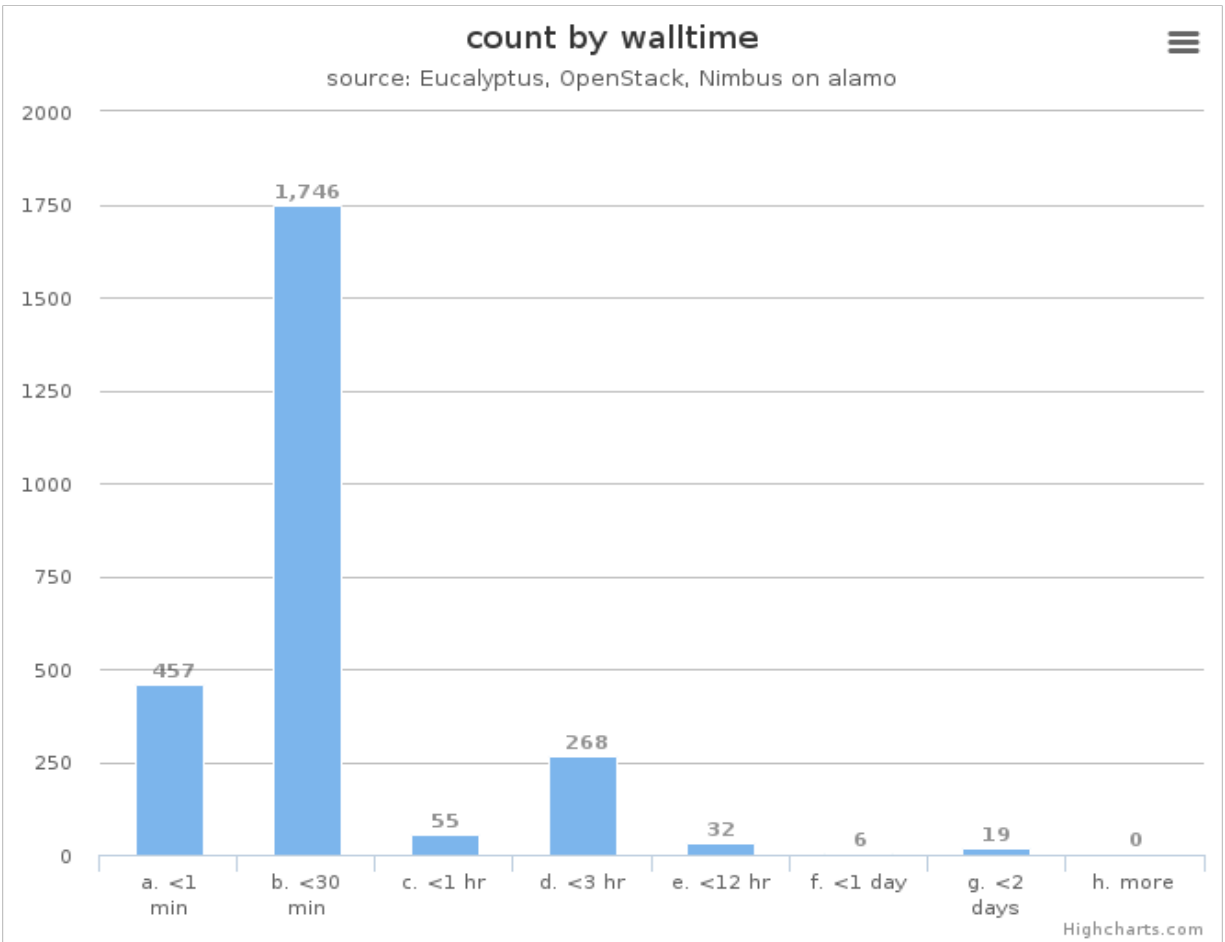- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

Figure 4: Wall time (hours)

This time series chart represents daily wall time (hours) for cloud services and shows historical changes during the period.

- Period: January 01 – March 31, 2014
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

5.2 Distribution

Figure 5: VM count by wall time

This chart illustrates usage patterns of VM instances in terms of running wall time.

- Period: January 01 – March 31, 2014

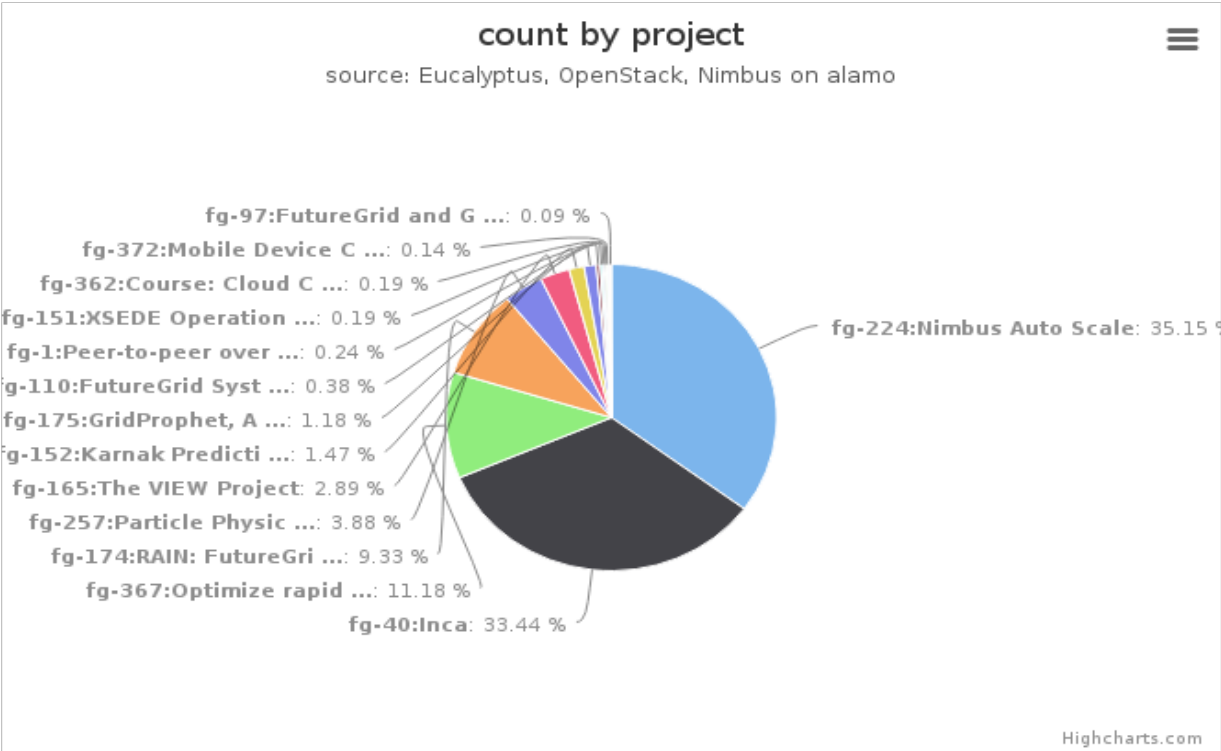- Cloud(IaaS): nimbus, openstack

- Hostname: alamo

Figure 6: VMs count by project

This chart illustrates the proportion of launched VM instances by project groups. The same data in tabular form follows.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus, openstack

- Hostname: alamo

Table 5.1: VMs count by project

| Project	Value
fg-224:Nimbus Auto Scale	742
fg-40:Inca	706
fg-367:Optimize rapid deployment and updating of VM images at the remote compute cluster	236
fg-174:RAIN: FutureGrid Dynamic provisioning Framework	197
fg-257:Particle Physics Data analysis cluster for ATLAS LHC experiment	82
fg-165:The VIEW Project	61
fg-152:Karnak Prediction Service	31
fg-175:GridProphet, A workflow execution time prediction system for the Grid	25
fg-110:FutureGrid Systems Development	8
fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters	5
fg-151:XSEDE Operations Group	4
fg-362:Course: Cloud Computing and Storage (UF)	4
fg-372:Mobile Device Computation Offloading over SocialVPNs	3
fg-392:Using Clouds to Scale GIS Applications	2
fg-382:Reliability Analysis using Hadoop and MapReduce	2
fg-97:FutureGrid and Grid'5000 Collaboration	2
fg-42:SAGA	1
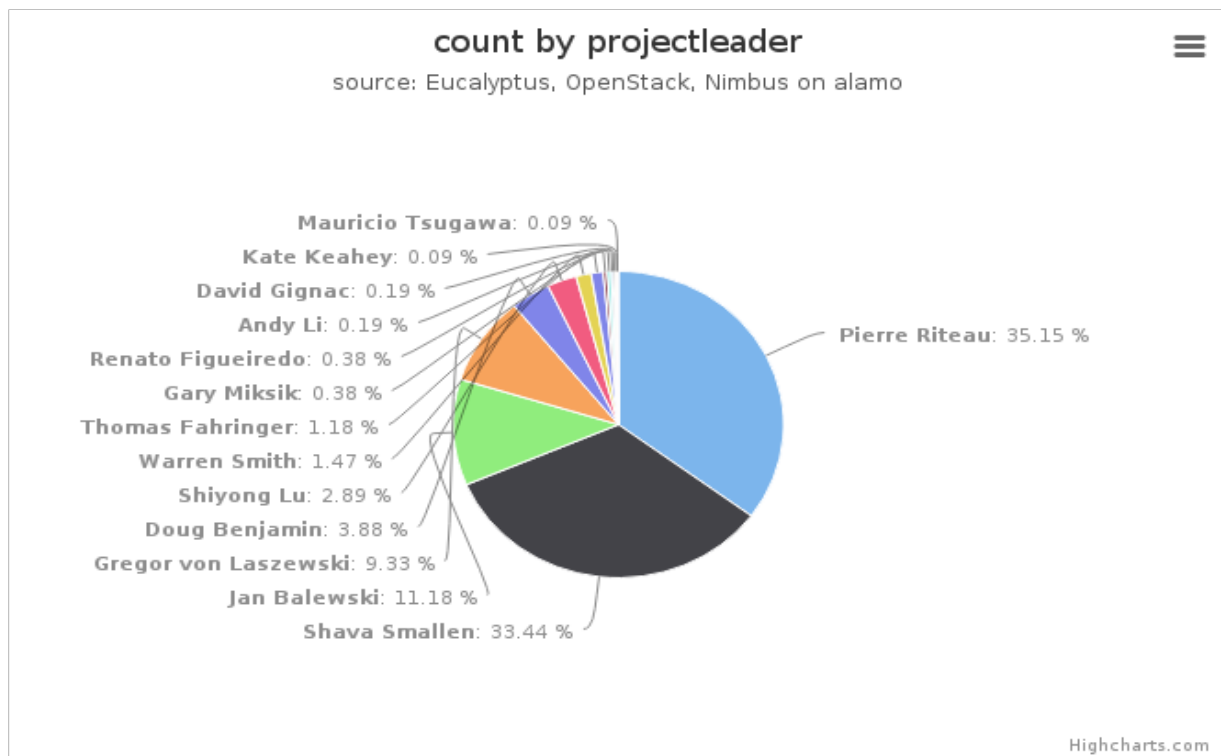
Figure 7: VMs count by project leader

This chart also illustrates the proportion of launched VM instances by project Leader. The same data in tabular form follows.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus, openstack

- Hostname: alamo

Table 5.2: VMs count by project leader

Projectleader	Value
Pierre Riteau	742
Shava Smallen	706
Jan Balewski	236
Gregor von Laszewski	197
Doug Benjamin	82
Shiyong Lu	61
Warren Smith	31
Thomas Fahringer	25
Gary Miksik	8
Renato Figueiredo	8
Andy Li	4
David Gignac	4
Carl Walasek	2
Kate Keahey	2
Mauricio Tsugawa	2
Shantenu Jha	1
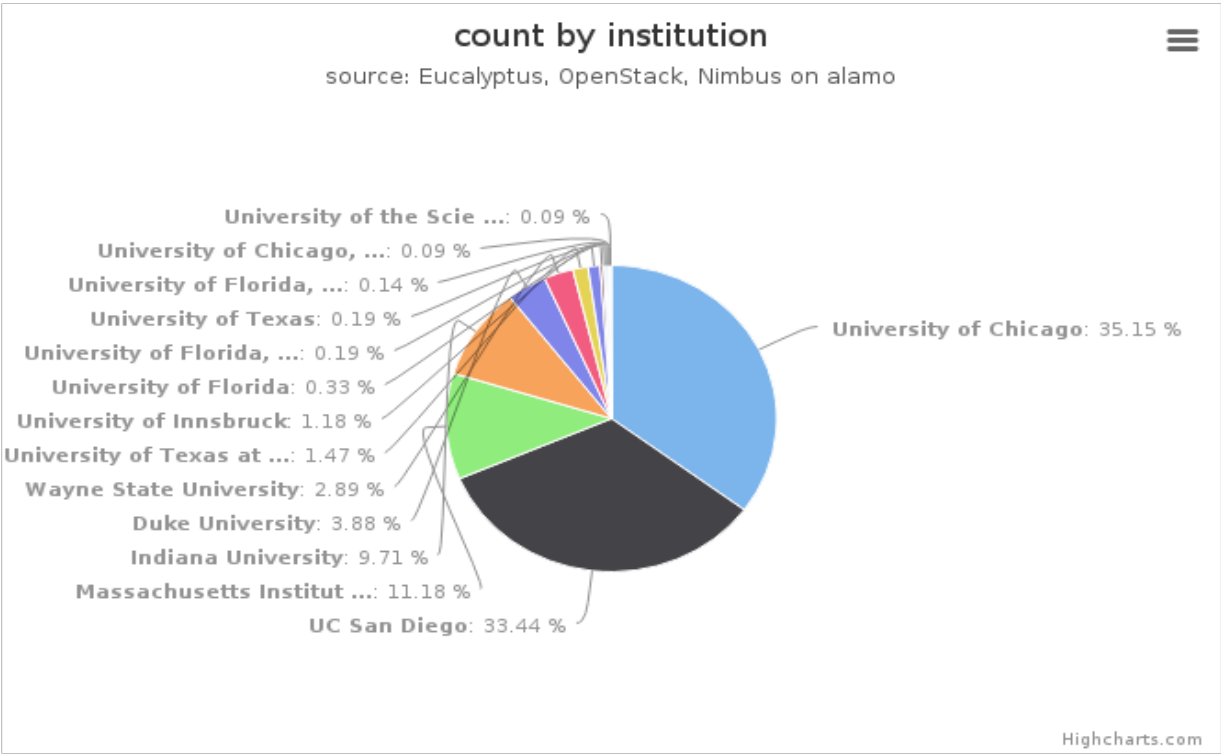
Figure 8: VMs count by institution

This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus, openstack

- Hostname: alamo

Table 5.3: VMs count by institution

| Institution	Value
University of Chicago	742
UC San Diego	706
Massachusetts Institute of Technology, Laboratory for Nuclear Sc	236
Indiana University	205
Duke University	82
Wayne State University	61
University of Texas at Austin	31
University of Innsbruck	25
University of Florida	7
University of Florida, Department of Electrical and Computer Eng	4
University of Texas	4
University of Florida, Electrical and Computer Engineering	3
University of Chicago, Computation Institute	2
University of the Sciences , Mathematics, Physics, and Statistic	2
Louisiana State University	1
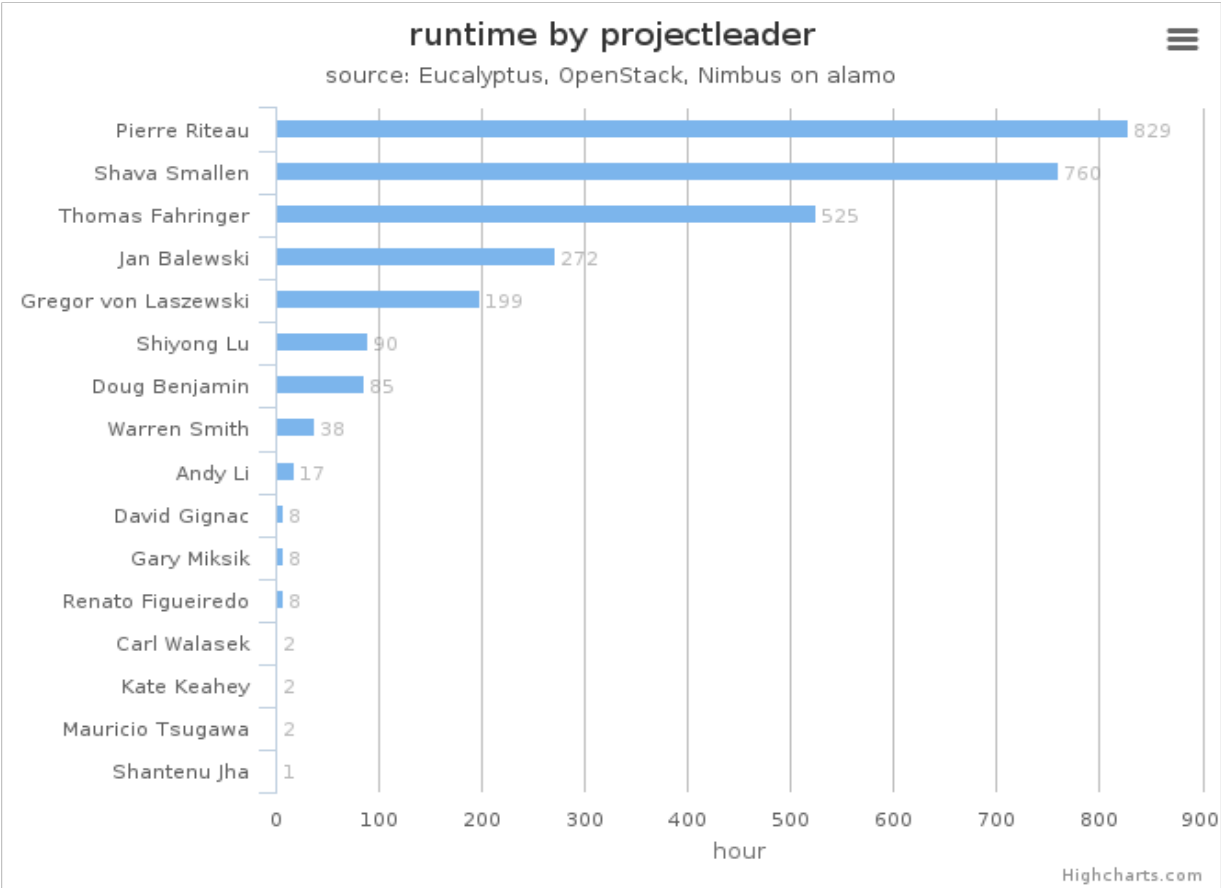
Figure 9: Wall time (hours) by project leader

This chart illustrates proportionate total run times by project leader.

- Period: January 01 – March 31, 2014
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

5.3 System information

System information shows utilization distribution as to VMs count and wall time. Each cluster represents a compute node.
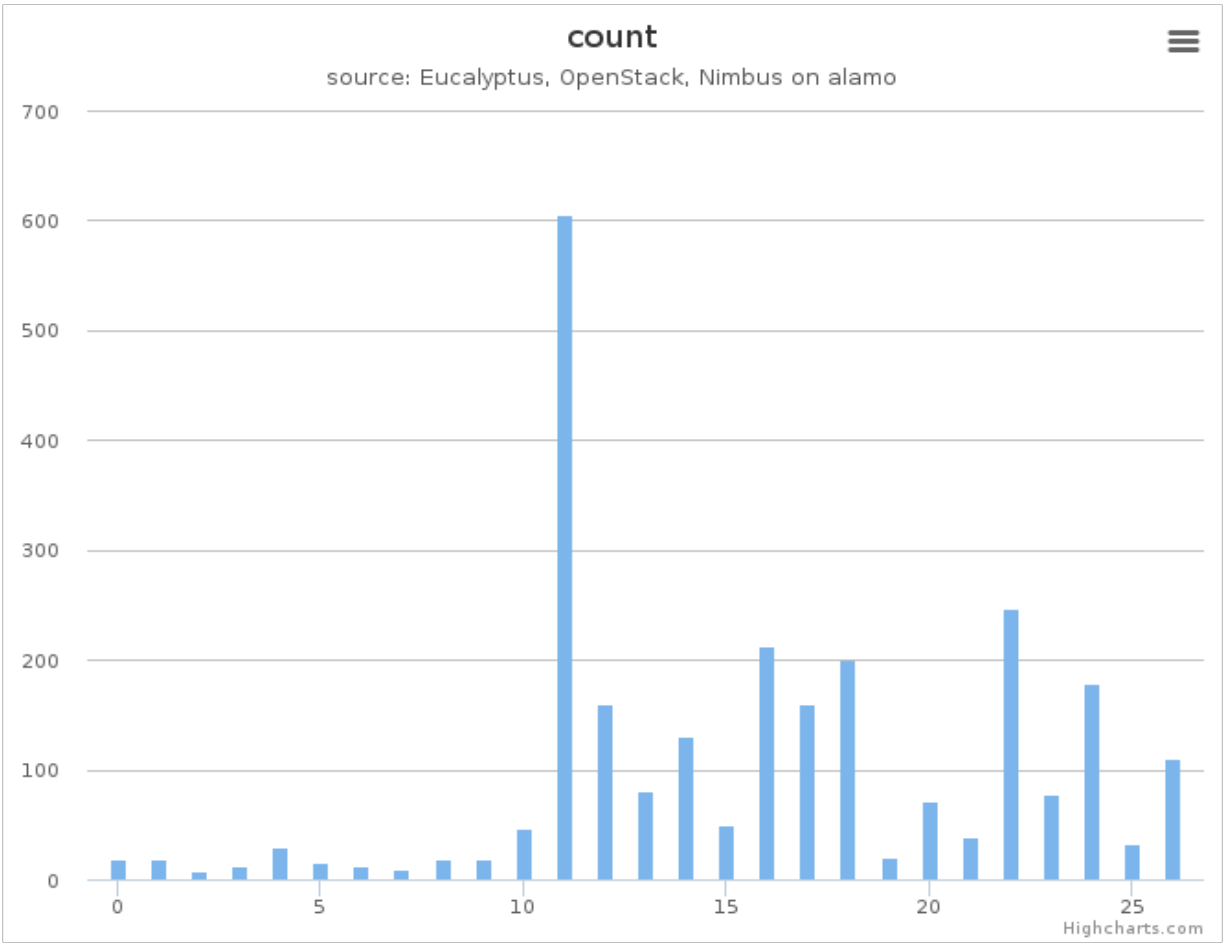
Figure 10: VMs count by systems (compute nodes) in Cluster (alamo)

This column chart represents VMs count among systems.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus, openstack
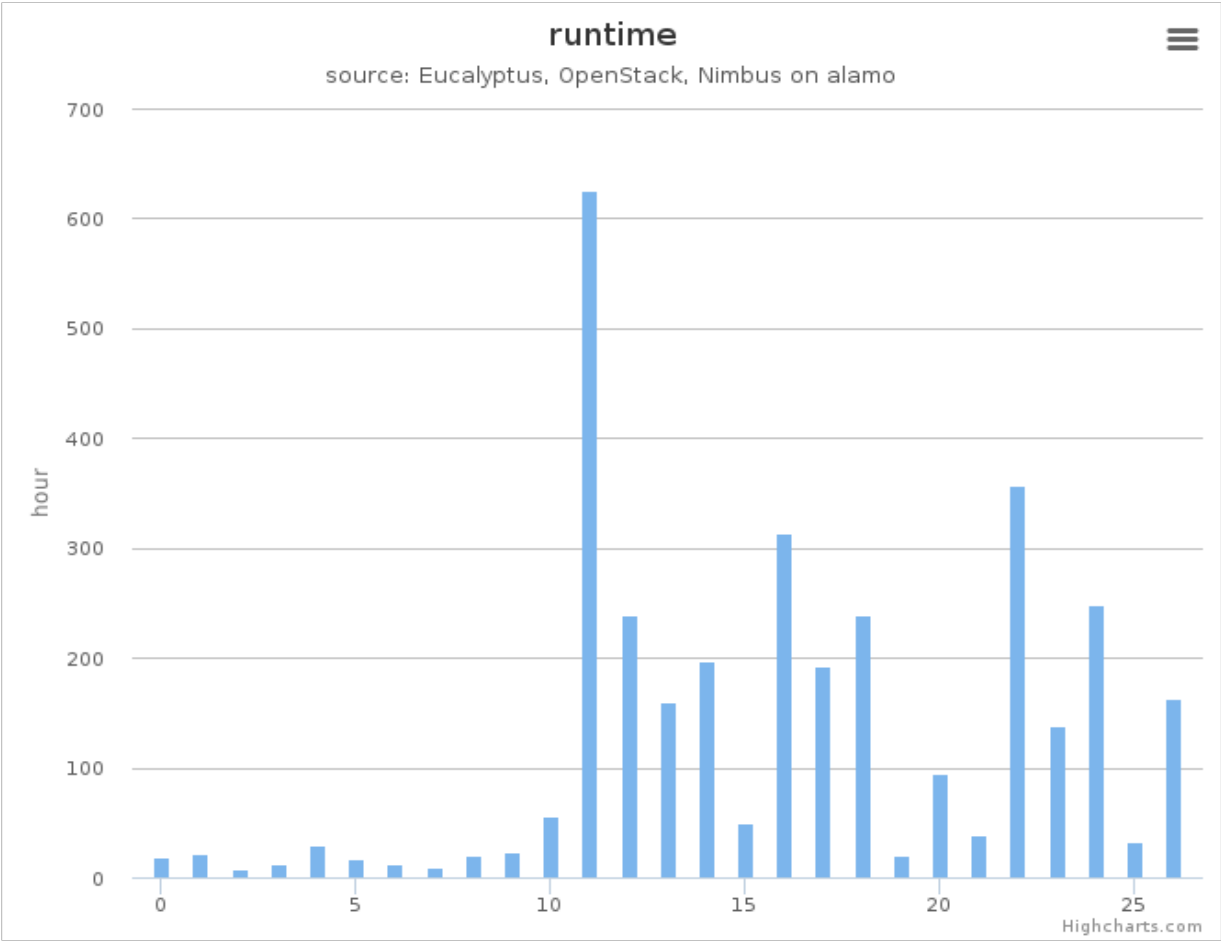
- Hostname: alamo

Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (alamo)

This column chart represents wall time among systems.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus, openstack

- Hostname: alamo

USAGE REPORT FOXTROT

- Period: January 01 – March 31, 2014

- Hostname: foxtrot.futuregrid.org

- Services: nimbus

- Metrics: VMs count, Users count, Wall time (hours), Distribution by wall time, project, project leader, and institution, and systems

6.1 Histogram

6.1.1 Summary (Monthly)
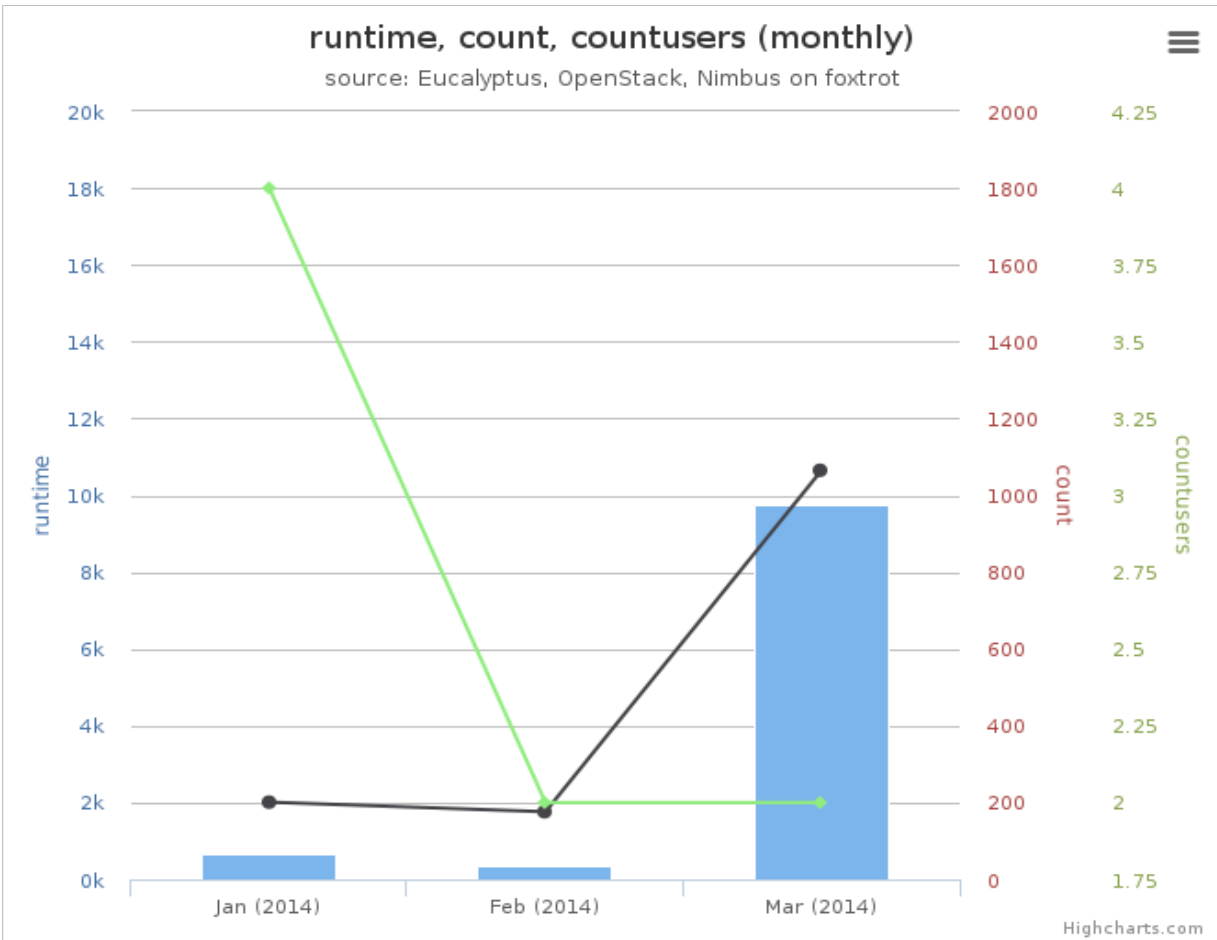
Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)

This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus

- Hostname: foxtrot

- **Metric:**

    - Runtime (Wall time hours): Sum of time elapsed from launch to termination of VM instances

    - Count (VM count): The number of launched VM instances

    - User count (Active): The number of users who launched VMs

6.1.2 Summary (Daily)
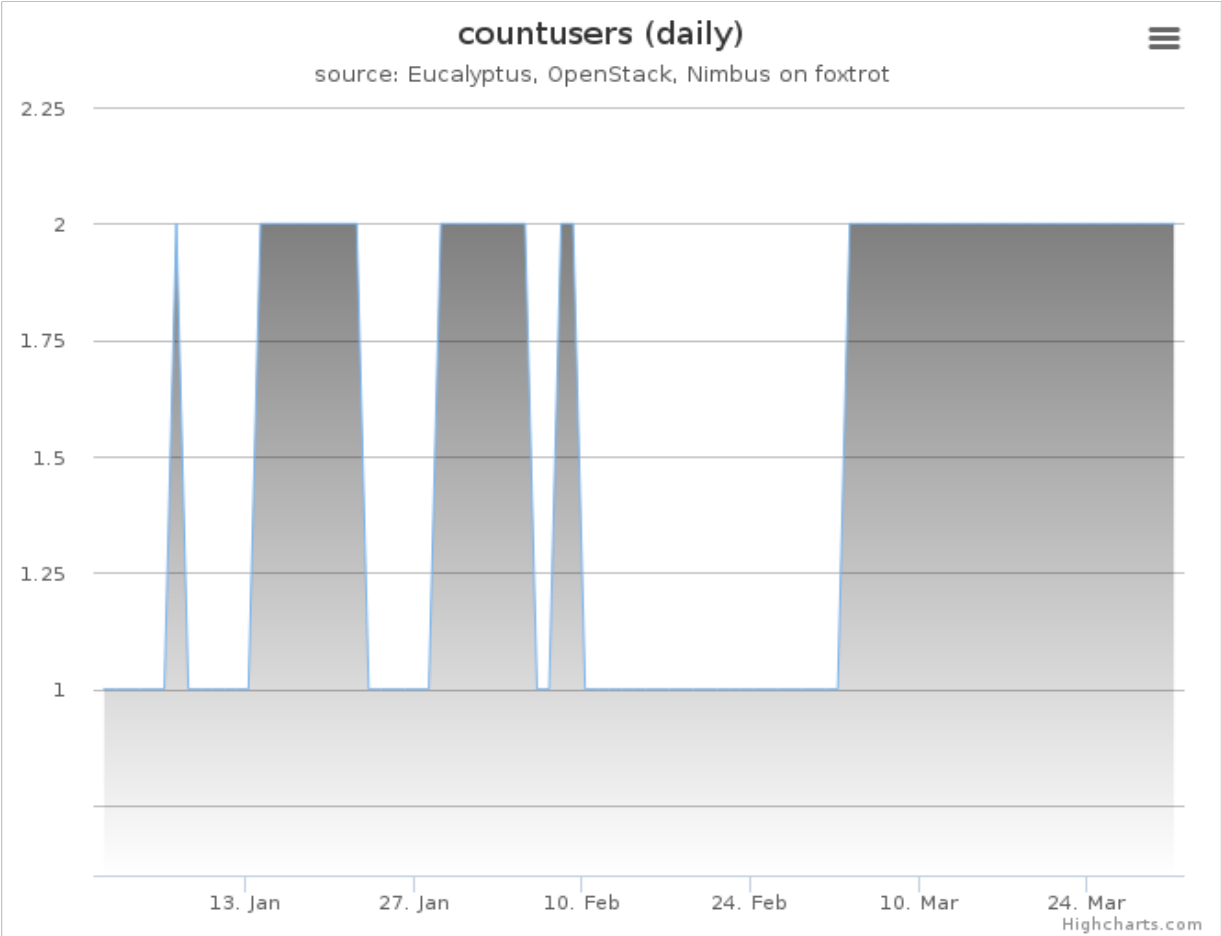
Figure 2: Users count

This time series chart represents daily active user count for cloud services and shows historical changes during the period.

- Period: January 01 – March 31, 2014
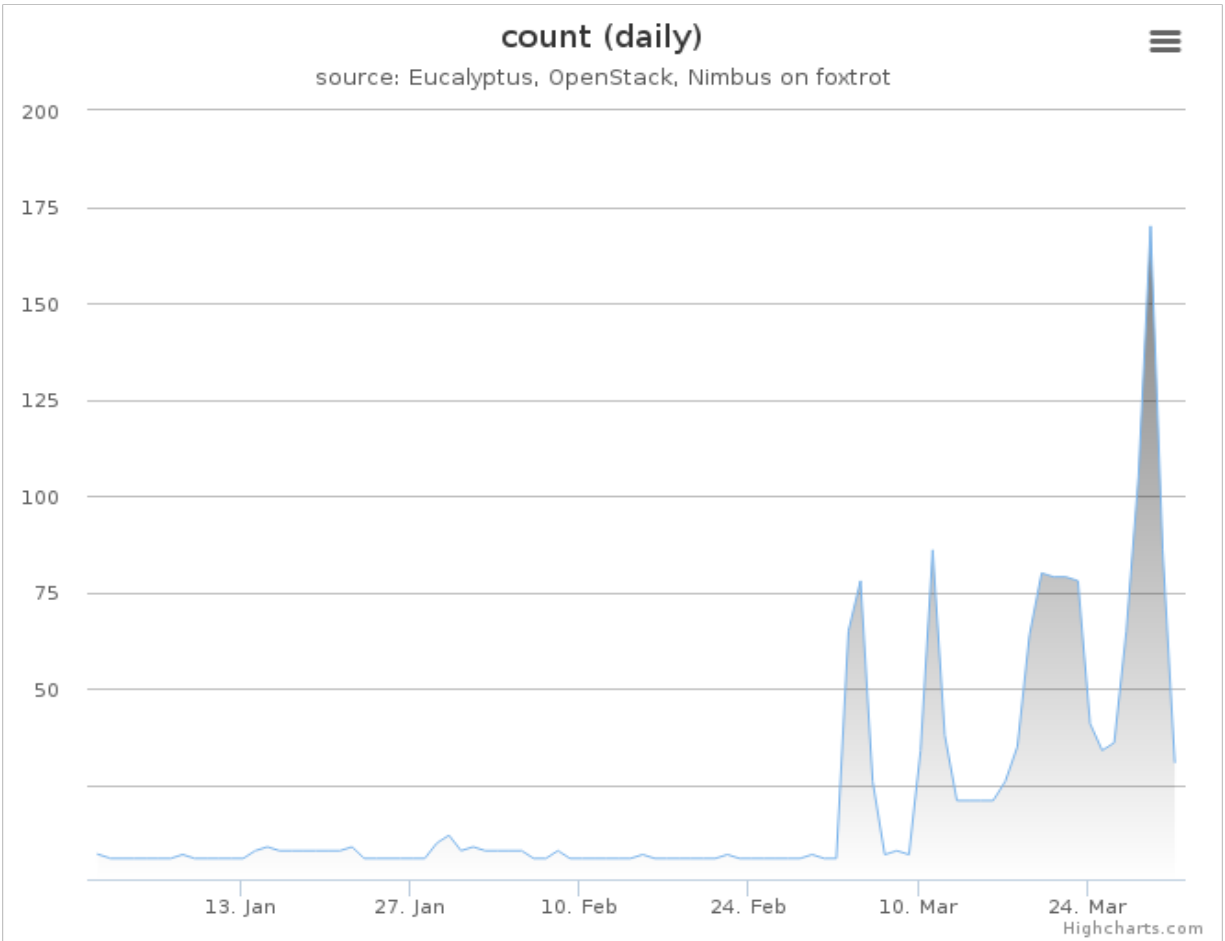- Cloud(IaaS): nimbus
- Hostname: foxtrot

Figure 3: VMs count

This time series chart represents the number of daily launched VM instances for cloud services and shows historical changes during the period.

- Period: January 01 – March 31, 2014
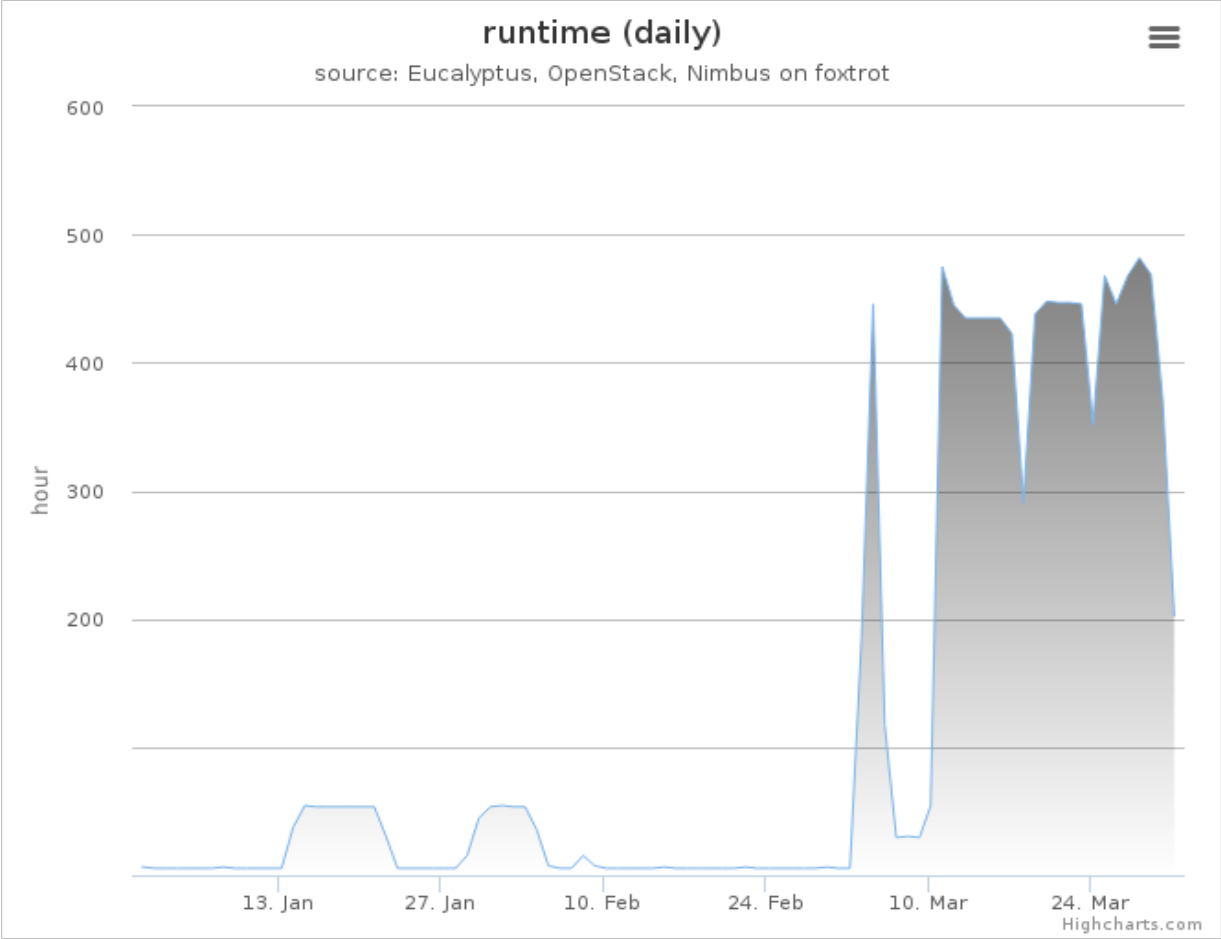- Cloud(IaaS): nimbus
- Hostname: foxtrot

Figure 4: Wall time (hours)

This time series chart represents daily wall time (hours) for cloud services and shows historical changes during the period.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus

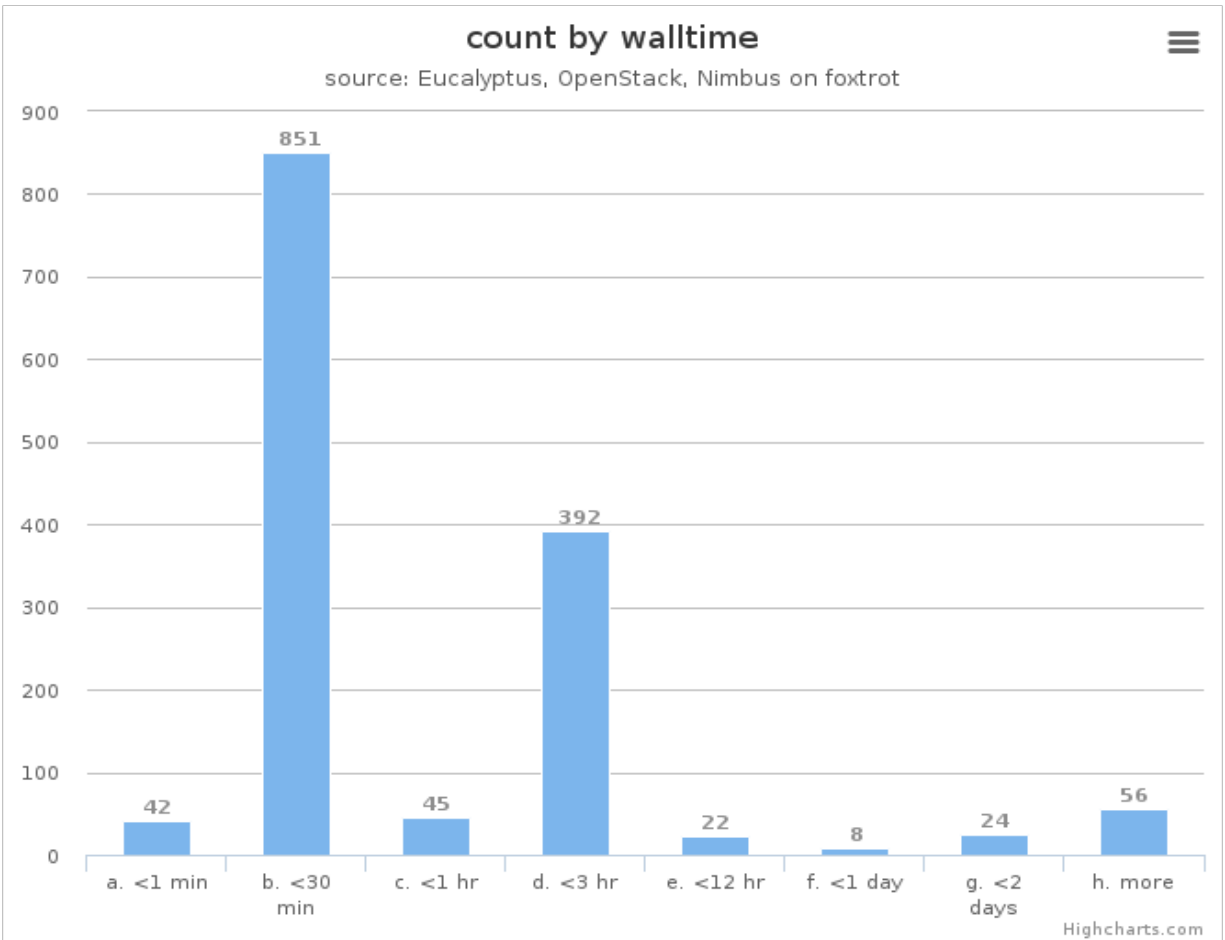- Hostname: foxtrot

6.2 Distribution

Figure 5: VM count by wall time
This chart illustrates usage patterns of VM instances in terms of running wall time.

- Period: January 01 – March 31, 2014
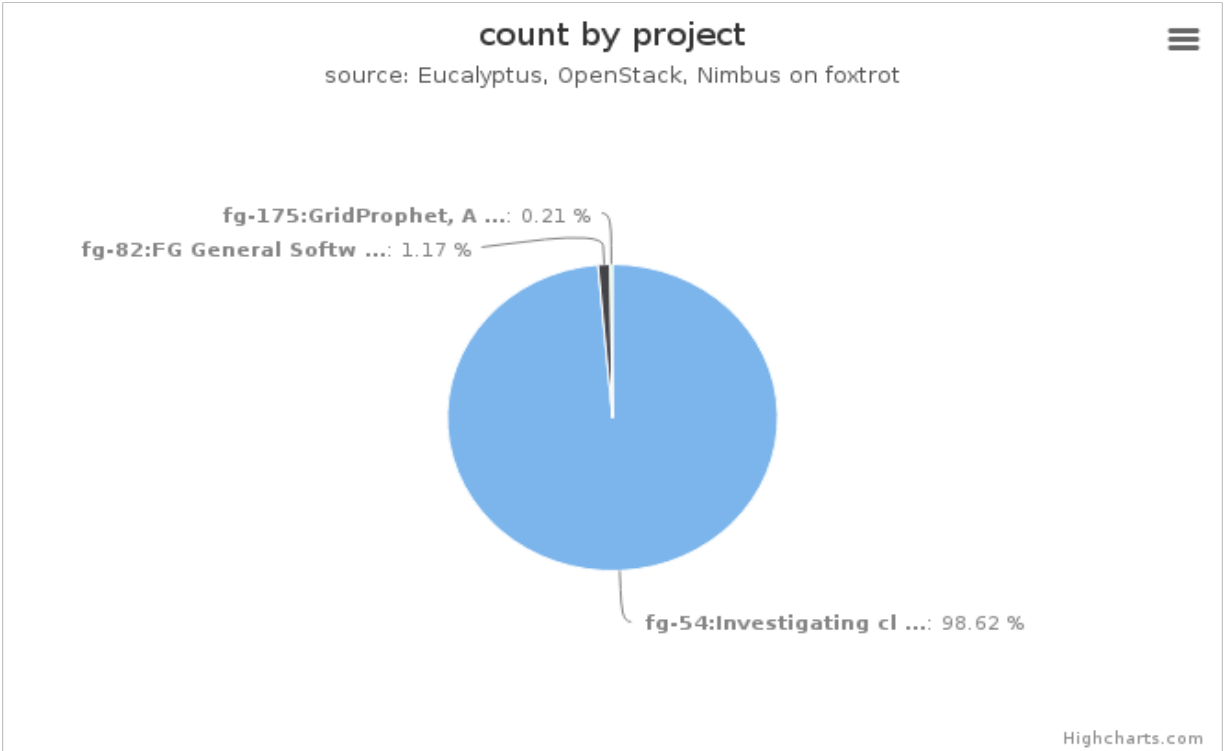
- Cloud(IaaS): nimbus

- Hostname: foxtrot

Figure 6: VMs count by project

This chart illustrates the proportion of launched VM instances by project groups. The same data in tabular form follows.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus

- Hostname: foxtrot

Table 6.1: VMs count by project

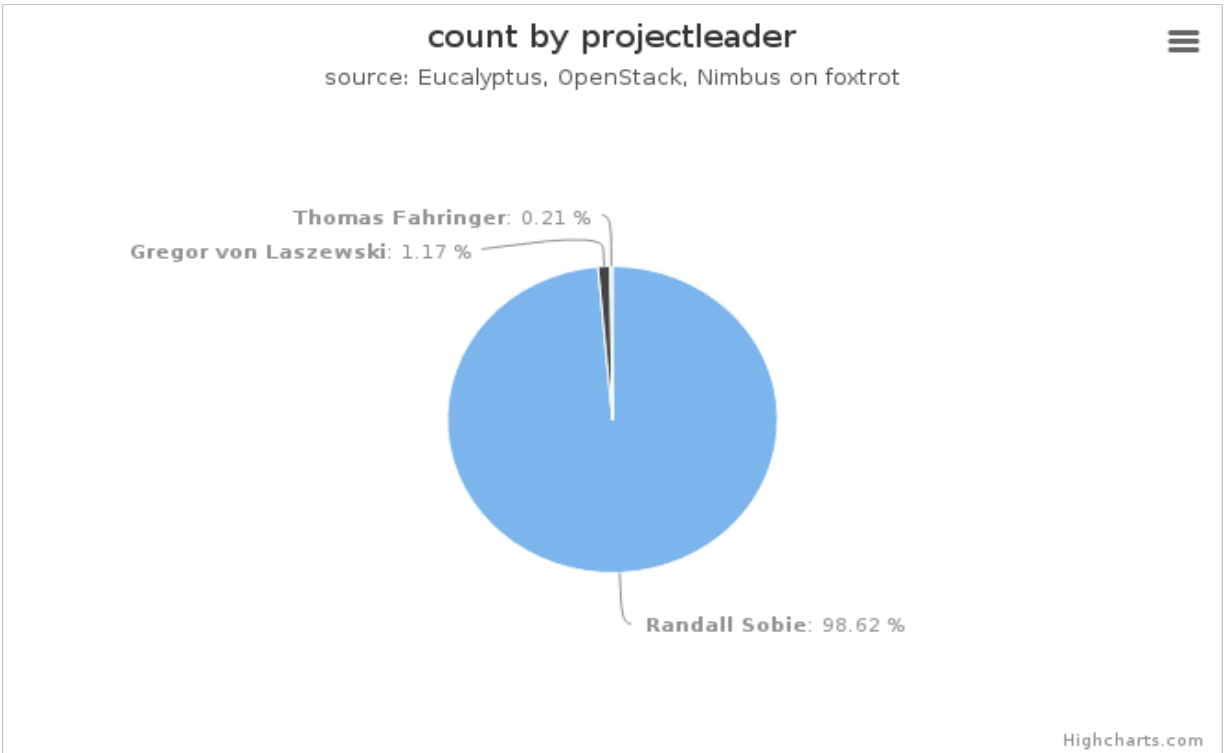| Project	Value
fg-54:Investigating cloud computing as a solution for analyzing particle physics data	927
fg-82:FG General Software Development	11
fg-175:GridProphet, A workflow execution time prediction system for the Grid	2

Figure 7: VMs count by project leader

This chart also illustrates the proportion of launched VM instances by project Leader. The same data in tabular form follows.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus

- Hostname: foxtrot

Table 6.2: VMs count by project leader

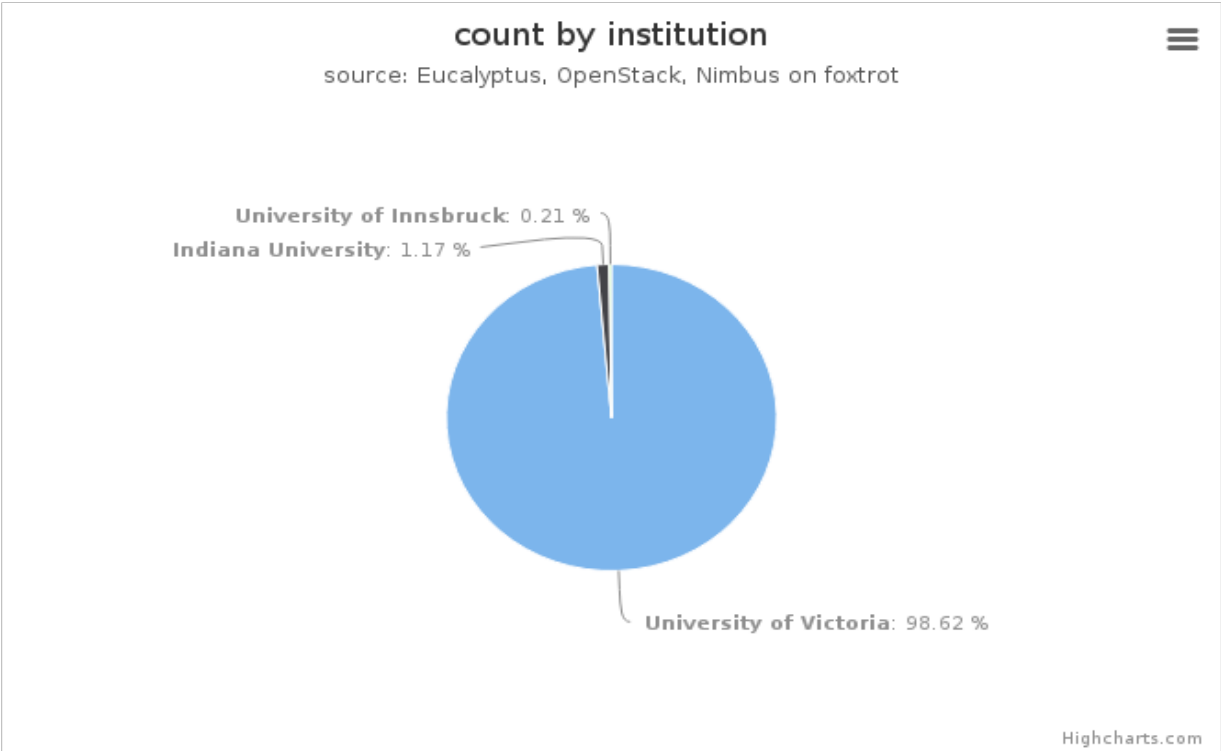| Projectleader	Value
Randall Sobie	927
Gregor von Laszewski	11
Thomas Fahringer	2

Figure 8: VMs count by institution

This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus

- Hostname: foxtrot

Table 6.3: VMs count by institution

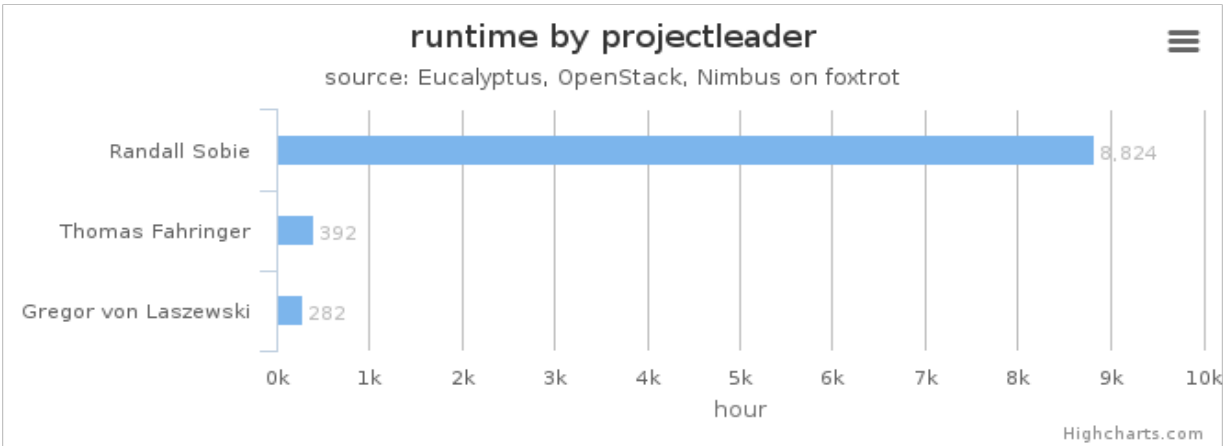| Institution	Value
University of Victoria	927
Indiana University	11
University of Innsbruck	2

Figure 9: Wall time (hours) by project leader

This chart illustrates proportionate total run times by project leader.

- Period: January 01 – March 31, 2014

- Cloud(IaaS): nimbus

- Hostname: foxtrot

6.3 System information

System information shows utilization distribution as to VMs count and wall time. Each cluster represents a compute node.
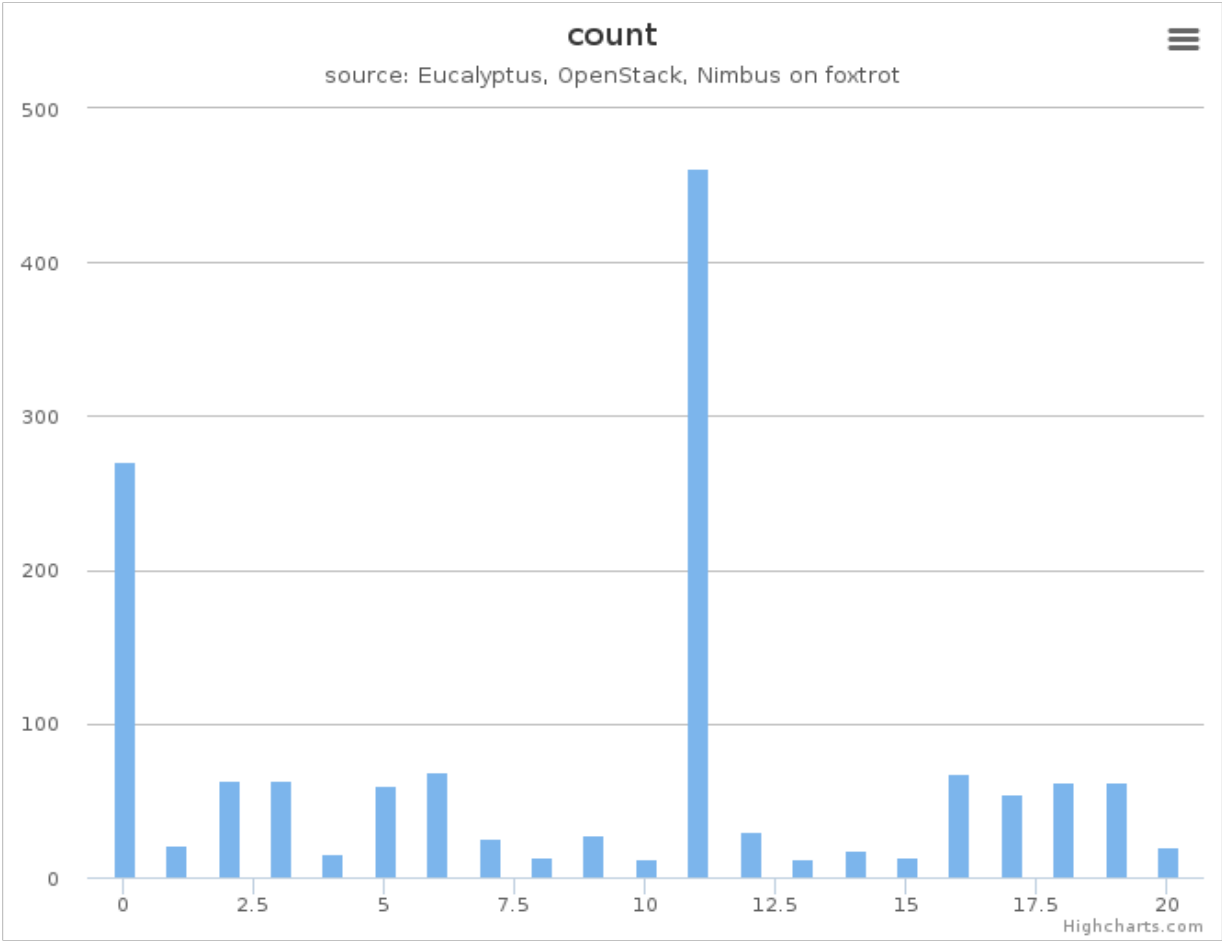
Figure 10: VMs count by systems (compute nodes) in Cluster (foxtrot)

This column chart represents VMs count among systems.

- Period: January 01 – March 31, 2014

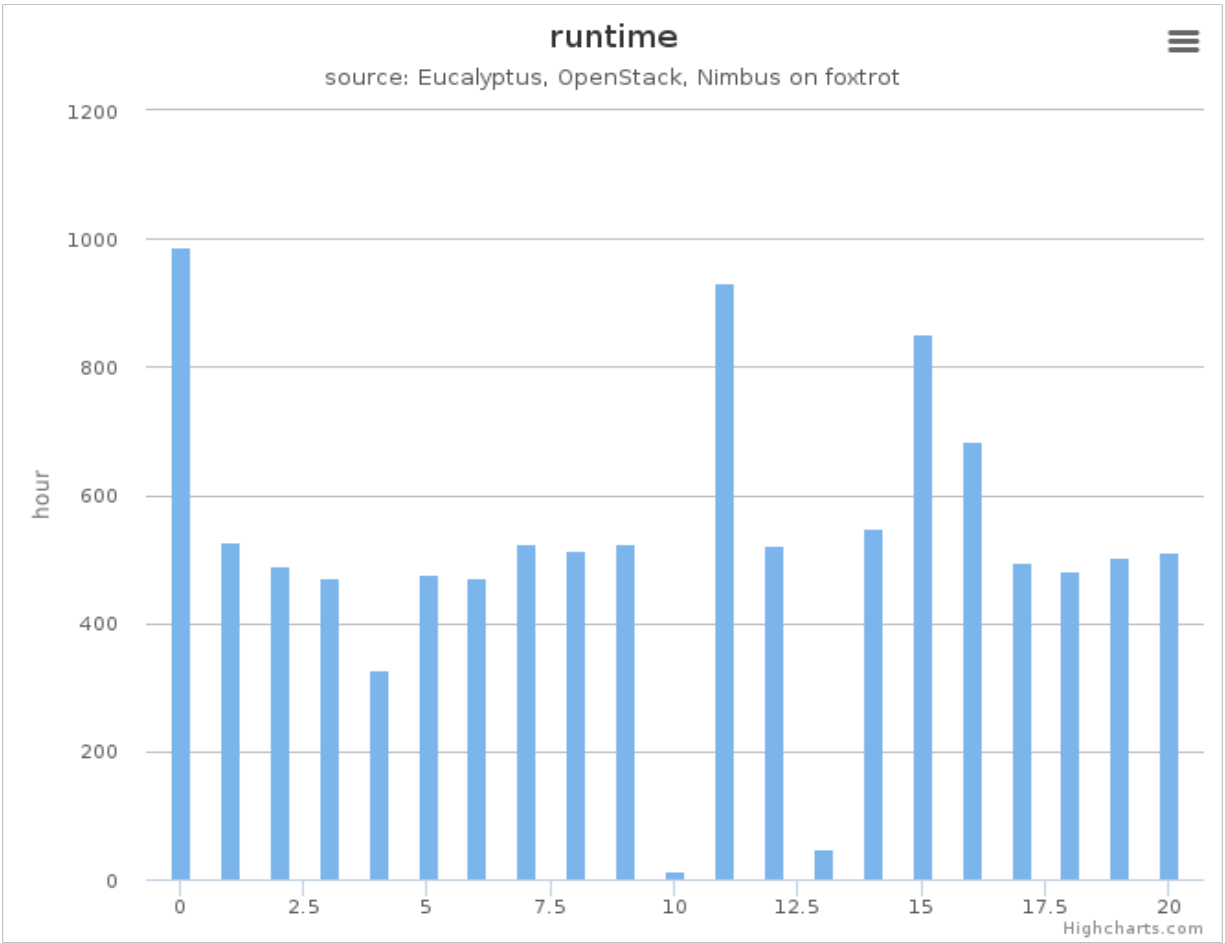- Cloud(IaaS): nimbus

- Hostname: foxtrot

Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (foxtrot)
This column chart represents wall time among systems.

- Period: January 01 – March 31, 2014
- Cloud(IaaS): nimbus
- Hostname: foxtrot

USER TABLE (CLOUD)

This table provides wall time usage of cloud users with the project id (first appearance). - Cloud:

- india.futuregrid.org: openstack, eucalyptus

- sierra.futuregrid.org: nimbus, (openstack expected soon)

- hotel.futuregrid.org: nimbus

- alamo.futuregrid.org: nimbus, (openstack expected soon)

- foxtrot.futuregrid.org: nimbus

EIGHT

USER TABLE (HPC)

This table provides detailed information on users, including average job size, average wait time, and average run time. - HPC: alamo, bravo, hotel, india xray, sierra - Data obtained from ubmod.futuregrid.org **** Missing user name is represented as a hidden userid under asterisks.