FG Resource Report

Release 0.4

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CONTENTS

Date Created: Fri, 03 Jan 2014

SUMMARY REPORT (ALL)

- Period: July 01 – December 23, 2013

- 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

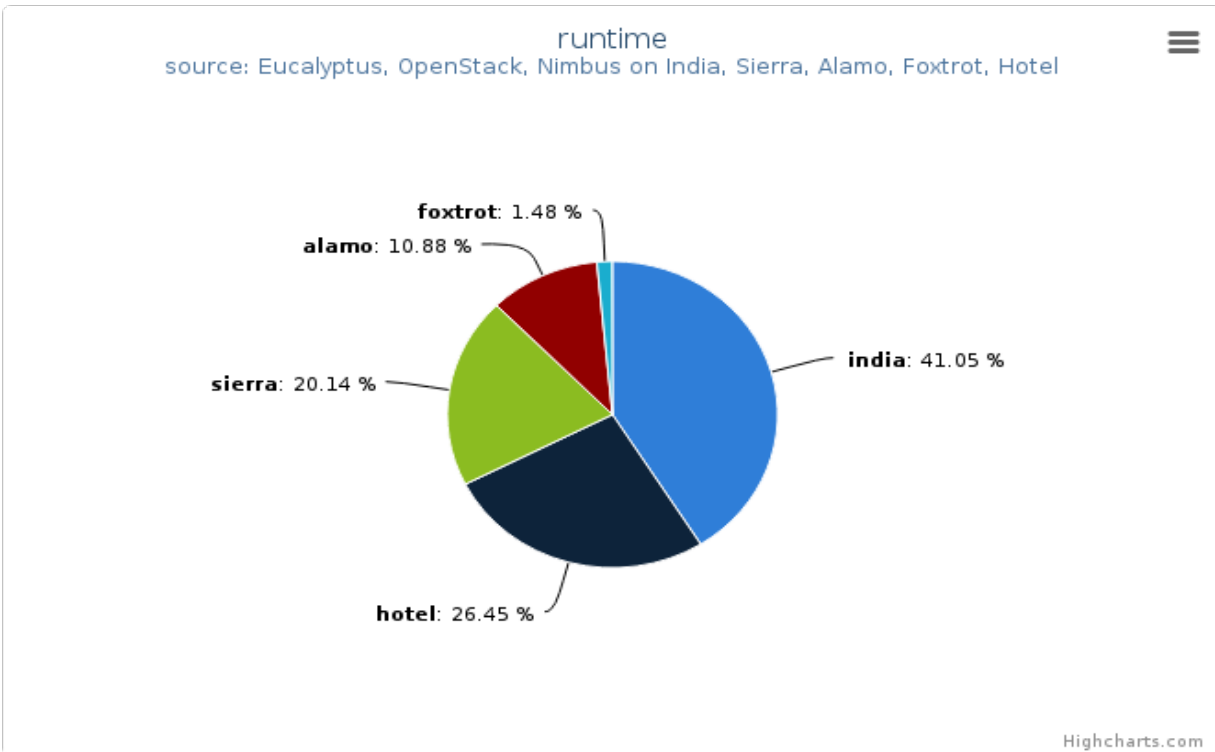## 1.1 Wall Hours by Clusters (Total, monthly)

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

- Period: July 01 – December 23, 2013
- **Cloud:**
    - india: Eucalyptus, Openstack
    - sierra: Eucalyptus, Nimbus
    - hotel: Nimbus
    - alamo: Nimbus
    - foxtrot: Nimbus

Table 1.1: Wall time (hours) by Clusters

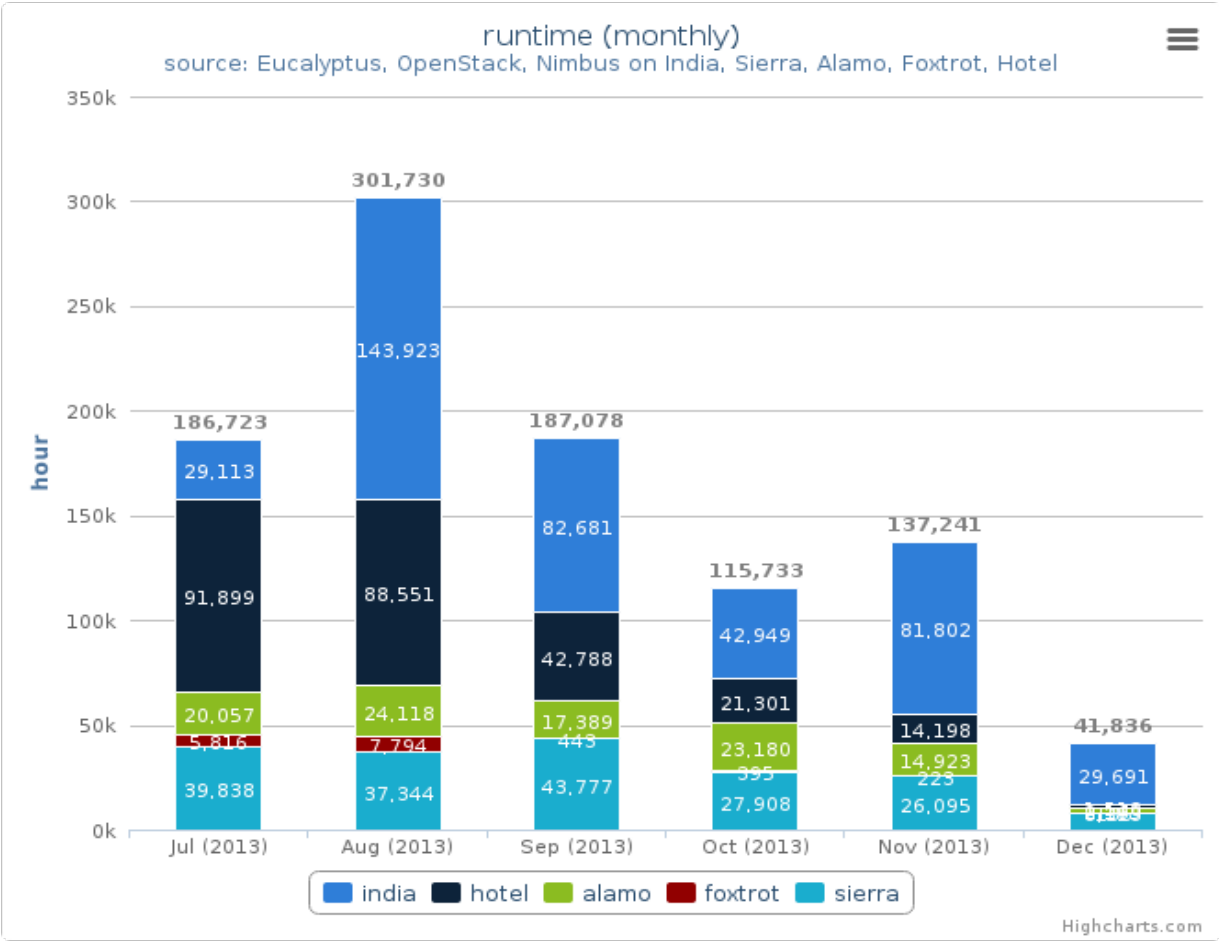| Total	Value
india	410152.0
hotel	264335.0
sierra	201200.0
alamo	108706.0
foxtrot	14807.0

Figure 2. Wall time (hours) by Clusters (monthly)
This stacked column chart represents average monthly usage of wall time (hours).

- Period: July 01 – December 23, 2013
- **Cloud:**

    - india: Eucalyptus, Openstack

    - sierra: Eucalyptus, Nimbus

    - hotel: Nimbus

    - alamo: Nimbus

    - foxtrot: Nimbus

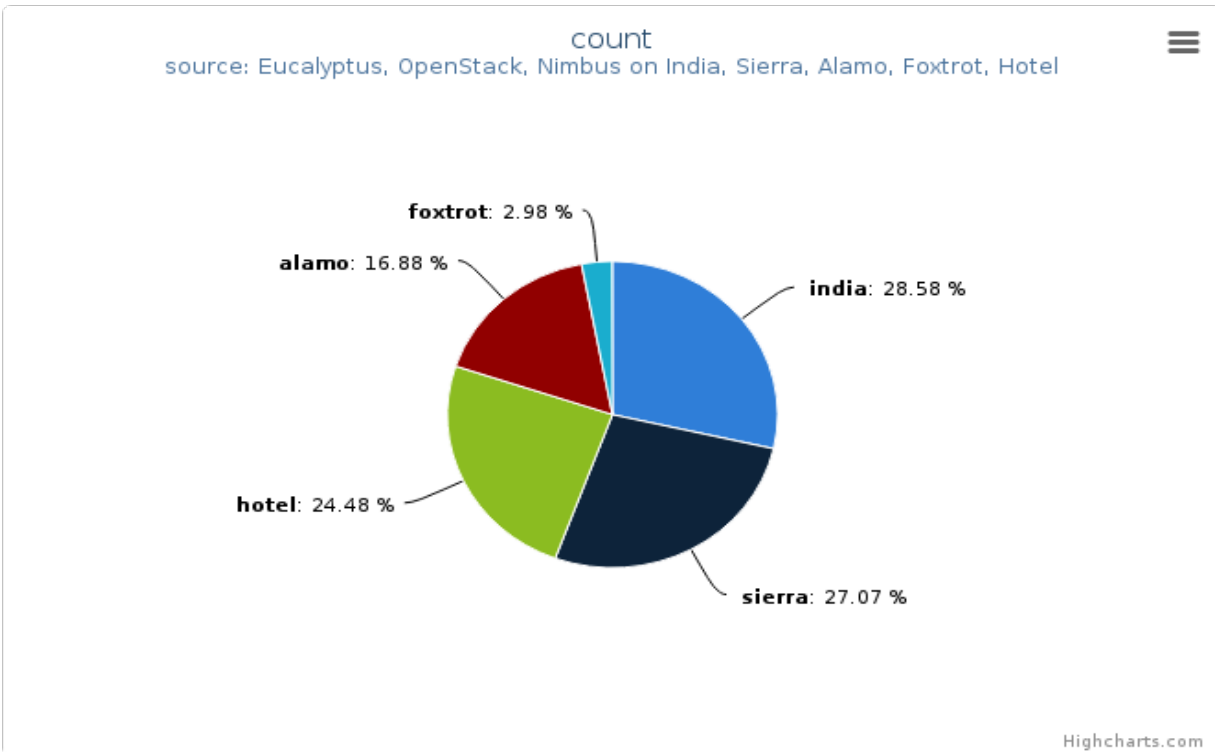## 1.2 VM Count by Clusters (Total, monthly)

Figure 3. VMs count by Clusters

This chart represents overall VM instances count during the period.

- Period: July 01 – December 23, 2013

- **Cloud:**

    - india: Eucalyptus, Openstack

    - sierra: Eucalyptus, Nimbus

    - hotel: Nimbus

    - alamo: Nimbus

    - foxtrot: Nimbus

Table 1.2: VM instance count by Clusters

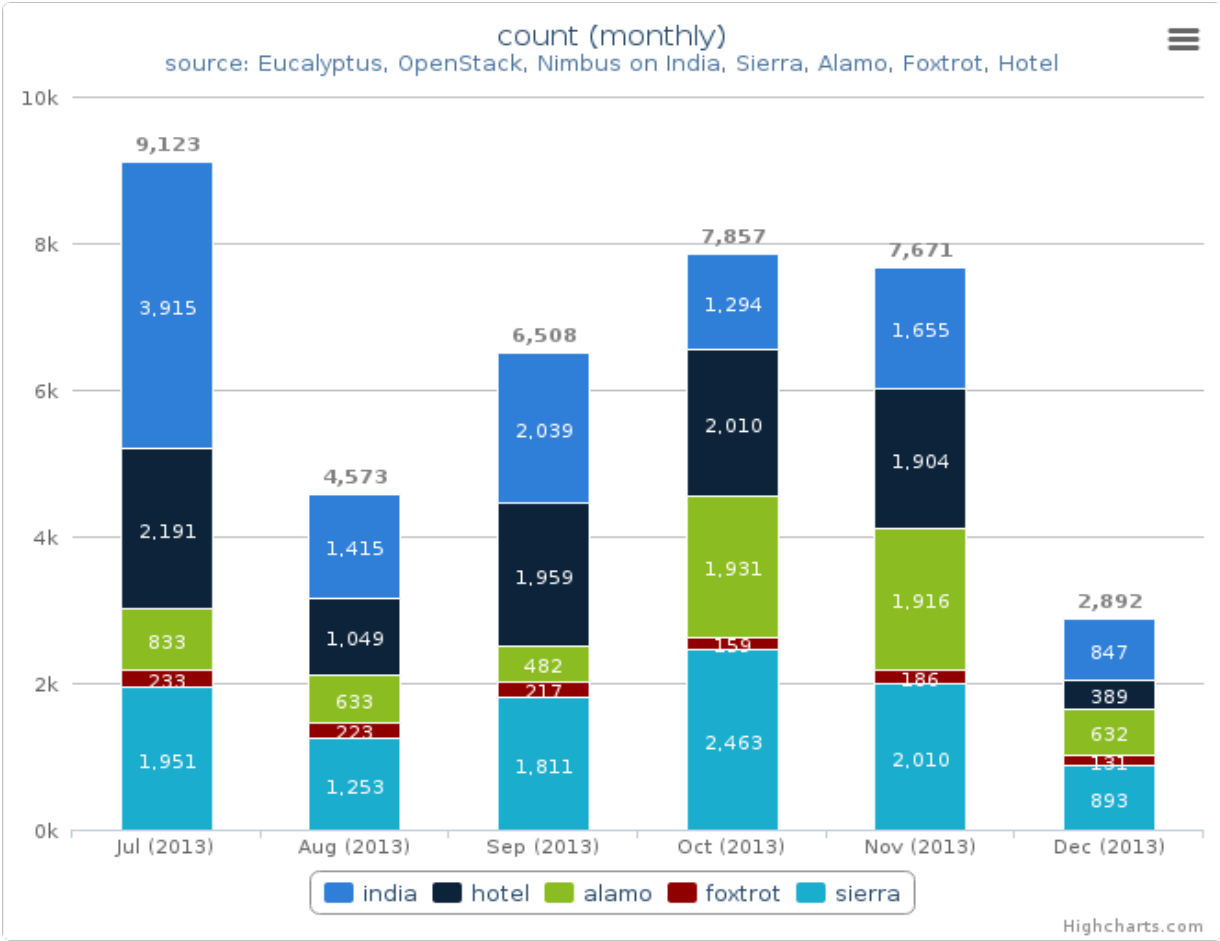| Total	Value
india	10706
sierra	10139
hotel	9169
alamo	6324
foxtrot	1118

Figure 4. VMs count by Clusters (monthly)

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

- Period: July 01 – December 23, 2013
- **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: July 01 – December 23, 2013
- **Cloud:**
    - india: Eucalyptus, Openstack
    - sierra: Eucalyptus, Nimbus
    - hotel: Nimbus
    - alamo: Nimbus
    - foxtrot: Nimbus

Table 1.3: Unique
User count by Clus-
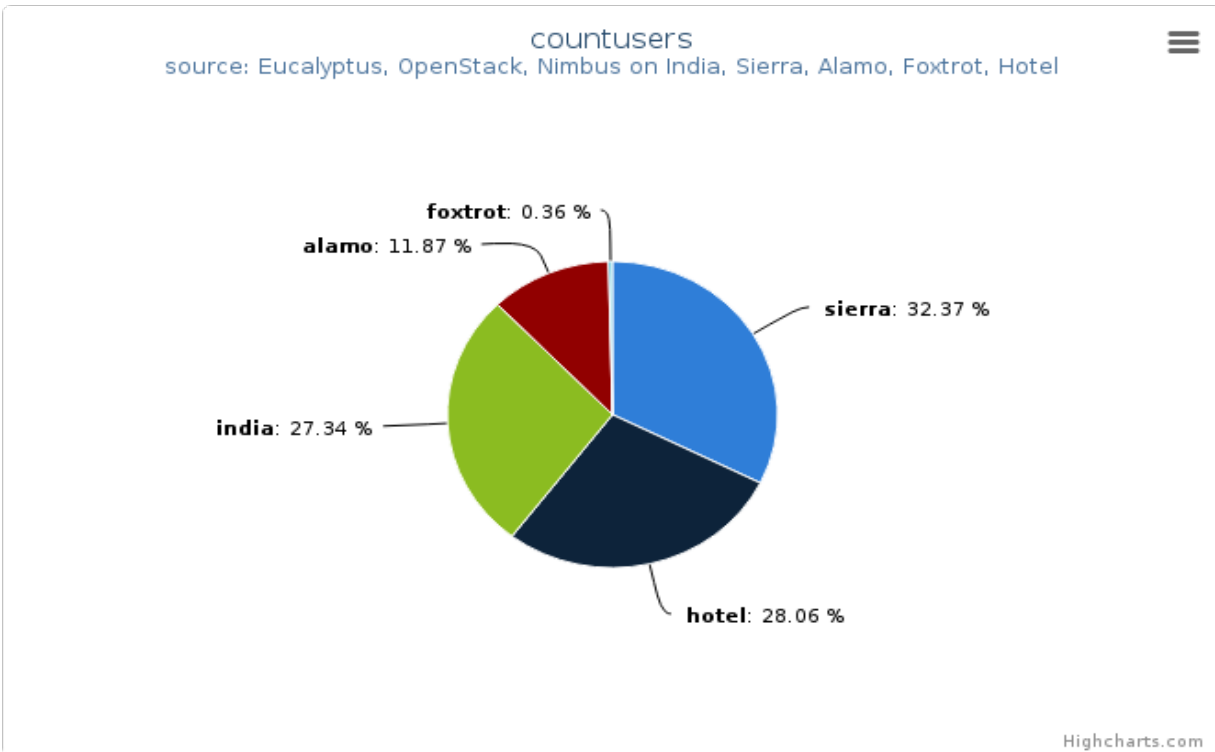ters

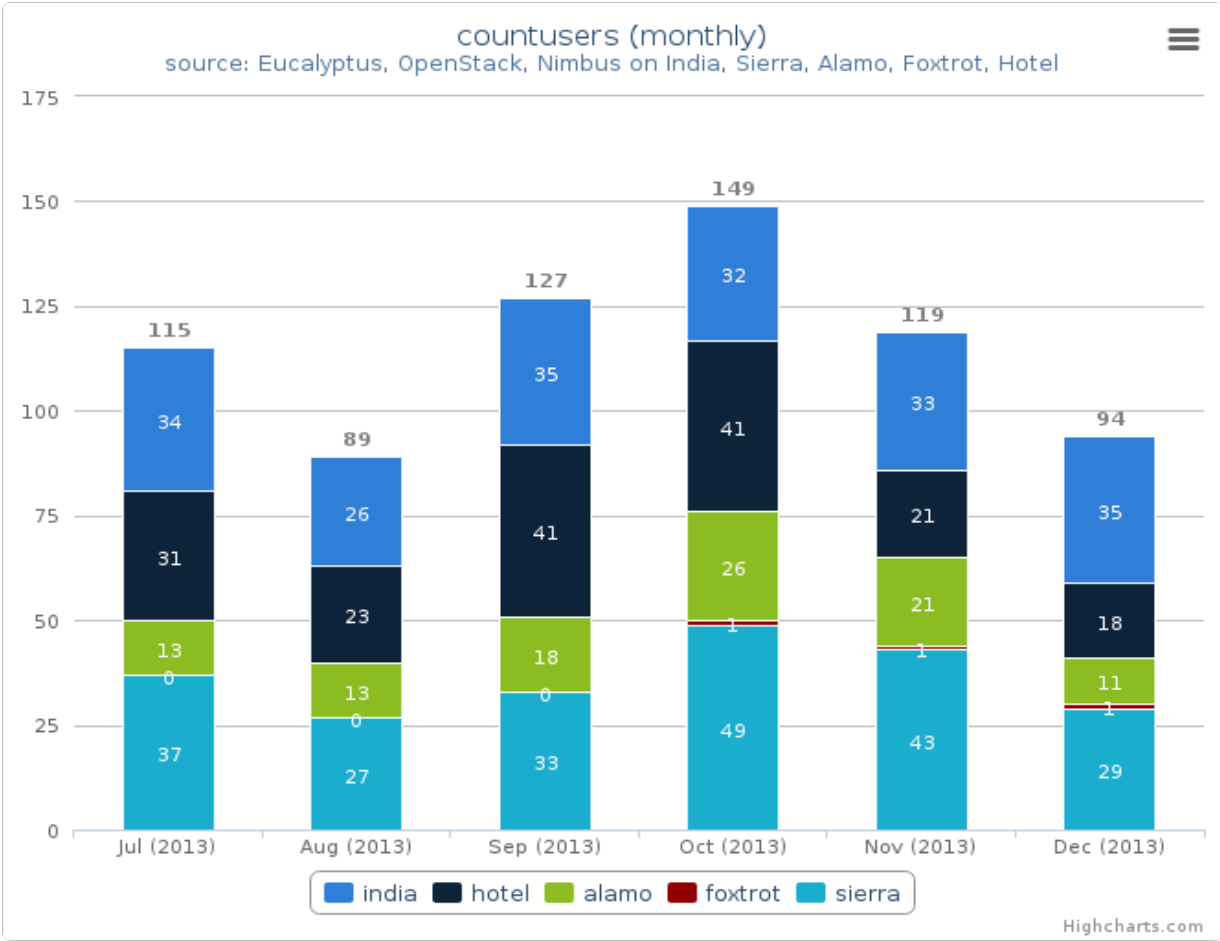| Total	Value
sierra	90
hotel	78
india	76
alamo	33
foxtrot	1

Figure 6. Users count by Clusters (Monthly)

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

- Period: July 01 – December 23, 2013
- **Cloud:**
    - india: Eucalyptus, Openstack
    - sierra: Eucalyptus, Nimbus
    - hotel: Nimbus
    - alamo: Nimbus
    - foxtrot: Nimbus

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- Period: July 01 – December 23, 2013

- 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

2.1 Histogram

2.1.1 Summary (Monthly)
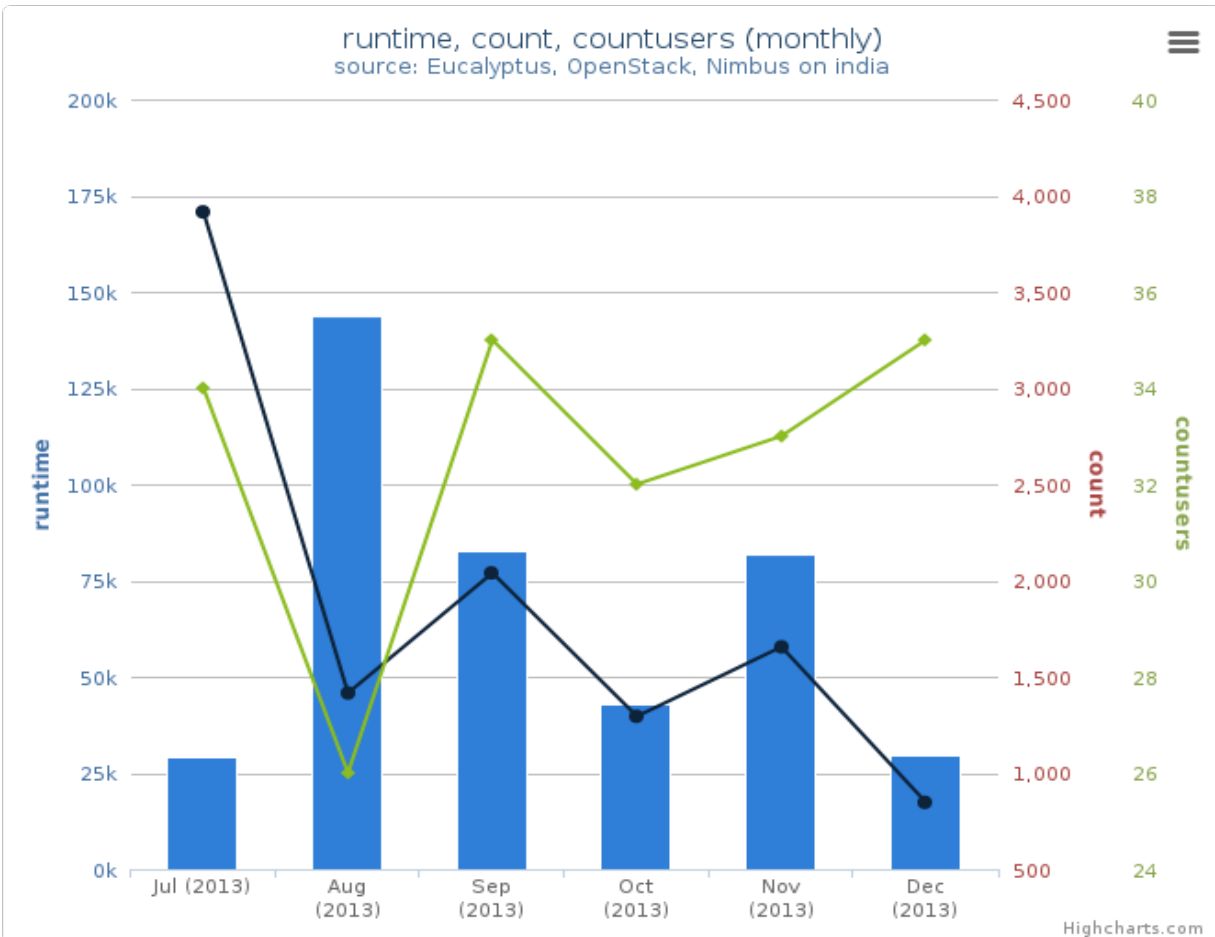
Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)
This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: July 01 – December 23, 2013
- 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

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: July 01 – December 23, 2013
- 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: July 01 – December 23, 2013

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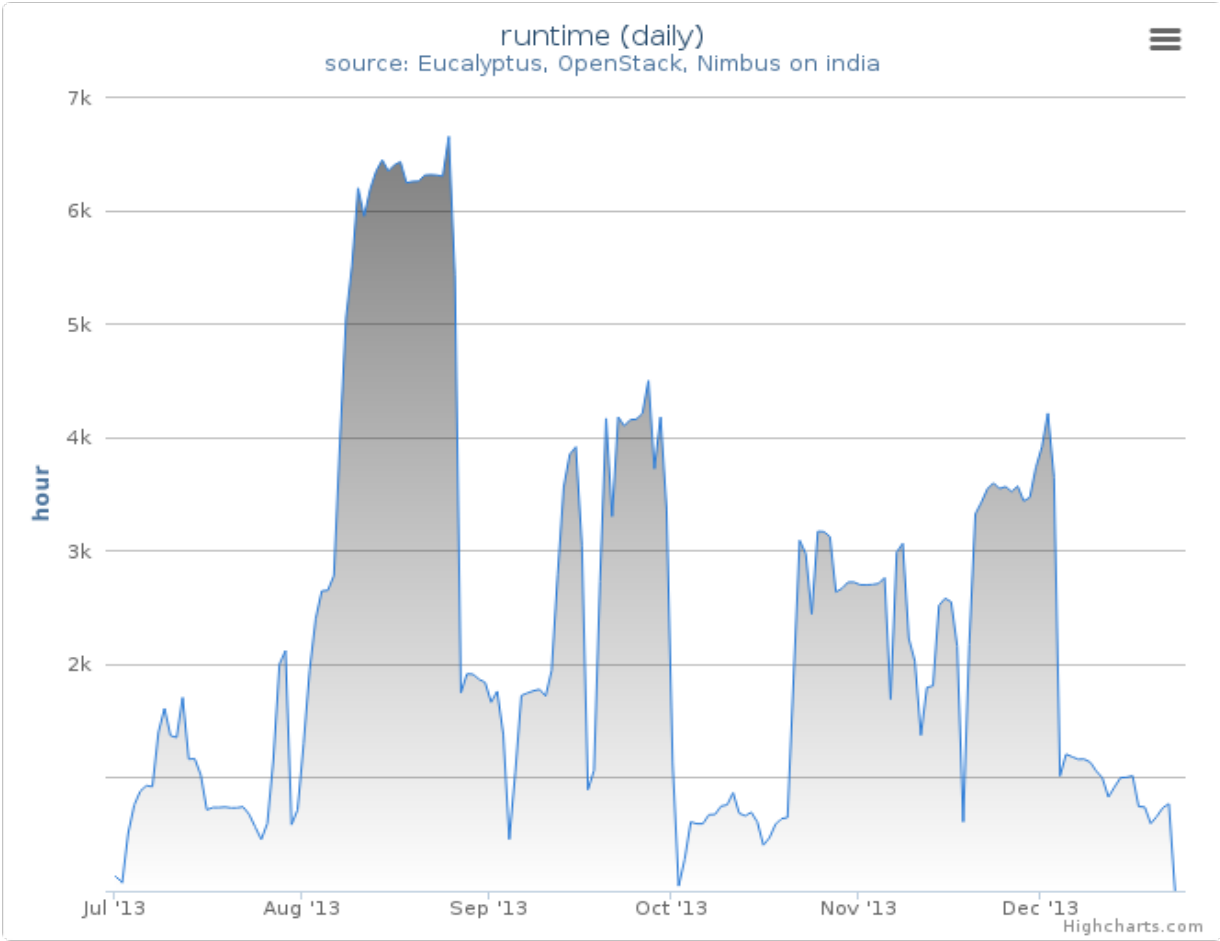
- Hostname: india

Figure 4: Wall time (hours)
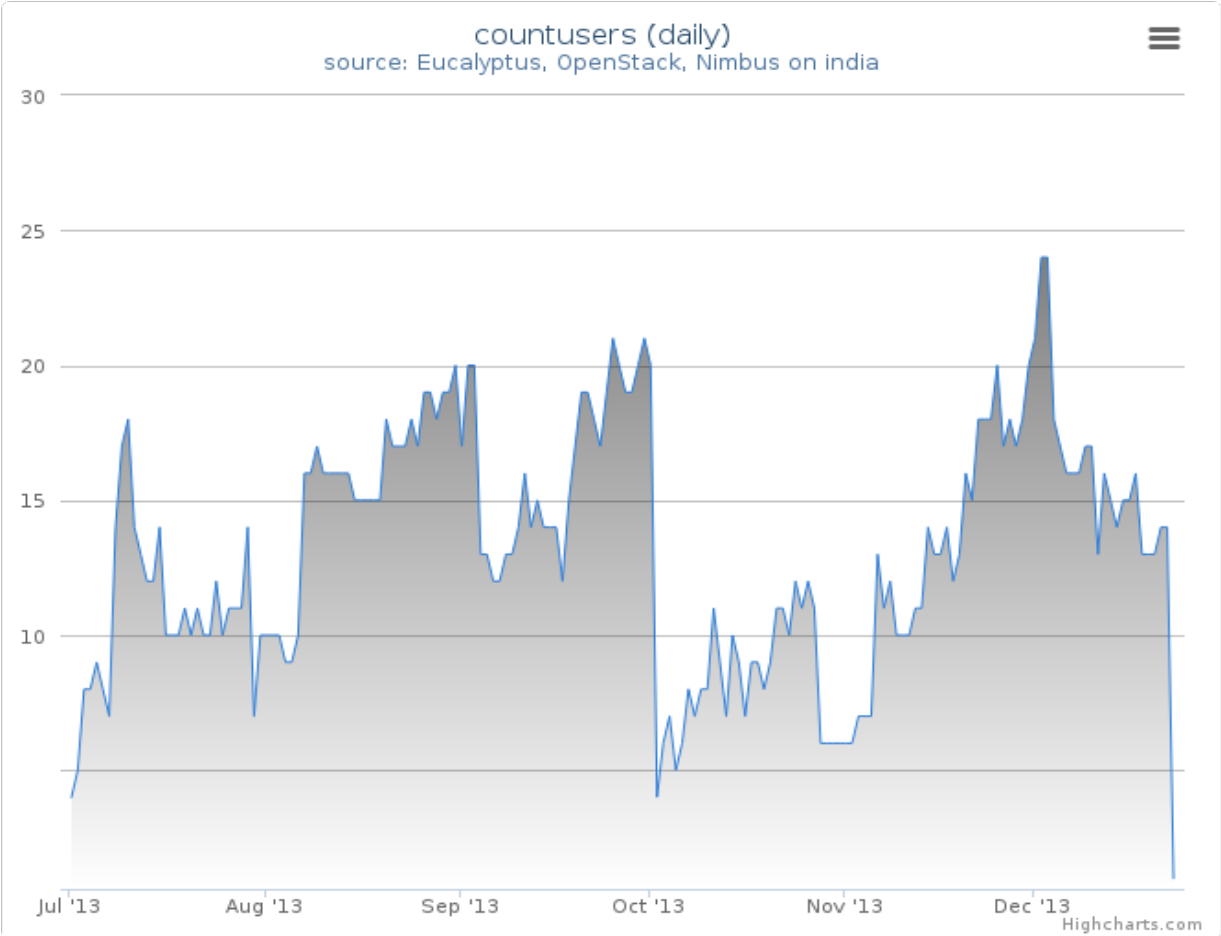
This time series chart represents daily wall time (hours) for cloud services and shows historical changes during the period.

- Period: July 01 – December 23, 2013

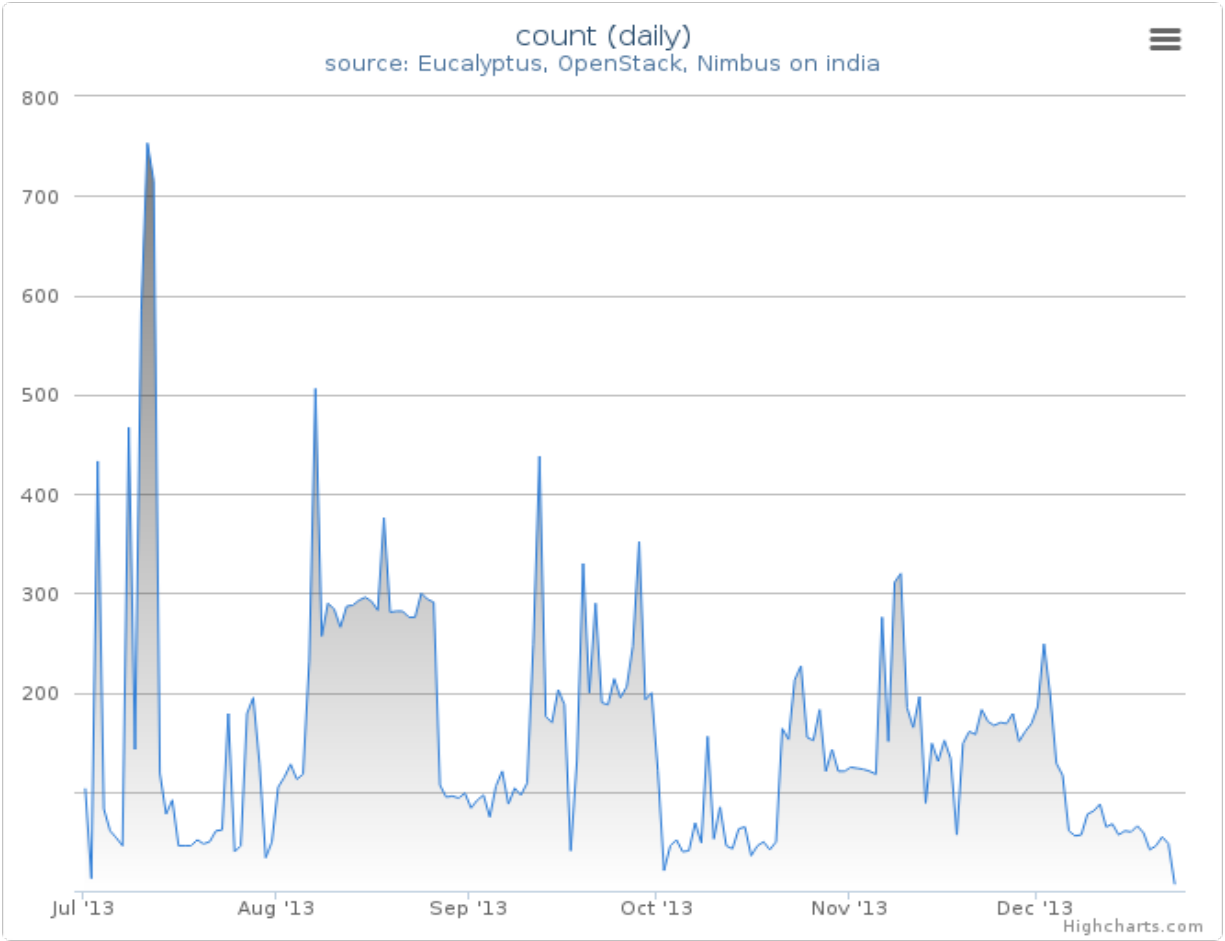- Cloud(IaaS): openstack, eucalyptus

- Hostname: india

2.2 Distribution
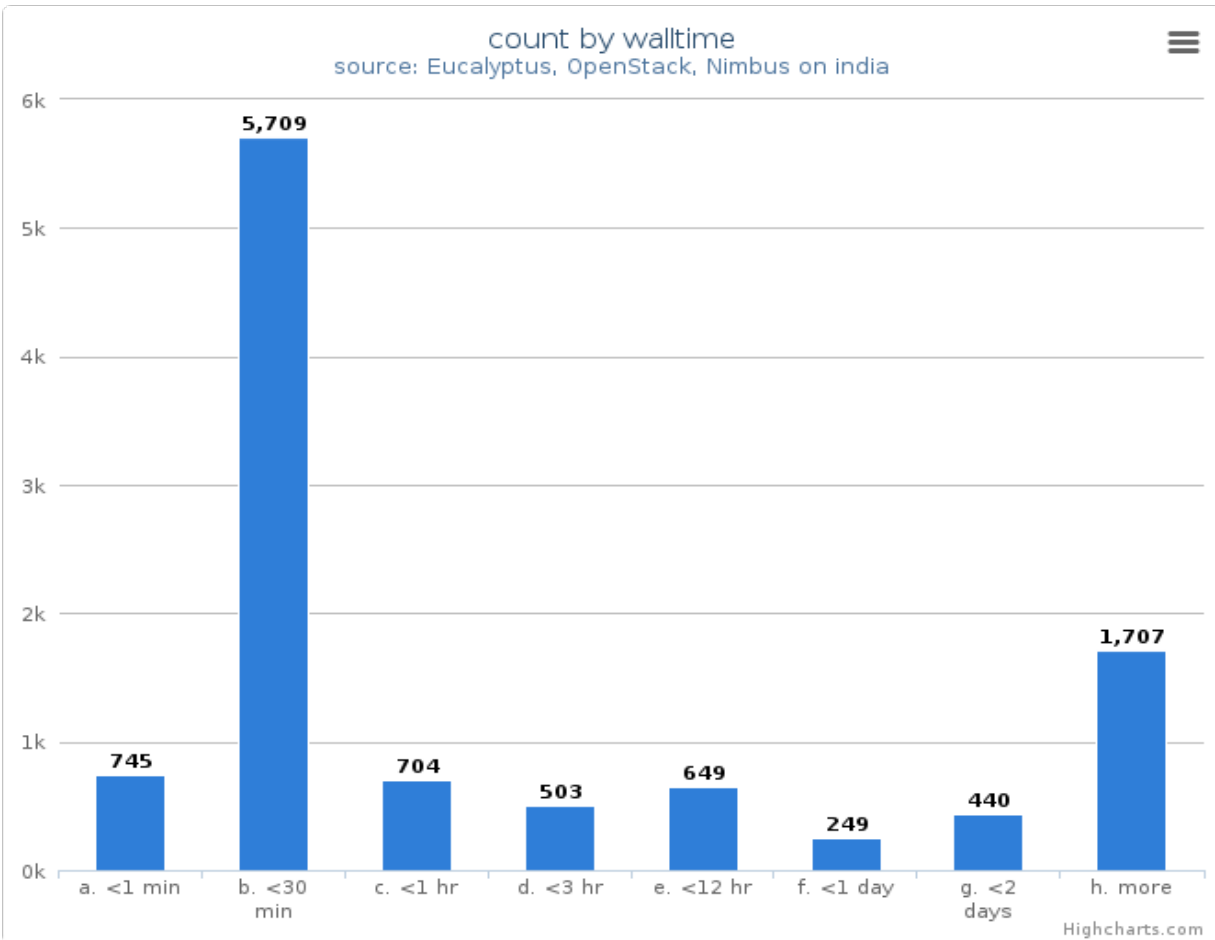
Figure 5: VM count by wall time

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

- Period: July 01 – December 23, 2013

- 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: July 01 – December 23, 2013

- Cloud(IaaS): openstack, eucalyptus

- Hostname: india

Table 2.1: VMs count by project

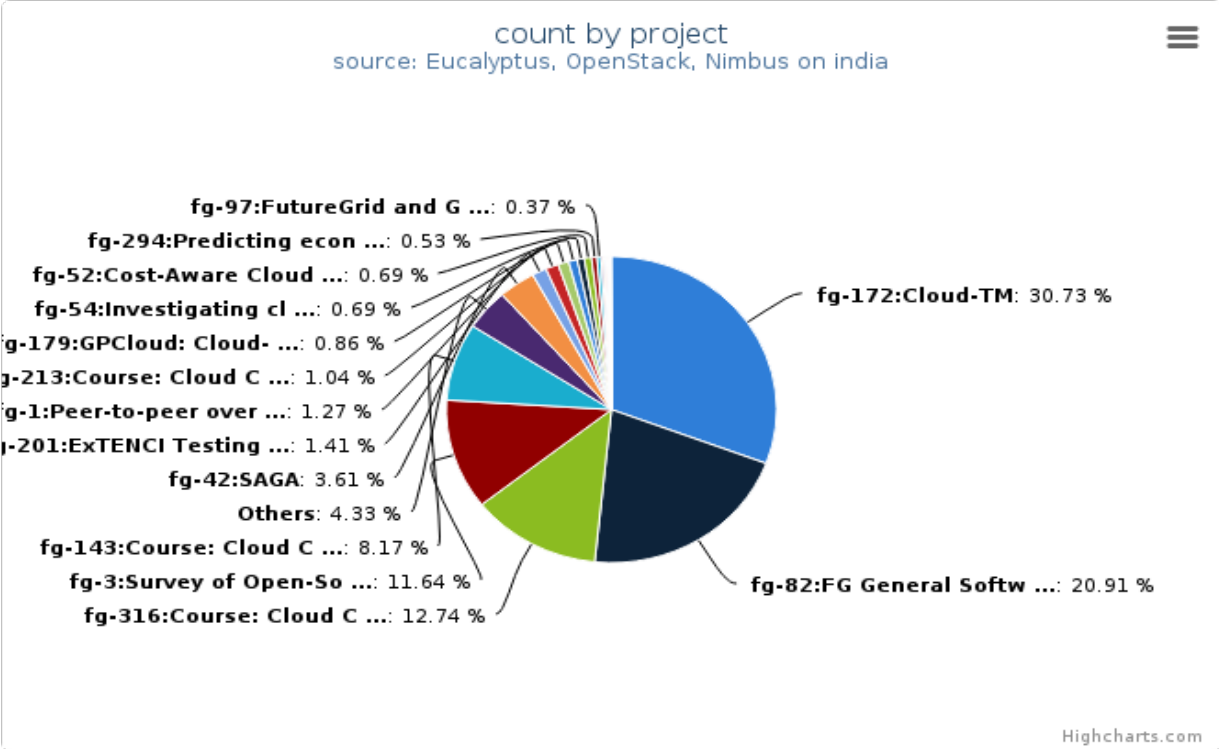| Project	Value
fg-172:Cloud-TM	1505
fg-82:FG General Software Development	1024
fg-316:Course: Cloud Computing Class - third edition	624
fg-3:Survey of Open-Source Cloud Infrastructure using FutureGrid Testbed	570
fg-143:Course: Cloud Computing for Data Intensive Science Class	400
Others	212
fg-42:SAGA	177
fg-201:ExTENCI Testing, Validation, and Performance	69
fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters	62
fg-213:Course: Cloud Computing class - second edition	51
fg-179:GPCloud: Cloud-based Automatic Repair of Real-World Software Bugs	42
fg-54:Investigating cloud computing as a solution for analyzing particle physics data	34
fg-52:Cost-Aware Cloud Computing	34
fg-294:Predicting economic activities using social media	26
fg-97:FutureGrid and Grid'5000 Collaboration	18
fg-306:Eucalyptus and Openstack	11
fg-136:JGC-DataCloud-2012 paper experiments	9
fg-253:Characterizing Performance of Infrastructure Clouds	8
fg-60:Wide area distributed file system for MapReduce applications on FutureGrid platform	5
fg-233:CINET - A Cyber-Infrastructure for Network Science	5
fg-20:Development of an information service for FutureGrid	4
fg-149:Metagenome analysis of benthic marine invertebrates	2
fg-241:Course: Science Cloud Summer School 2012	2
fg-249:Large Scale Computing Infrastructure 2012 Master class	1
fg-132:Large scale data analytics	1
fg-189:Pegasus development and improvement platform	1
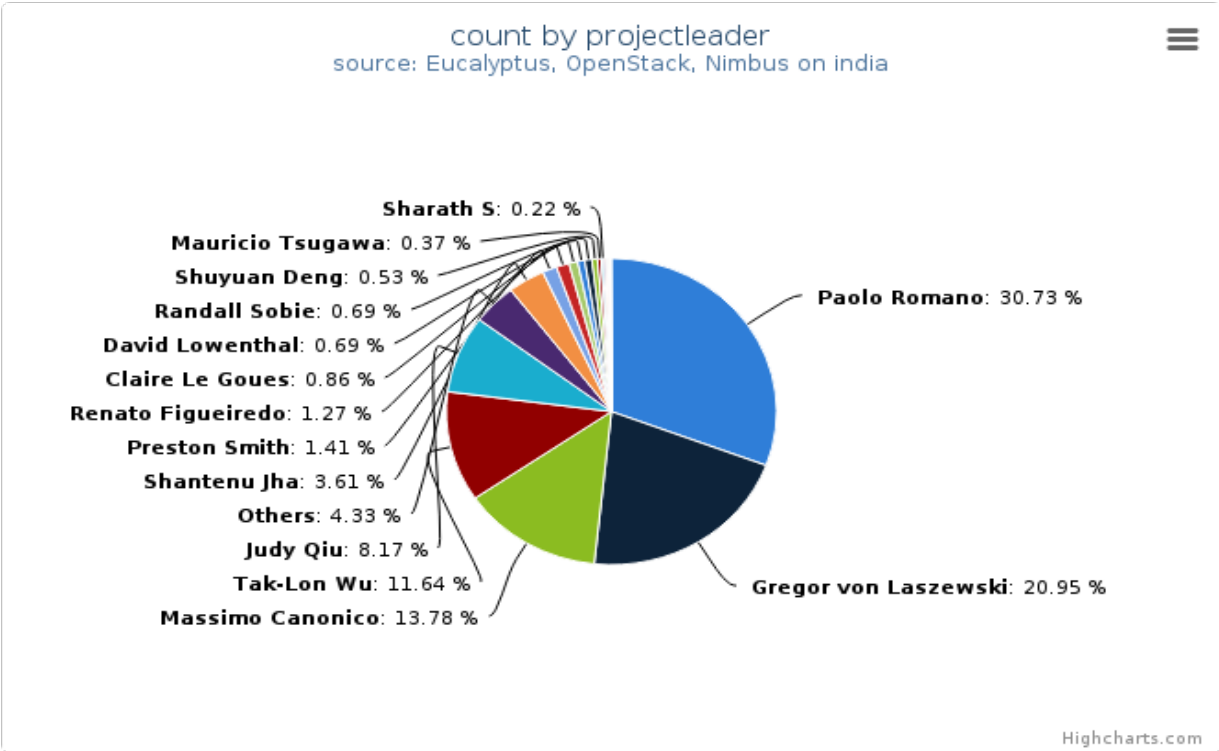
Figure 7: VMs count by project leader

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

- Period: July 01 – December 23, 2013

- Cloud(IaaS): openstack, eucalyptus

- Hostname: india

Table 2.2: VMs count by project
leader

| Projectleader	Value
Paolo Romano	1505
Gregor von Laszewski	1026
Massimo Canonico	675
Tak-Lon Wu	570
Judy Qiu	400
Others	212
Shantenu Jha	177
Preston Smith	69
Renato Figueiredo	62
Claire Le Goues	42
David Lowenthal	34
Randall Sobie	34
Shuyuan Deng	26
Mauricio Tsugawa	18
Sharath S	11
Mats Rynge	10
Paul Marshall	8
Keith Bisset	5
Lizhe Wang	5
Hyungro Lee	4
Jason Kwan	2
Yogesh Simmhan	1
Sergio Maffioletti	1
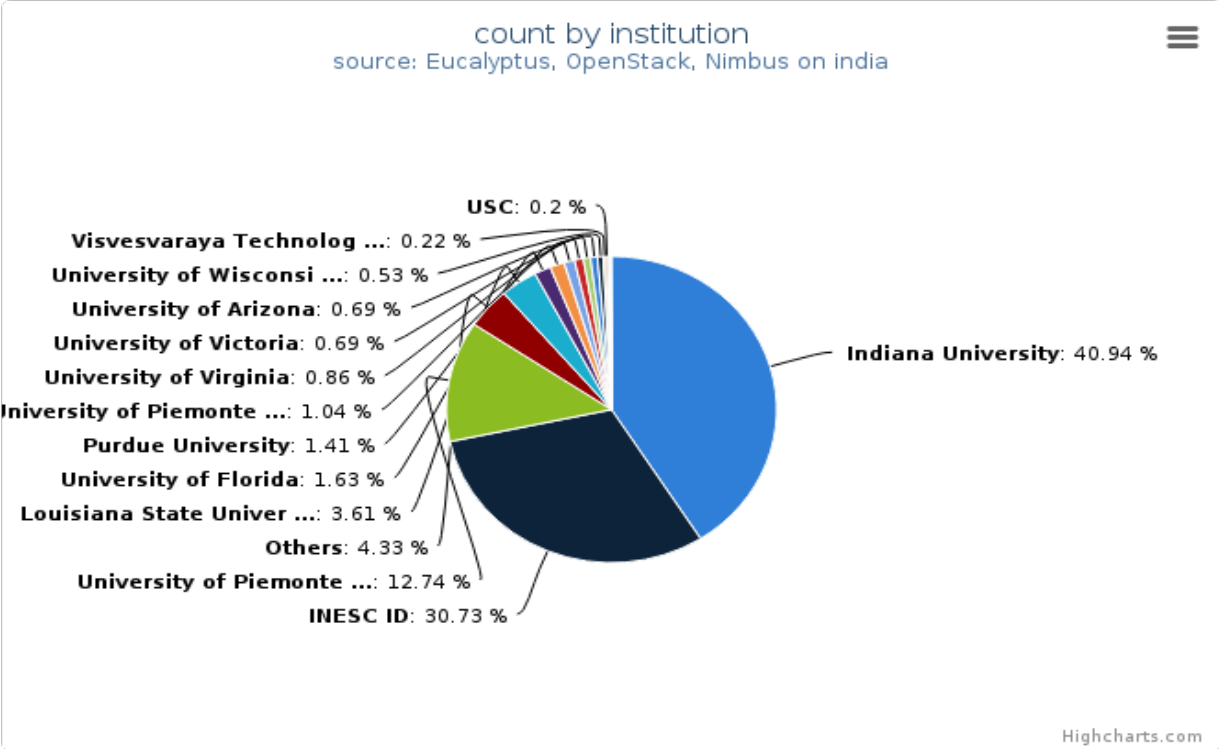
Figure 8: VMs count by institution

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

- Period: July 01 – December 23, 2013

- Cloud(IaaS): openstack, eucalyptus

- Hostname: india

Table 2.3: VMs count by institution

| Institution	Value
Indiana University	2005
INESC ID	1505
University of Piemonte Orientale, Computer Science Department	624
Others	212
Louisiana State University	177
University of Florida	80
Purdue University	69
University of Piemonte Orientale	51
University of Virginia	42
University of Victoria	34
University of Arizona	34
University of Wisconsin -Milwaukee	26
Visvesvaraya Technological University, Computer science organiza	11
USC	10
University of Colorado at Boulder	8
Virginia Tech	5
University of Utah	2
University of Southern California	1
University of Zurich	1
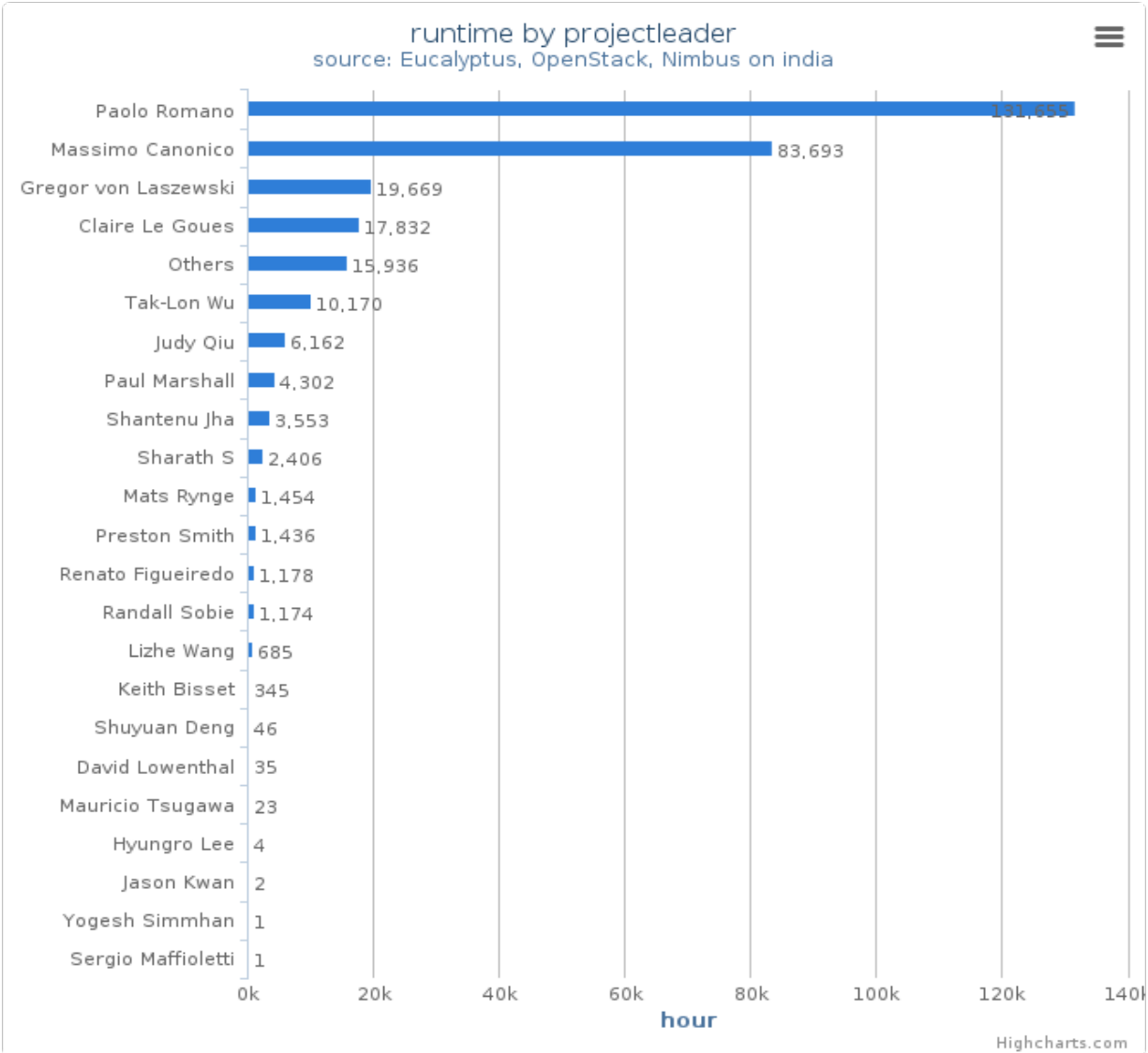
Figure 9: Wall time (hours) by project leader

This chart illustrates proportionate total run times by project leader.

- Period: July 01 – December 23, 2013

- Cloud(IaaS): openstack, eucalyptus

- Hostname: india

2.3 System information

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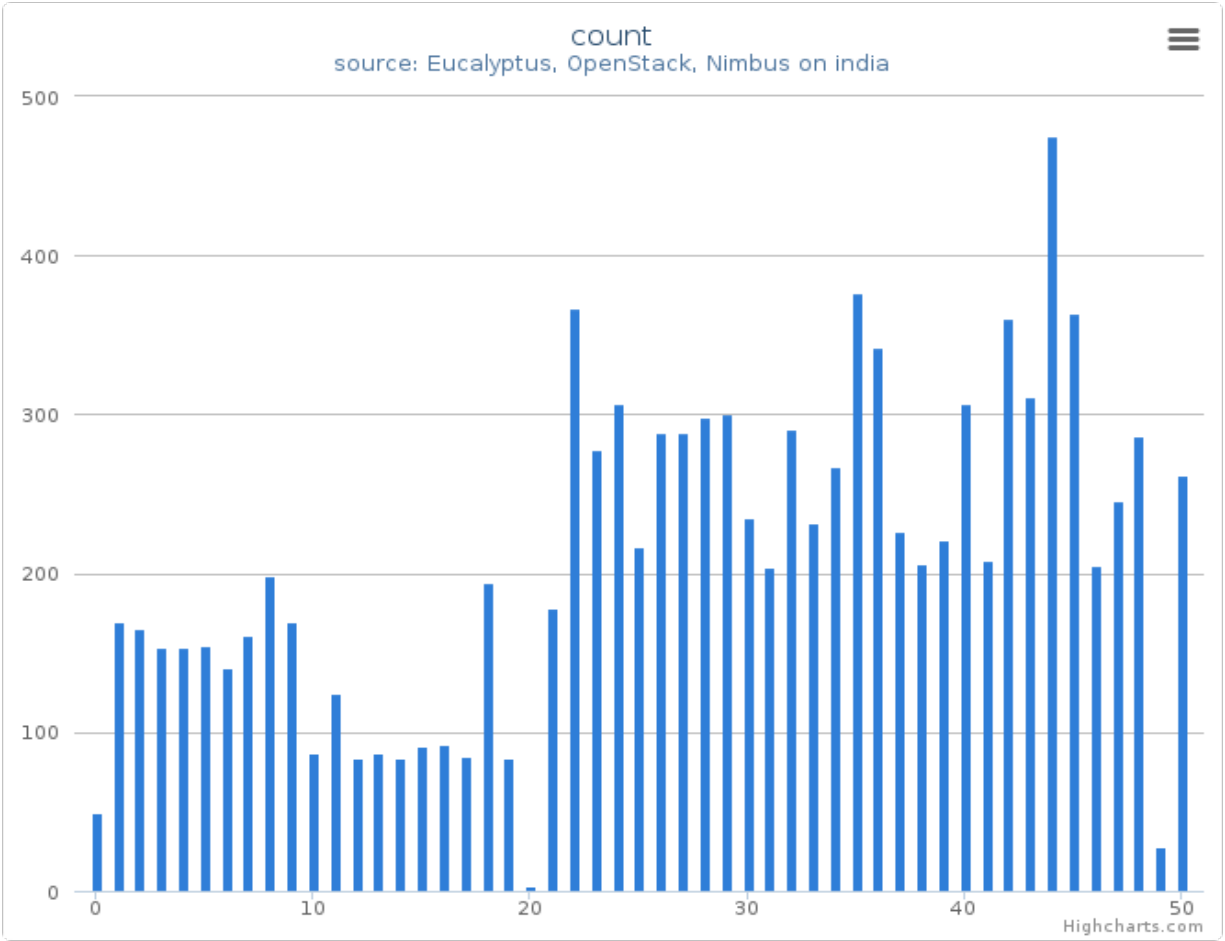
Figure 10: VMs count by systems (compute nodes) in Cluster (india)

This column chart represents VMs count among systems.

- Period: July 01 – December 23, 2013
- 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: July 01 – December 23, 2013

- Cloud(IaaS): openstack, eucalyptus

- Hostname: india

USAGE REPORT SIERRA

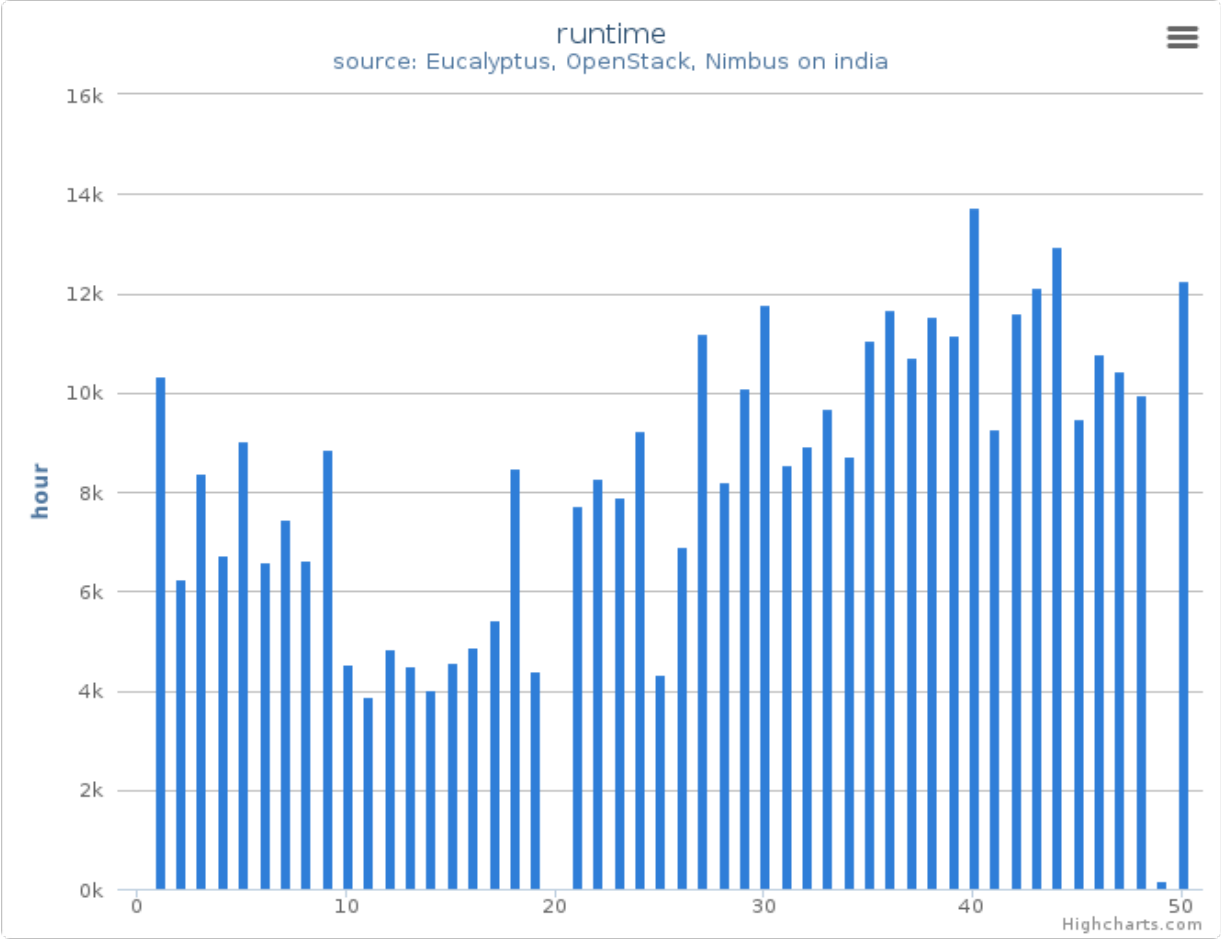- Period: July 01 – December 23, 2013

- 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

3.1 Histogram

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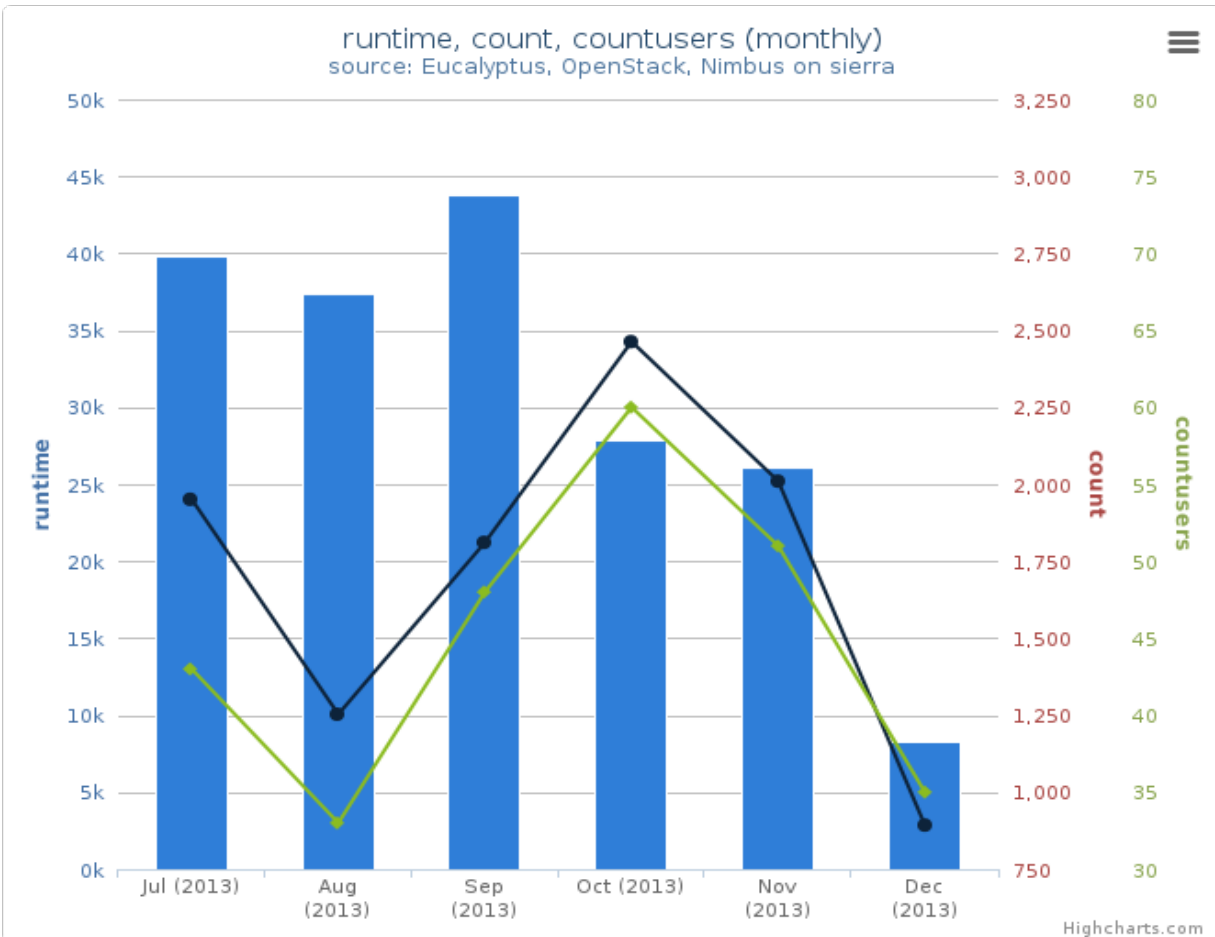
Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)

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

- Period: July 01 – December 23, 2013

- 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

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: July 01 – December 23, 2013

- 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: July 01 – December 23, 2013
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

Figure 4: Wall time (hours)
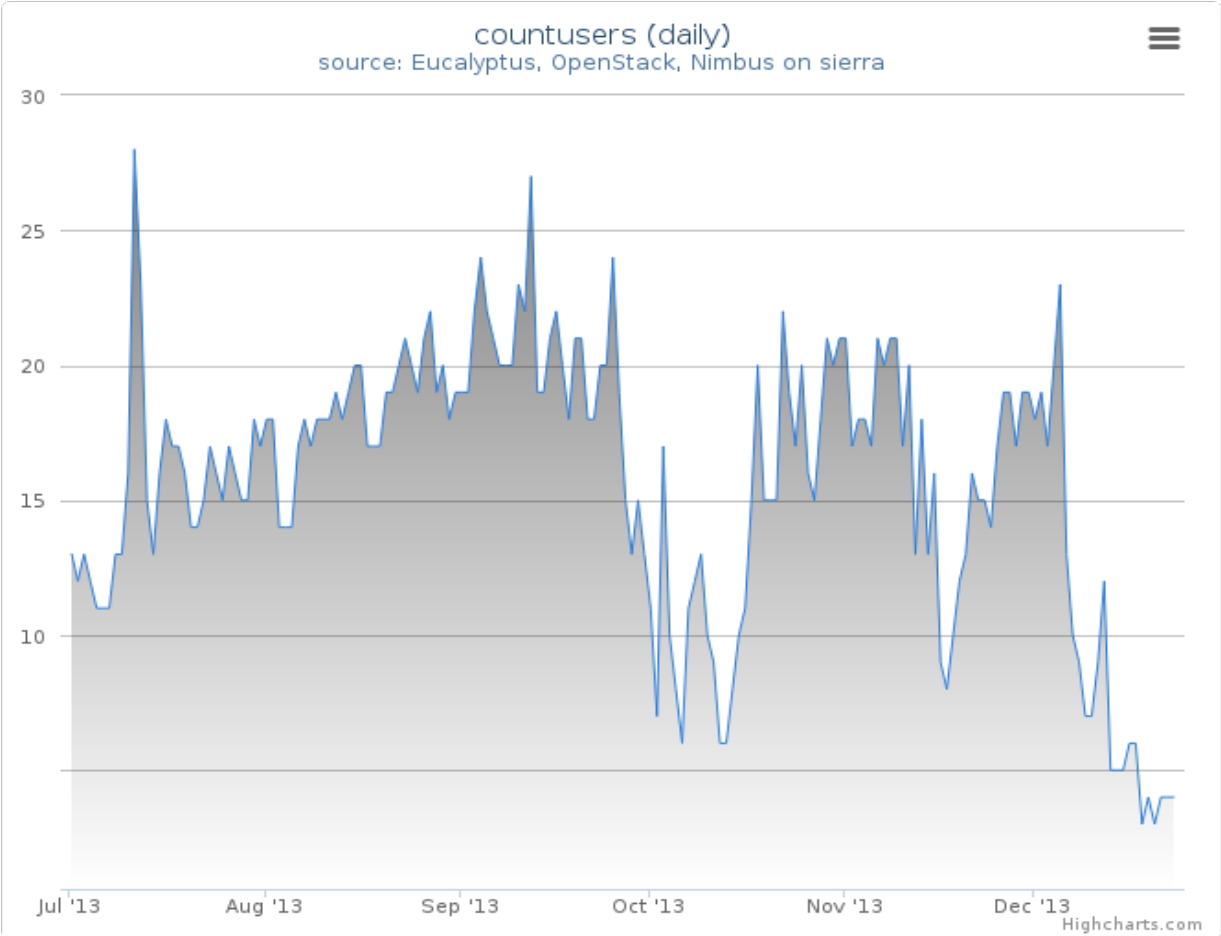
This time series chart represents daily wall time (hours) for cloud services and shows historical changes during the period.

- Period: July 01 – December 23, 2013

- Cloud(IaaS): nimbus, openstack, eucalyptus
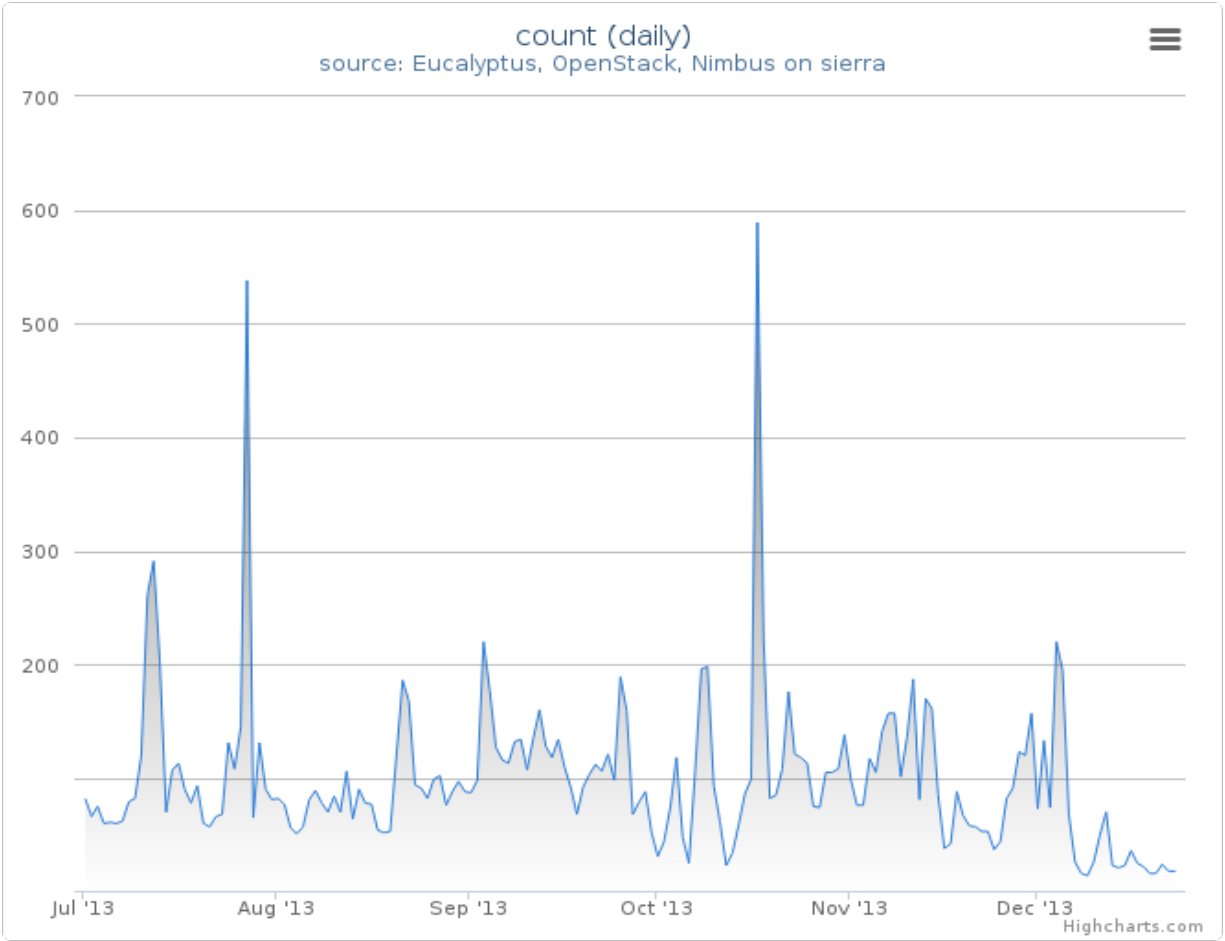
- Hostname: sierra
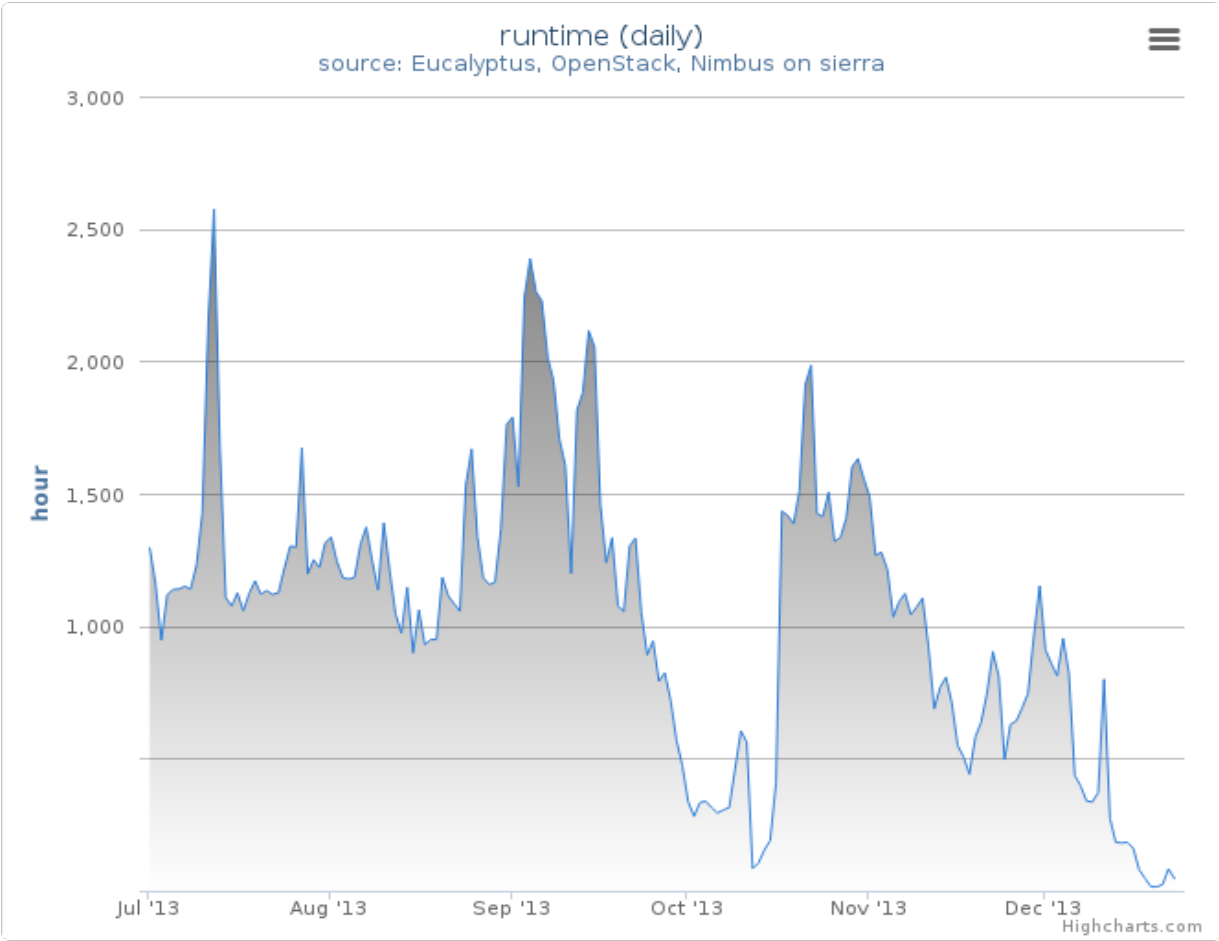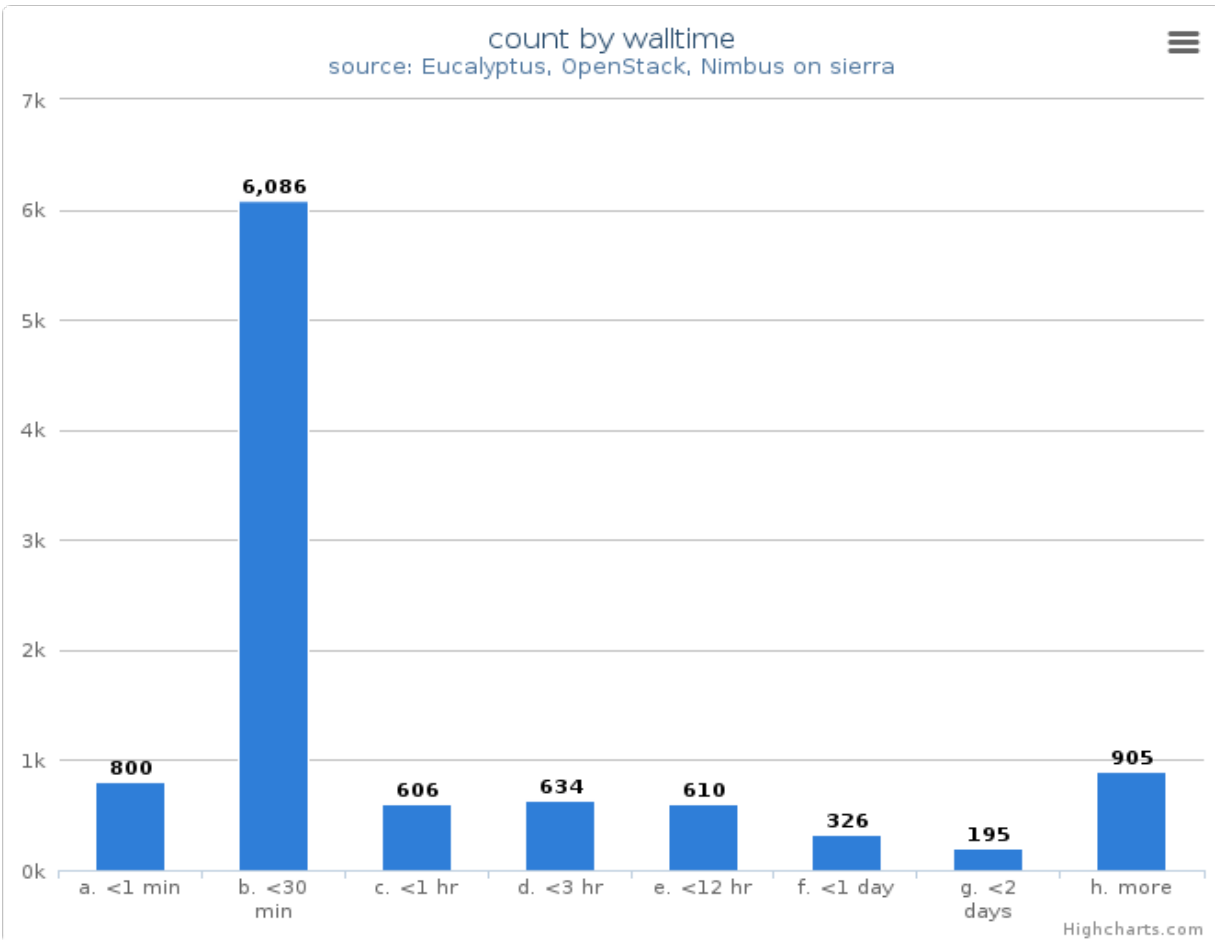
3.2 Distribution

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

- Period: July 01 – December 23, 2013

- Cloud(IaaS): nimbus, openstack, eucalyptus
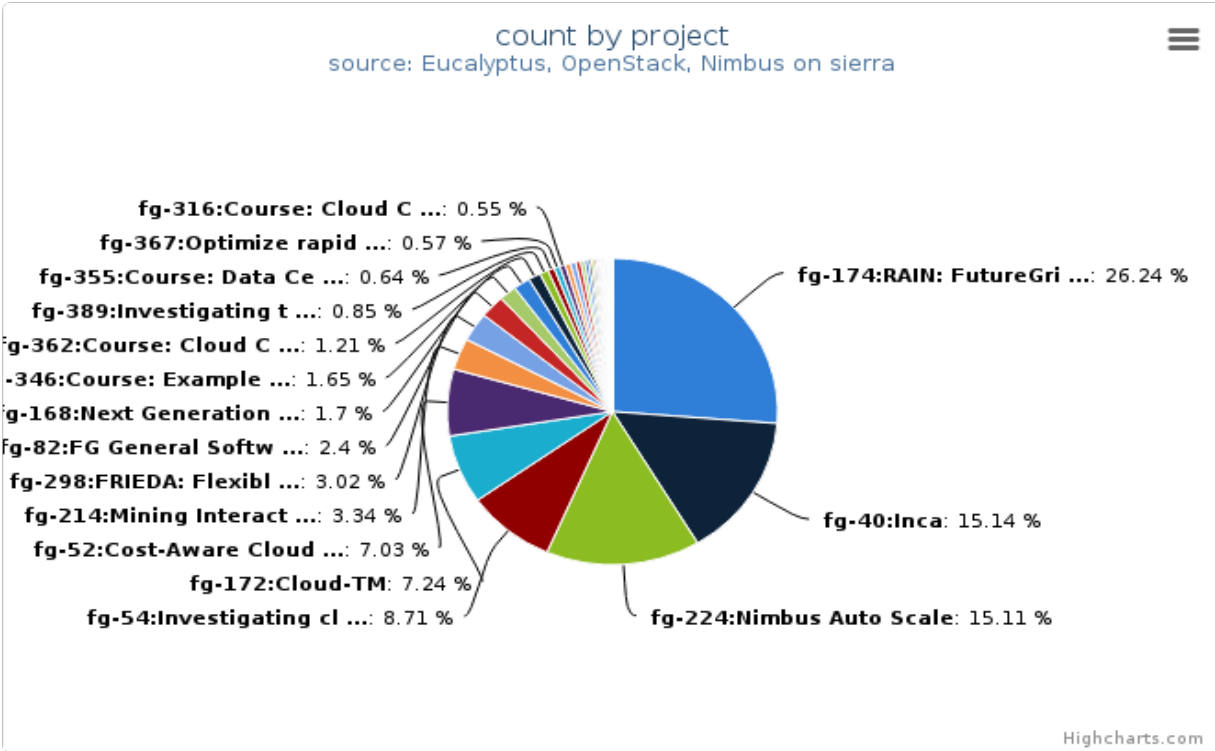
- Hostname: sierra

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: July 01 – December 23, 2013

- Cloud(IaaS): nimbus, openstack, eucalyptus

- Hostname: sierra

Table 3.1: VMs count by project

Project	Value
fg-174:RAIN: FutureGrid Dynamic provisioning Framework	2296
fg-40:Inca	1325
fg-224:Nimbus Auto Scale	1322
fg-54:Investigating cloud computing as a solution for analyzing particle physics data	762
fg-172:Cloud-TM	633
fg-52:Cost-Aware Cloud Computing	615
fg-214:Mining Interactions between Network Community Structure and Information Diffusion	292
fg-298:FRIEDA: Flexible Robust Intelligent Elastic Data Management	264
fg-82:FG General Software Development	210
fg-168:Next Generation Sequencing in the Cloud	149
fg-346:Course: Example Course On Advanced Cloud Computing	144
	Continued on next page

Table 3.1 – continued from previous page

| Project	Value
fg-362:Course: Cloud Computing and Storage (UF)	106
fg-389:Investigating the Apache Big Data Stack	74
fg-355:Course: Data Center Scale Computing Class	56
fg-367:Optimize rapid deployment and updating of VM images at the remote compute cluster	50
fg-316:Course: Cloud Computing Class - third edition	48
fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters	45
fg-372:Mobile Device Computation Offloading over SocialVPNs	45
fg-97:FutureGrid and Grid'5000 Collaboration	42
fg-10:TeraGrid XD TIS(Technology Insertion Service) Technology Evaluation Laboratory	35
fg-364:Course: EEL6871 Autonomic Computing	32
fg-264:Course: 1st Workshop on bioKepler Tools and Its Applications	25
fg-363:Course: Applied Cyberinfrastructure concepts	23
fg-374:Course: Cloud and Distributed Computing	19
fg-315:Biome representational in silico karyotyping	17
fg-244:Course: Data Center Scale Computing	15
fg-384:Graph/network analysis Resource manager	12
fg-334:Tutorial on Cloud Computing and Software-defined Networking	10
fg-371:Characterizing Infrastructure Cloud Performance for Scientific Computing	10
fg-132:Large scale data analytics	10
fg-175:GridProphet, A workflow execution time prediction system for the Grid	10
fg-215:FuturGrid Directory Entry	8
fg-341:Course: Parallel Computing	6
fg-380:FutureGrid Support for BigData MOOC	6
fg-233:CINET - A Cyber-Infrastructure for Network Science	5
fg-382:Reliability Analysis using Hadoop and MapReduce	5
fg-369:Testing of Network Facing Services for the Open Science Grid	4
fg-243:Applied Cyberinfrastructure concepts	4
fg-381:Authentication of Mobile Cloud Computing	3
fg-356:IPython pipelines for training life sciences researchers on NGS data analysis	3
fg-251:Course: Fall 2012 B534 Distributed Systems Graduate Course	3
fg-314:User-friendly tools to play with cloud platforms	2
fg-301:Course: Advanced Networking class University of Colorado	1
fg-180:STAMPEDE	1
fg-340:Research: Parallel Computing for Machine Learning	1
fg-69:Investigate provenance collection for MapReduce	1
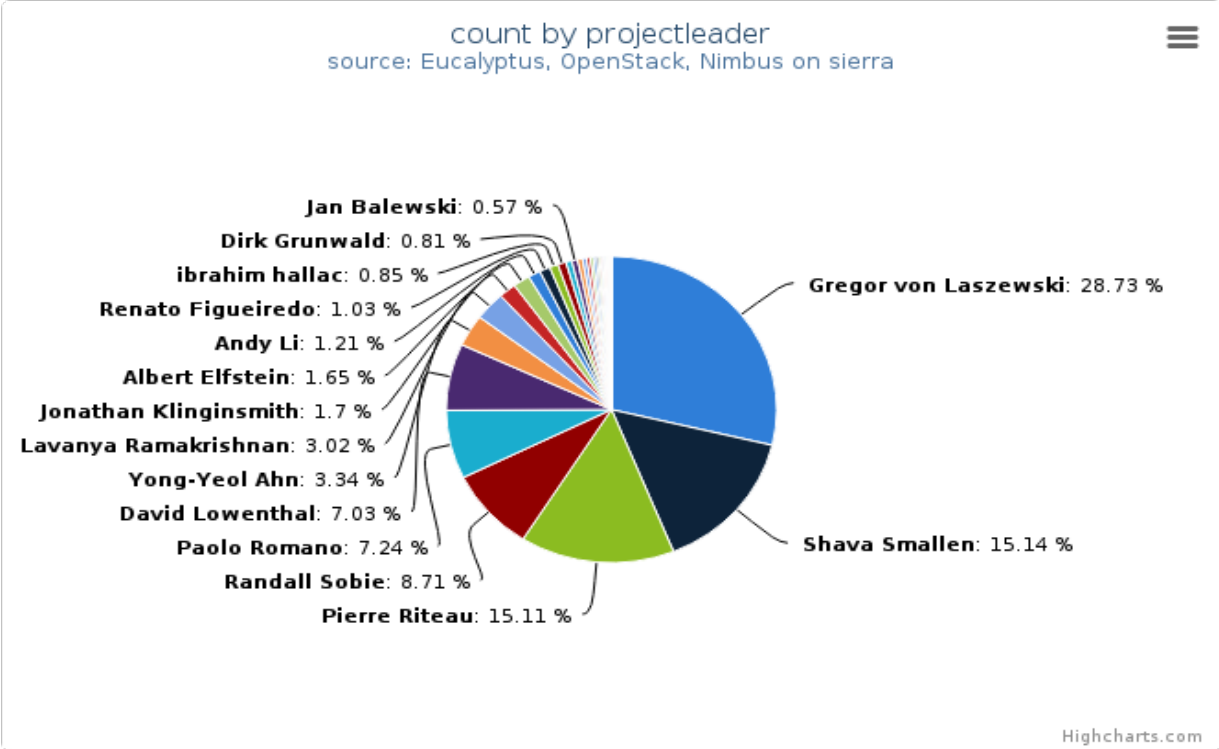
Figure 7: VMs count by project leader

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

- Period: July 01 – December 23, 2013

- Cloud(IaaS): nimbus, openstack, eucalyptus

- Hostname: sierra

Table 3.2: VMs count by project leader

Projectleader	Value
Gregor von Laszewski	2514
Shava Smallen	1325
Pierre Riteau	1322
Randall Sobie	762
Paolo Romano	633
David Lowenthal	615
Yong-Yeol Ahn	292
Lavanya Ramakrishnan	264
Jonathan Klinginsmith	149
Albert Elfstein	144
Andy Li	106
Continued on next page	

Table 3.2 – continued from previous page

| Projectleader	Value
Renato Figueiredo	90
ibrahim hallac	74
Dirk Grunwald	71
Massimo Canonico	50
Jan Balewski	50
Mauricio Tsugawa	42
John Lockman	35
Meng Han	32
Nirav Merchant	27
Ilkay Altintas	25
Philip Rhodes	19
Aaron Lee	17
Tirtha Bhattacharjee	12
Yogesh Simmhan	10
Thomas Fahringer	10
Jose Fortes	10
Theron Voran	10
Wilson Rivera	7
Abhilash Koppula	6
Keith Bisset	5
Carl Walasek	5
Igor Sfiligoi	4
Shane Green	3
Todd Blevins	3
Judy Qiu	3
Jiaan Zeng	1
Eric Keller	1
Dan Gunter	1
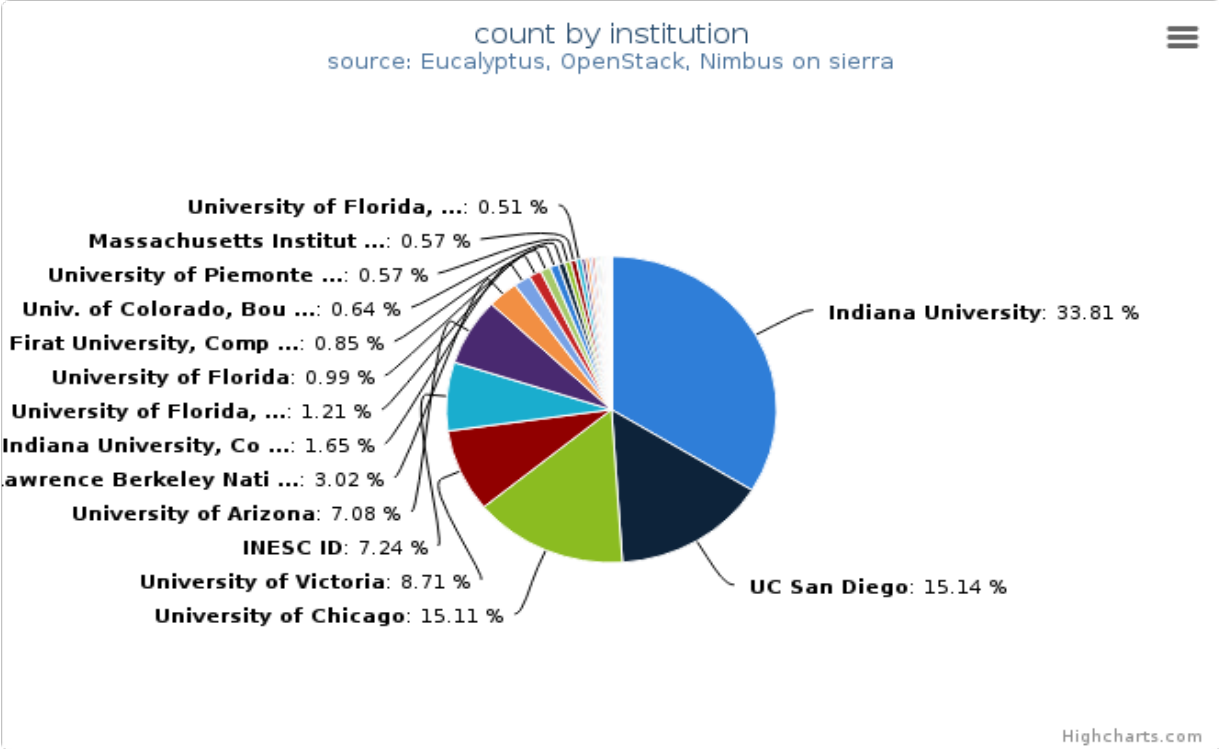
Figure 8: VMs count by institution

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

- Period: July 01 – December 23, 2013

- Cloud(IaaS): nimbus, openstack, eucalyptus

- Hostname: sierra

Table 3.3: VMs count by institution

Institution	Value
Indiana University	2958
UC San Diego	1325
University of Chicago	1322
University of Victoria	762
INESC ID	633
University of Arizona	619
Lawrence Berkeley National Lab	264
Indiana University, Computer Science Department	144
University of Florida, Department of Electrical and Computer Eng	106
University of Florida	87
Firat University, Computer Science Department	74
Univ. of Colorado, Boulder, Computer Science	56
Continued on next page	

Table 3.3 – continued from previous page

| Institution	Value
University of Piemonte Orientale, Computer Science Department	50
Massachusetts Institute of Technology, Laboratory for Nuclear Sc	50
University of Florida, Electrical and Computer Engineering	45
University of Texas at Austin	35
University of Florida, ACIS	32
UCSD	25
University of Arizona, Arizona Research Laboratories, School of	23
University of Mississippi, Department of Computer Science	19
Washington University at St Louis, School of Medicine, Departmen	17
Univ. of Colorado	15
Virginia Bioinformatics Institute, Virginia Polytechnic Institut	12
University of Florida, Advanced Computing and Information System	10
University of Innsbruck	10
University of Southern California	10
University of Colorado at Boulder, Computer Science Department	10
University of Puerto Rico, Electrical and Computer Emgineering D	7
Indiana University, Community Grids Lab	6
University of the Sciences , Mathematics, Physics, and Statistic	5
Virginia Tech	5
University of California San Diego, Physics Department	4
Colorado Technical University, Computer Science and Engineering	3
Indiana University, Depts of Biology and Molecular and Cellular	3
University of Colorado	1
Computer Science	1
LBNL	1
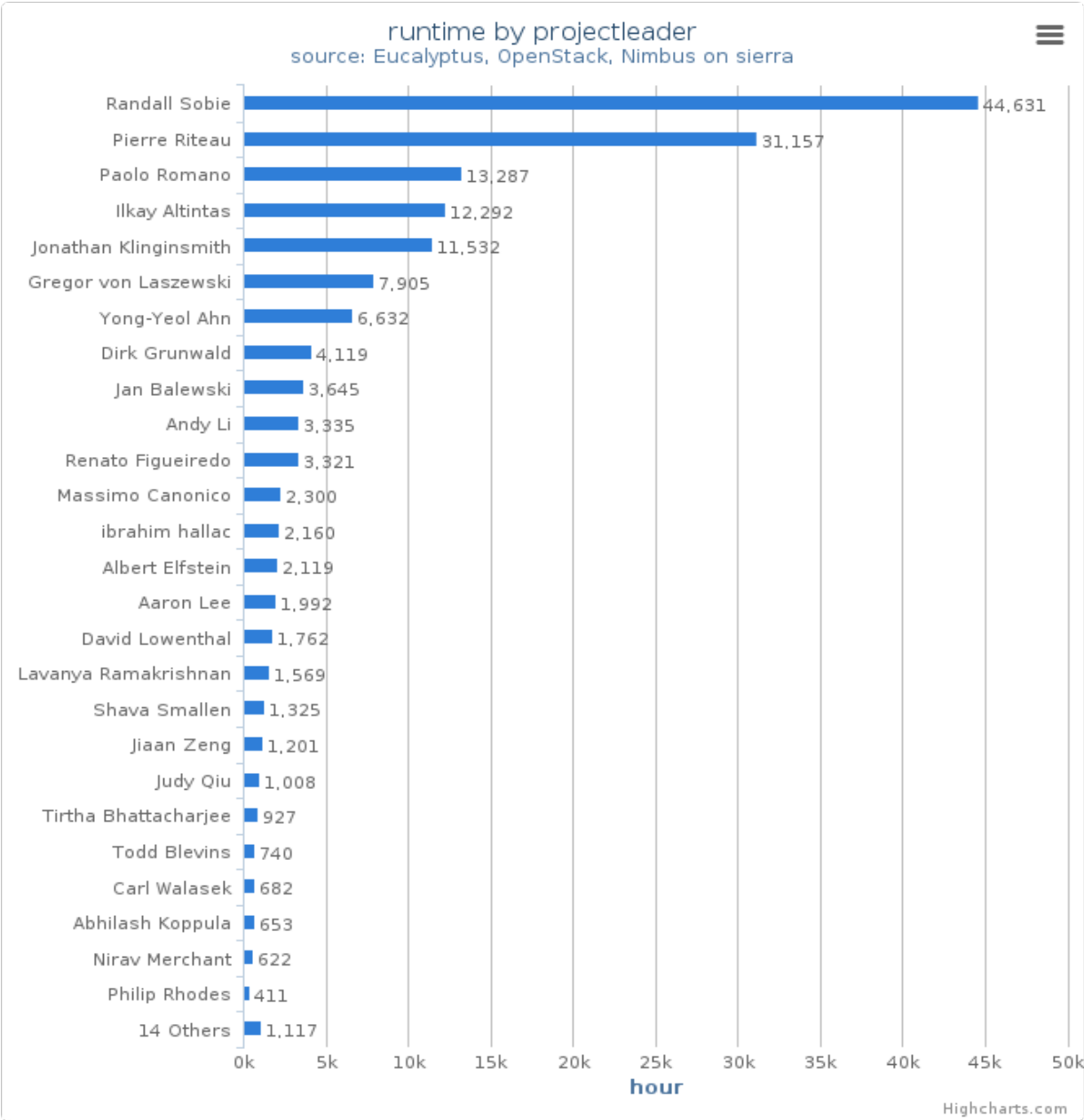
Figure 9: Wall time (hours) by project leader

This chart illustrates proportionate total run times by project leader.

- Period: July 01 – December 23, 2013

- Cloud(IaaS): nimbus, openstack, eucalyptus

- Hostname: sierra

3.3 System information

System information shows utilization distribution as to VMs count and wall time. Each cluster represents a compute node.
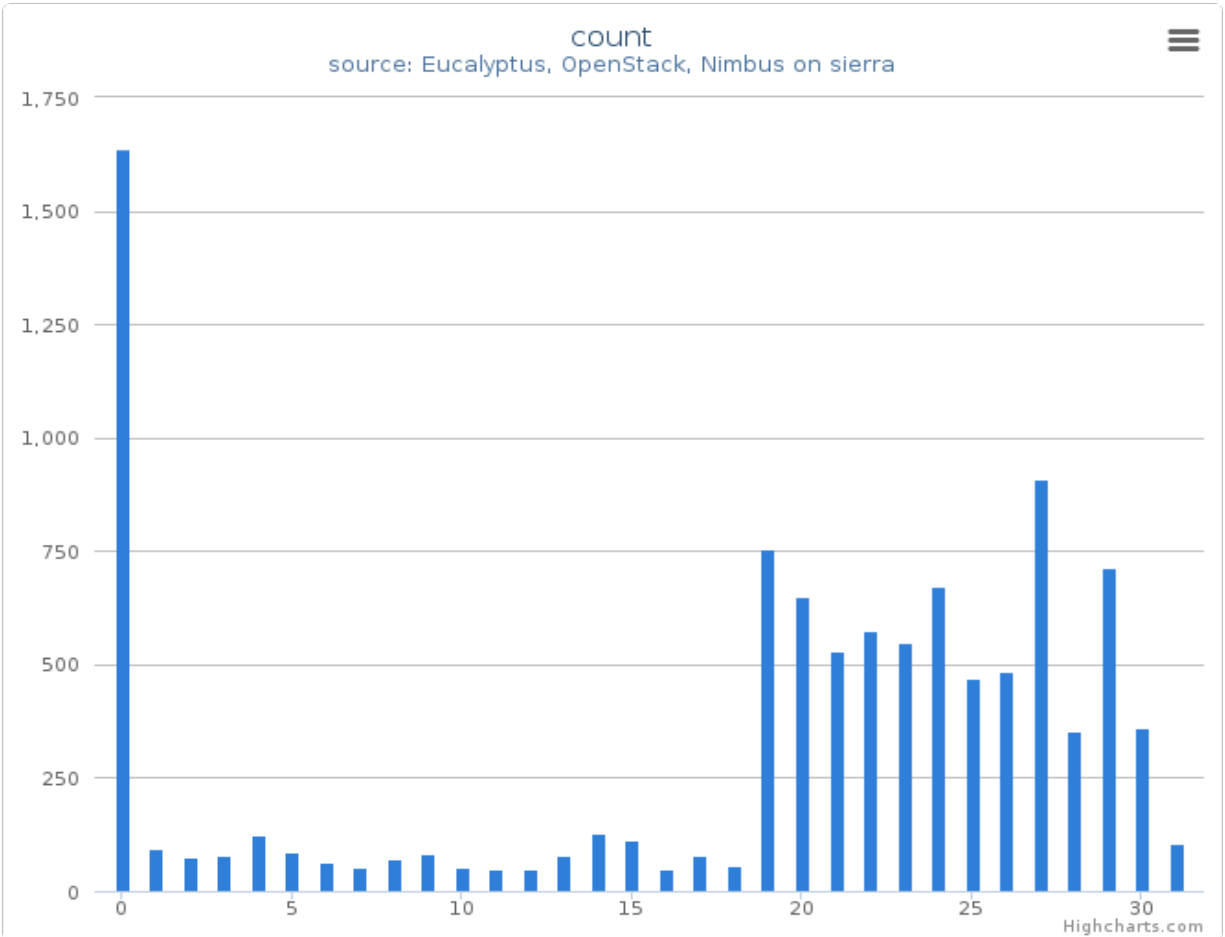

Figure 10: VMs count by systems (compute nodes) in Cluster (sierra)
This column chart represents VMs count among systems.

- Period: July 01 – December 23, 2013

- Cloud(IaaS): nimbus, openstack, eucalyptus
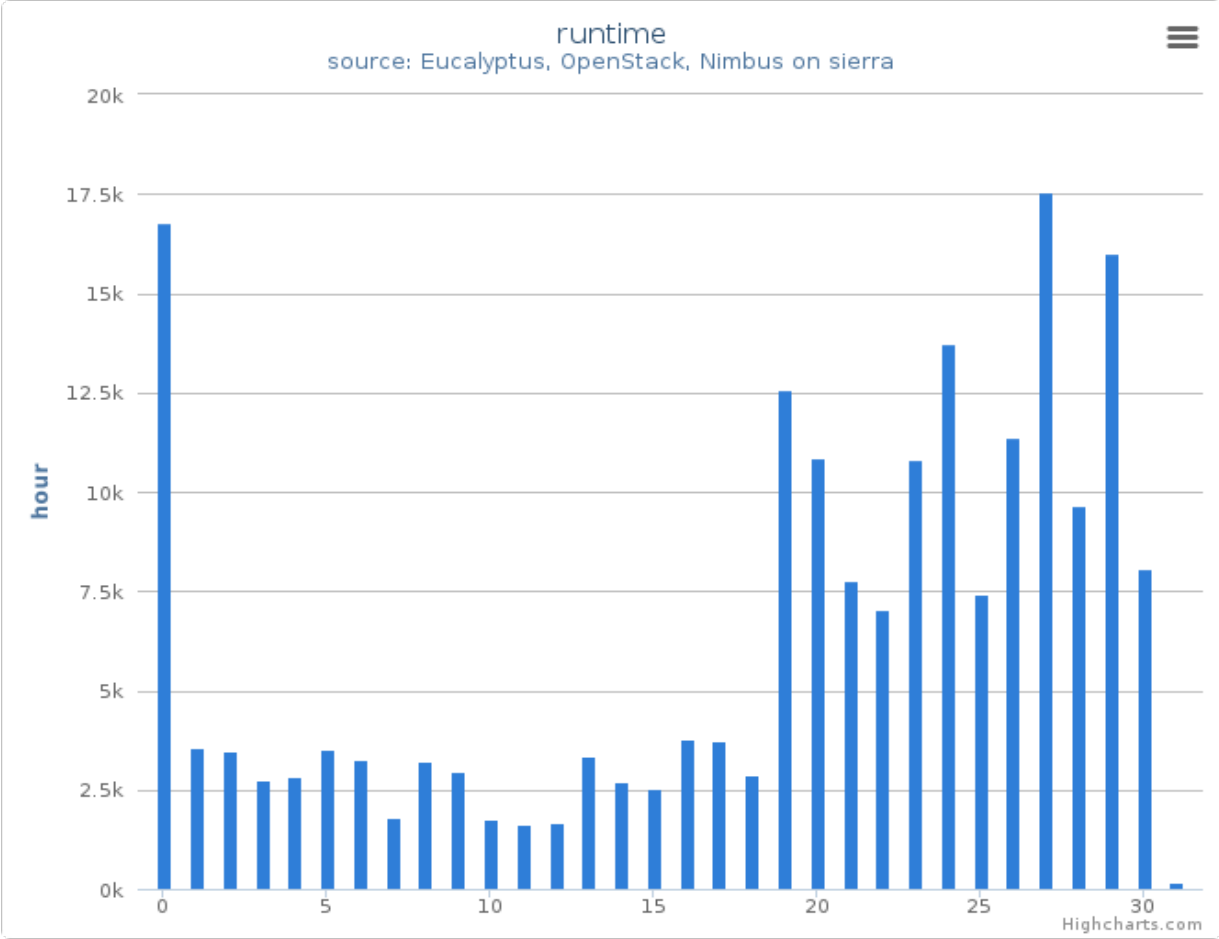
- Hostname: sierra

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

- Period: July 01 – December 23, 2013

- Cloud(IaaS): nimbus, openstack, eucalyptus

- Hostname: sierra

USAGE REPORT ALAMO

- Period: July 01 – December 23, 2013

- 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
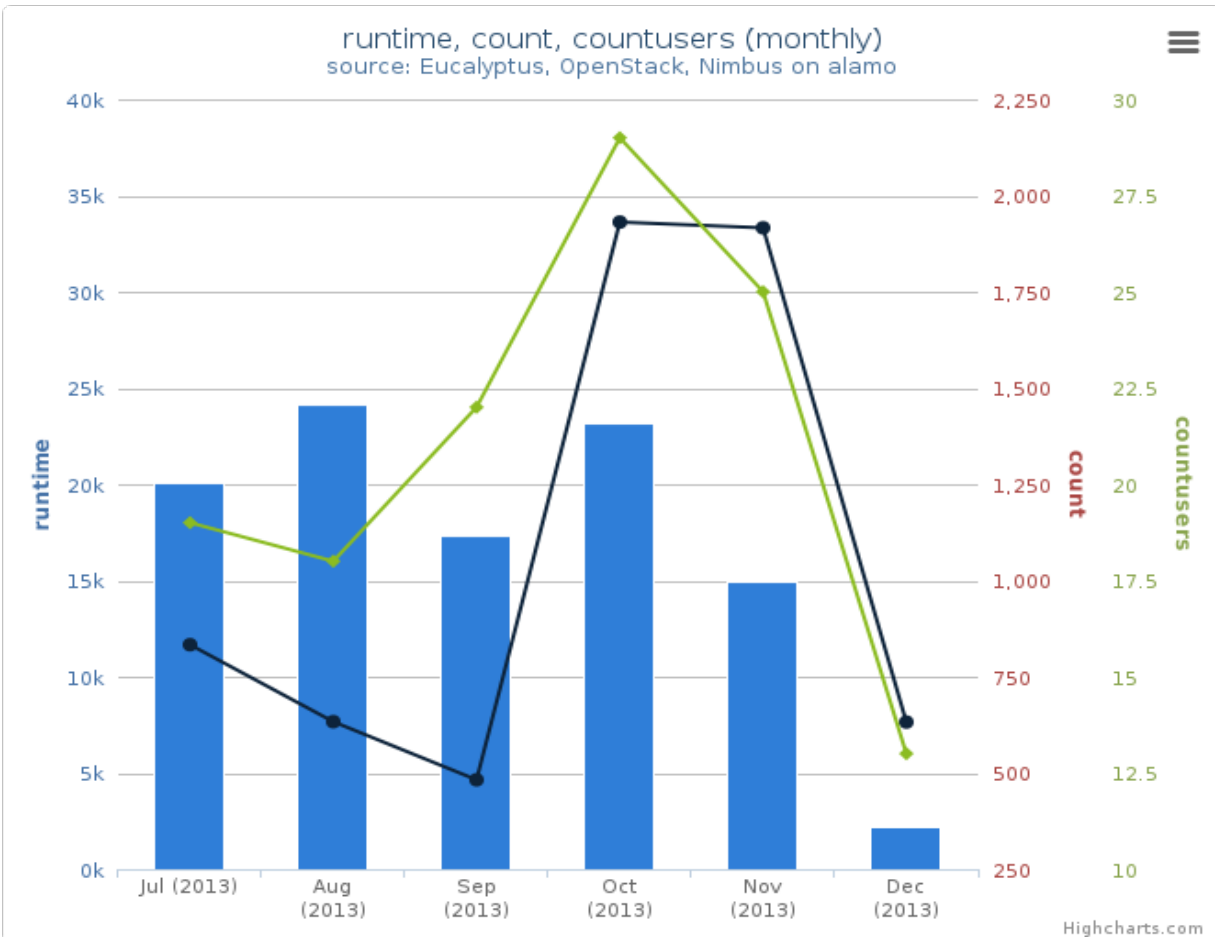
4.1 Histogram

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: July 01 – December 23, 2013

- 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
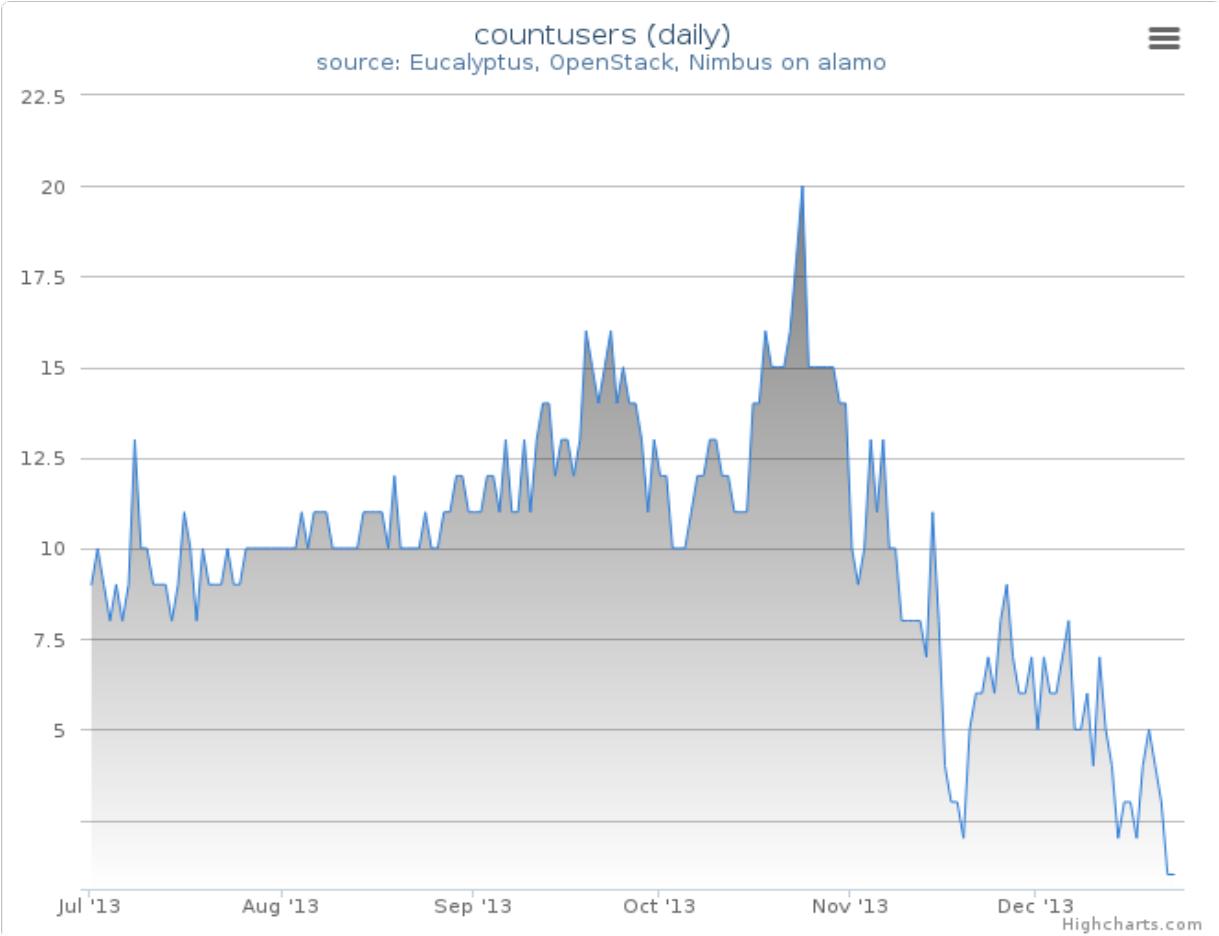
4.1.2 Summary (Daily)

Figure 2: Users count

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

- Period: July 01 – December 23, 2013

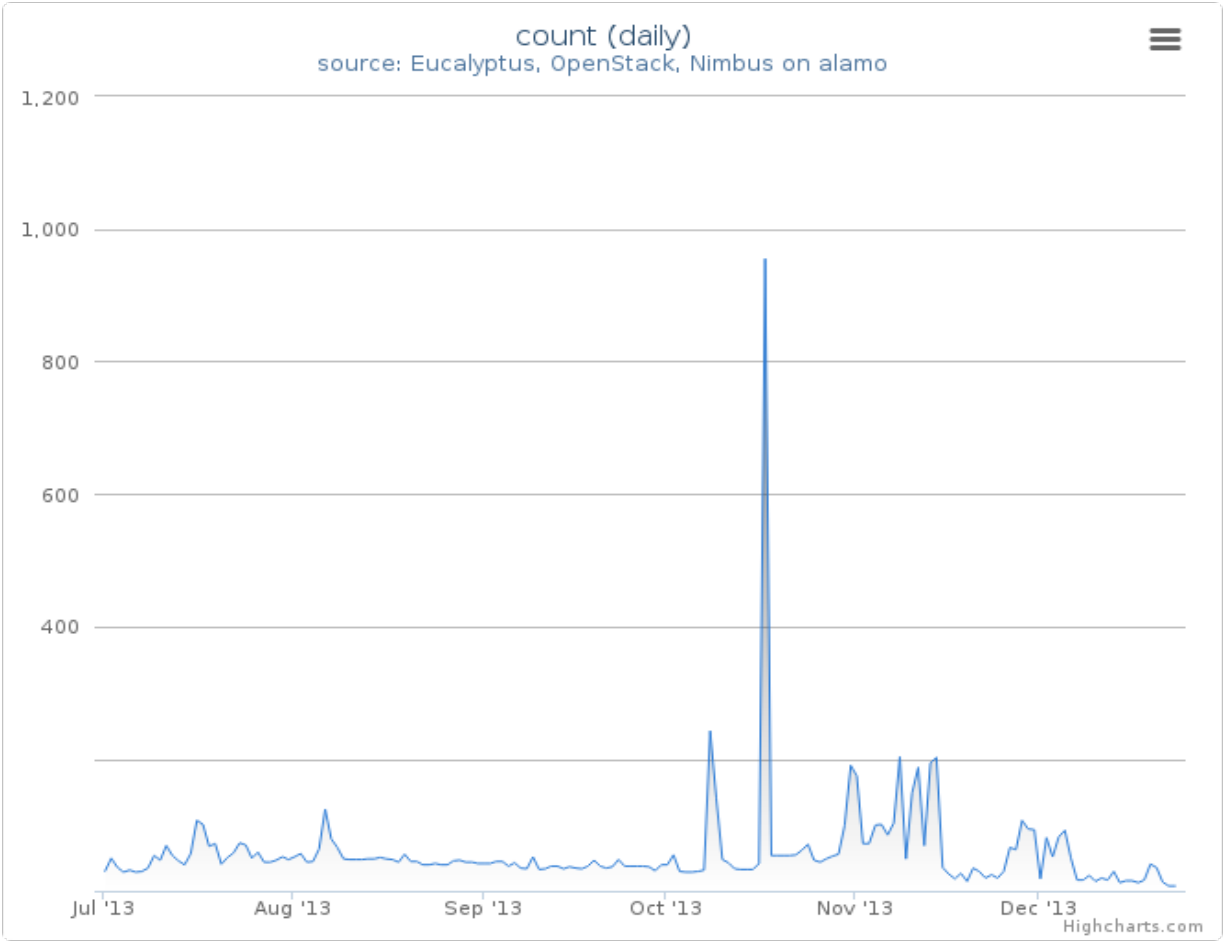- Cloud(IaaS): nimbus, openstack

- 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: July 01 – December 23, 2013
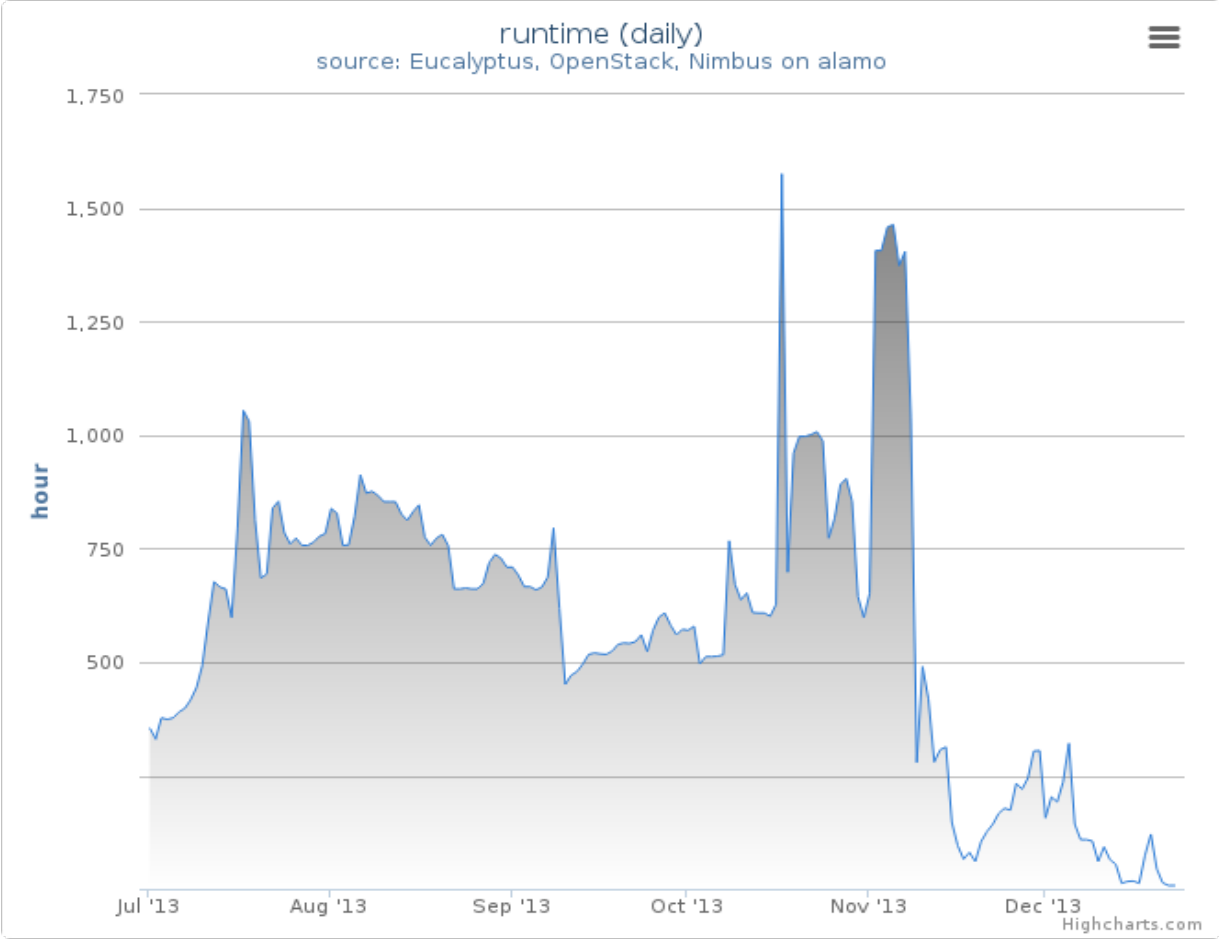- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

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: July 01 – December 23, 2013

- Cloud(IaaS): nimbus, openstack

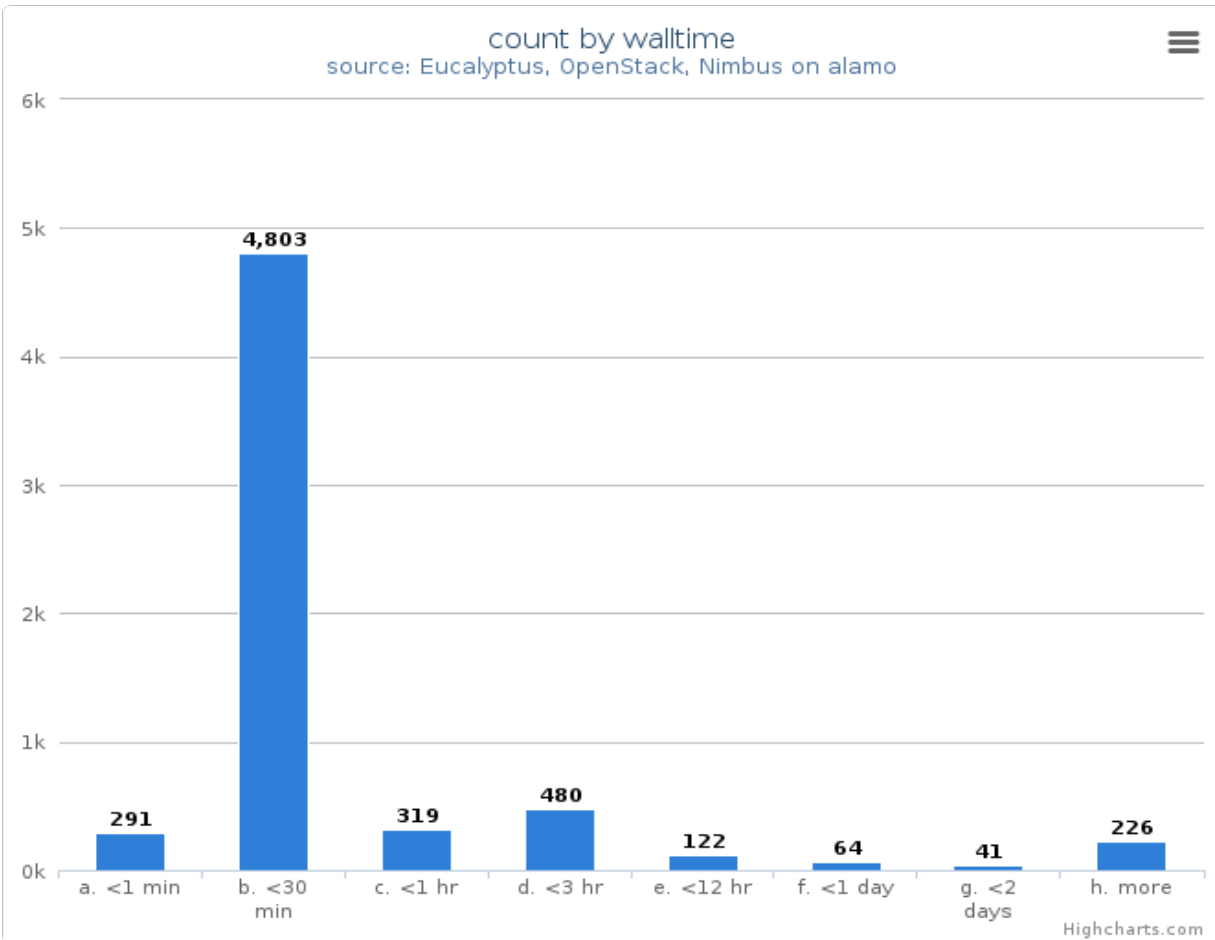- Hostname: alamo

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: July 01 – December 23, 2013

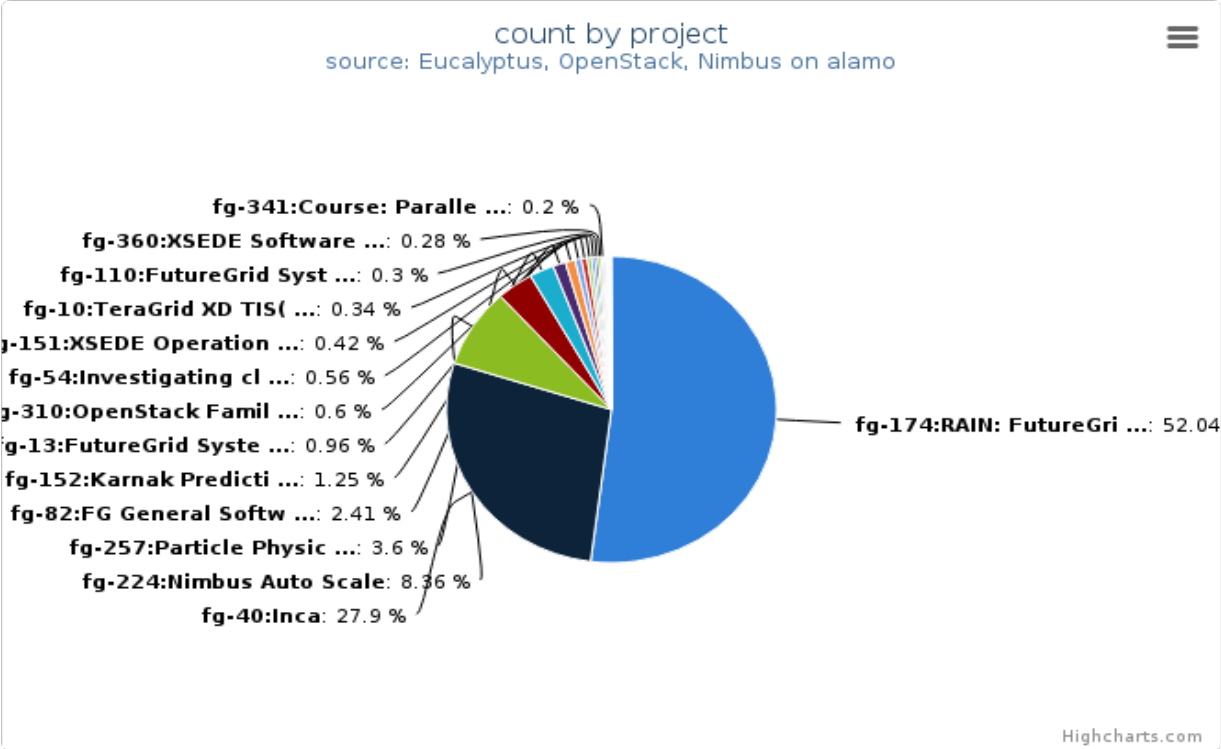- Cloud(IaaS): nimbus, openstack

- 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: July 01 – December 23, 2013

- Cloud(IaaS): nimbus, openstack

- Hostname: alamo

Table 4.1: VMs count by project

| Project	Value
fg-174:RAIN: FutureGrid Dynamic provisioning Framework	2591
fg-40:Inca	1389
fg-224:Nimbus Auto Scale	416
fg-257:Particle Physics Data analysis cluster for ATLAS LHC experiment	179
fg-82:FG General Software Development	120
fg-152:Karnak Prediction Service	62
fg-13:FutureGrid Systems Development and Prototyping	48
fg-310:OpenStack Familiarization for TACC	30
fg-54:Investigating cloud computing as a solution for analyzing particle physics data	28
fg-151:XSEDE Operations Group	21
fg-10:TeraGrid XD TIS(Technology Insertion Service) Technology Evaluation Laboratory	17
fg-110:FutureGrid Systems Development	15
fg-360:XSEDE Software Development and Integration Testing	14
fg-341:Course: Parallel Computing	10
fg-97:FutureGrid and Grid'5000 Collaboration	9
fg-20:Development of an information service for FutureGrid	8
fg-175:GridProphet, A workflow execution time prediction system for the Grid	5
fg-362:Course: Cloud Computing and Storage (UF)	4
fg-312:Sensor-Rocks: A novel integrated framework to improve software Operations and Management (O&M) and power management in environmental observing systems	3
fg-248:Geophysical fluid dynamics education and research	3
fg-367:Optimize rapid deployment and updating of VM images at the remote compute cluster	2
fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters	2
fg-136:JGC-DataCloud-2012 paper experiments	1
fg-172:Cloud-TM	1
fg-90:Unicore and Genesis Experimentation	1
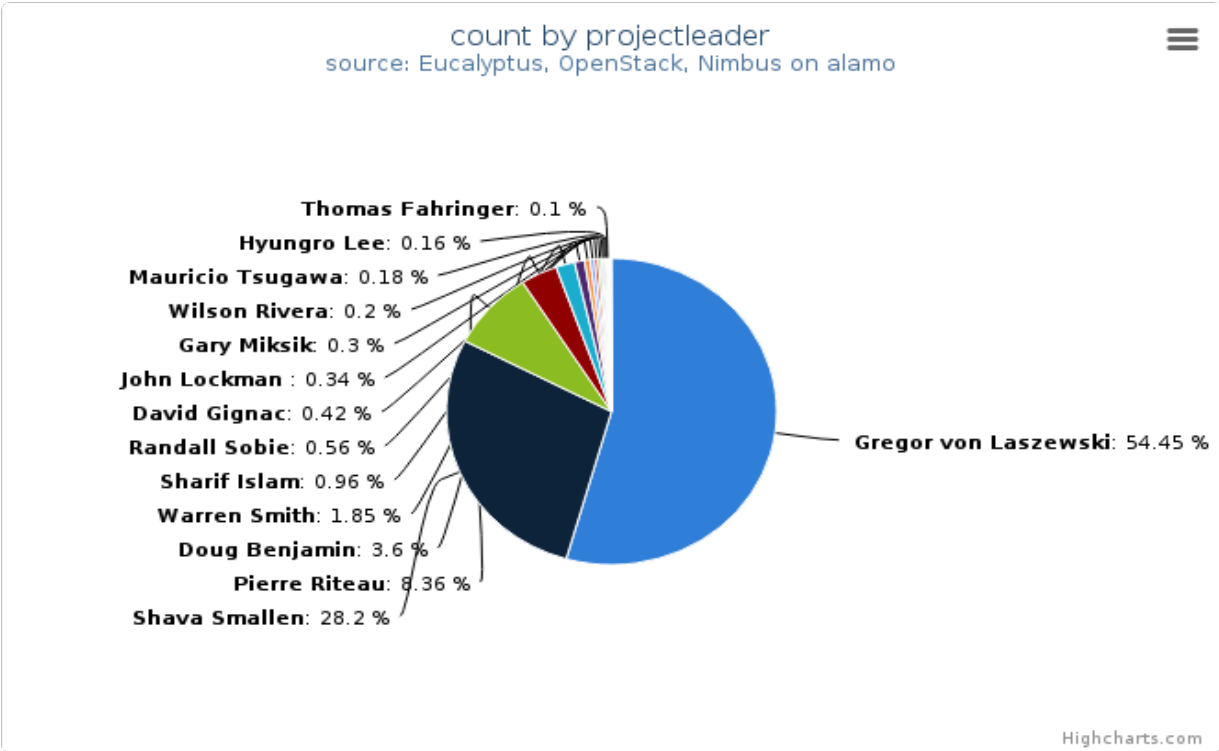
Figure 7: VMs count by project leader

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

- Period: July 01 – December 23, 2013

- Cloud(IaaS): nimbus, openstack

- Hostname: alamo

Table 4.2: VMs count by project
leader

| Projectleader	Value
Gregor von Laszewski	2711
Shava Smallen	1404
Pierre Riteau	416
Doug Benjamin	179
Warren Smith	92
Sharif Islam	48
Randall Sobie	28
David Gignac	21
John Lockman	17
Gary Miksik	15
Wilson Rivera	10
Mauricio Tsugawa	9
Hyungro Lee	8
Thomas Fahringer	5
Andy Li	4
Sameer Tilak	3
Glenn Flierl	3
Jan Balewski	2
Renato Figueiredo	2
Mats Rynge	1
Paolo Romano	1
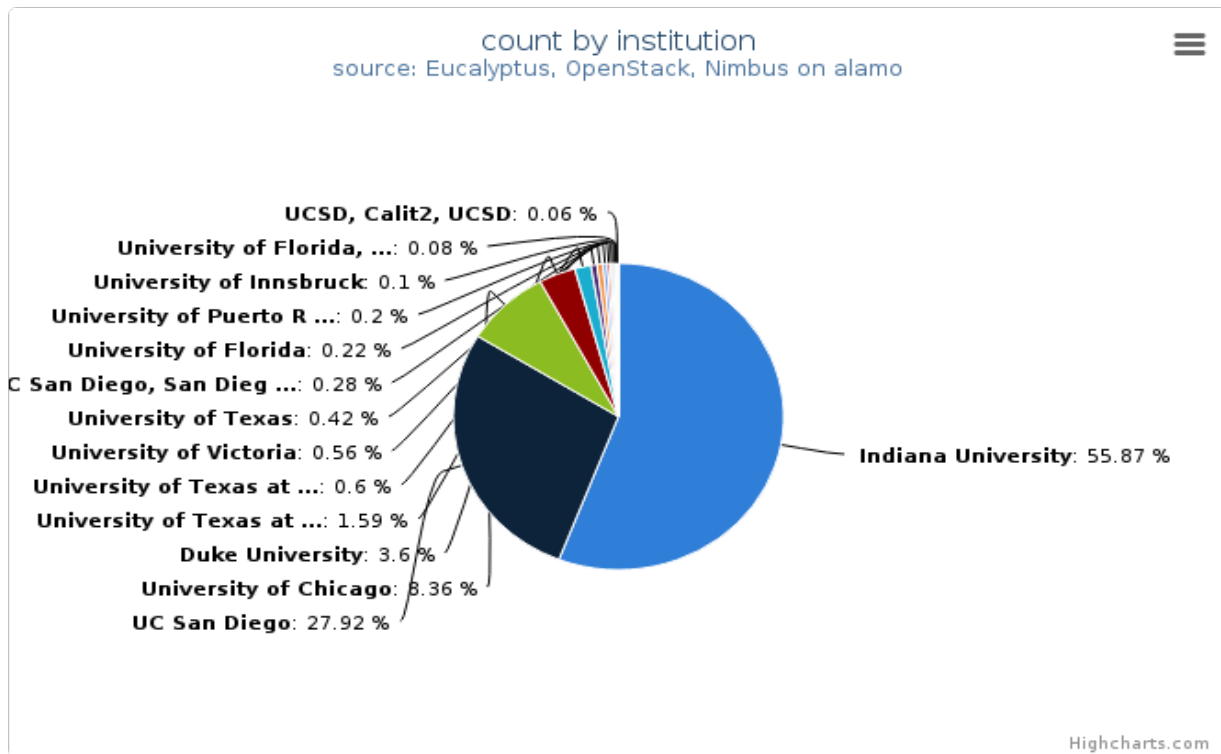
Figure 8: VMs count by institution

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

- Period: July 01 – December 23, 2013

- Cloud(IaaS): nimbus, openstack

- Hostname: alamo

Table 4.3: VMs count by institution

| Institution	Value
Indiana University	2782
UC San Diego	1390
University of Chicago	416
Duke University	179
University of Texas at Austin	79
University of Texas at Austin, Texas Advanced Computing Center	30
University of Victoria	28
University of Texas	21
UC San Diego, San Diego Supercomputer Center	14
University of Florida	11
University of Puerto Rico, Electrical and Computer Emgineering D	10
University of Innsbruck	5
University of Florida, Department of Electrical and Computer Eng	4
Massachusetts Institute of Technology	3
UCSD, Calit2, UCSD	3
Massachusetts Institute of Technology, Laboratory for Nuclear Sc	2
INESC ID	1
USC	1
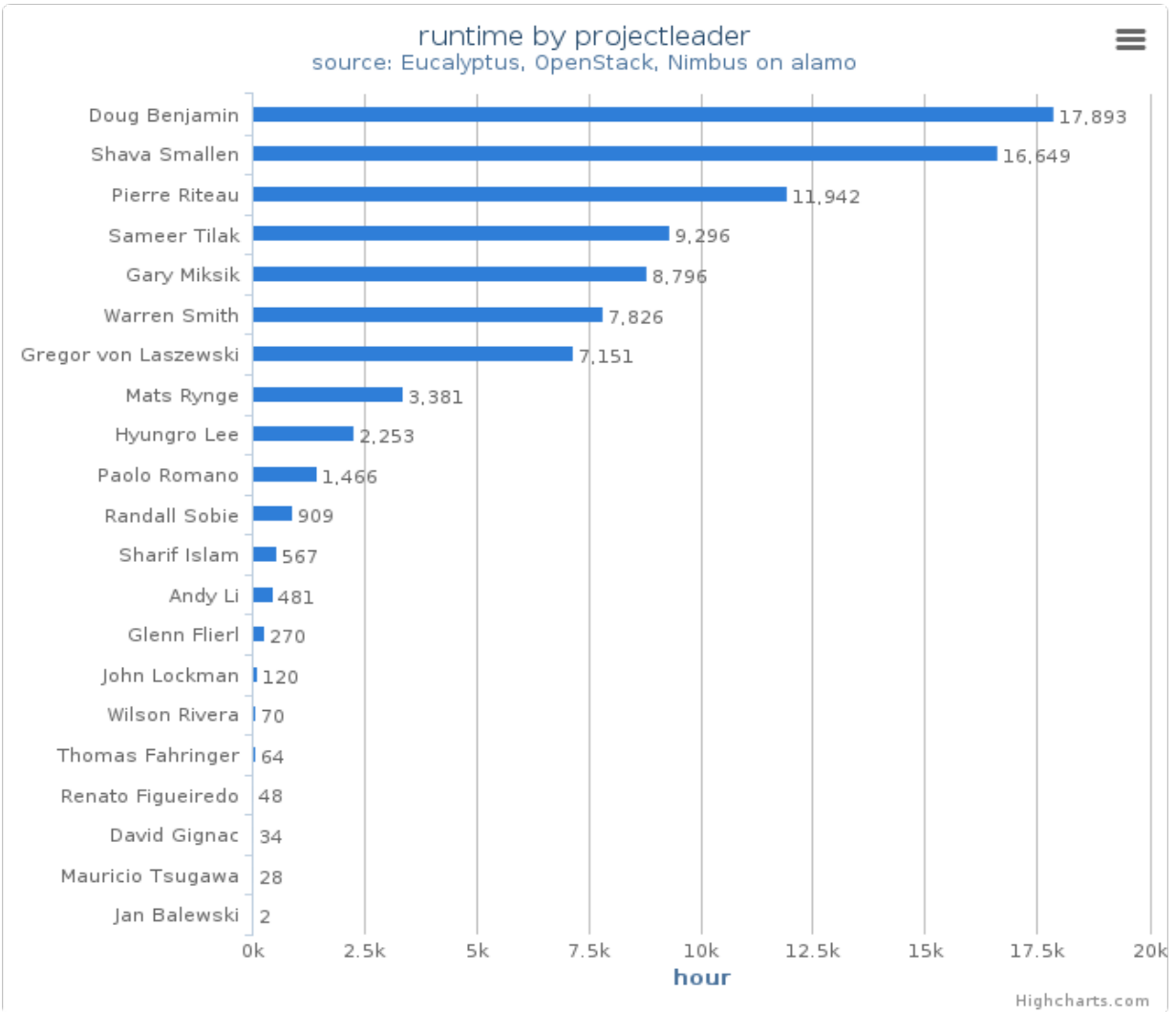
Figure 9: Wall time (hours) by project leader

This chart illustrates proportionate total run times by project leader.

- Period: July 01 – December 23, 2013

- Cloud(IaaS): nimbus, openstack

- Hostname: alamo

4.3 System information

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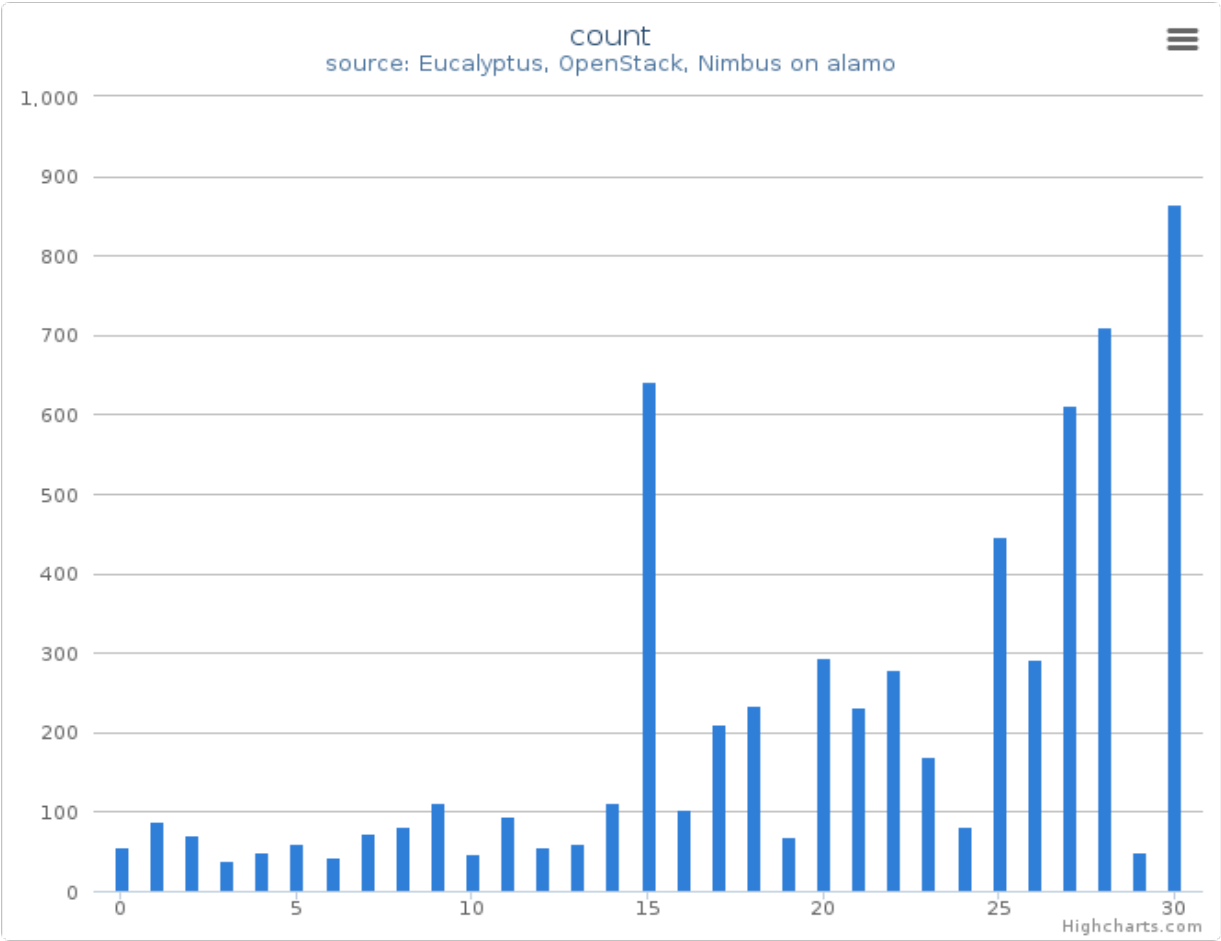
Figure 10: VMs count by systems (compute nodes) in Cluster (alamo)

This column chart represents VMs count among systems.

- Period: July 01 – December 23, 2013

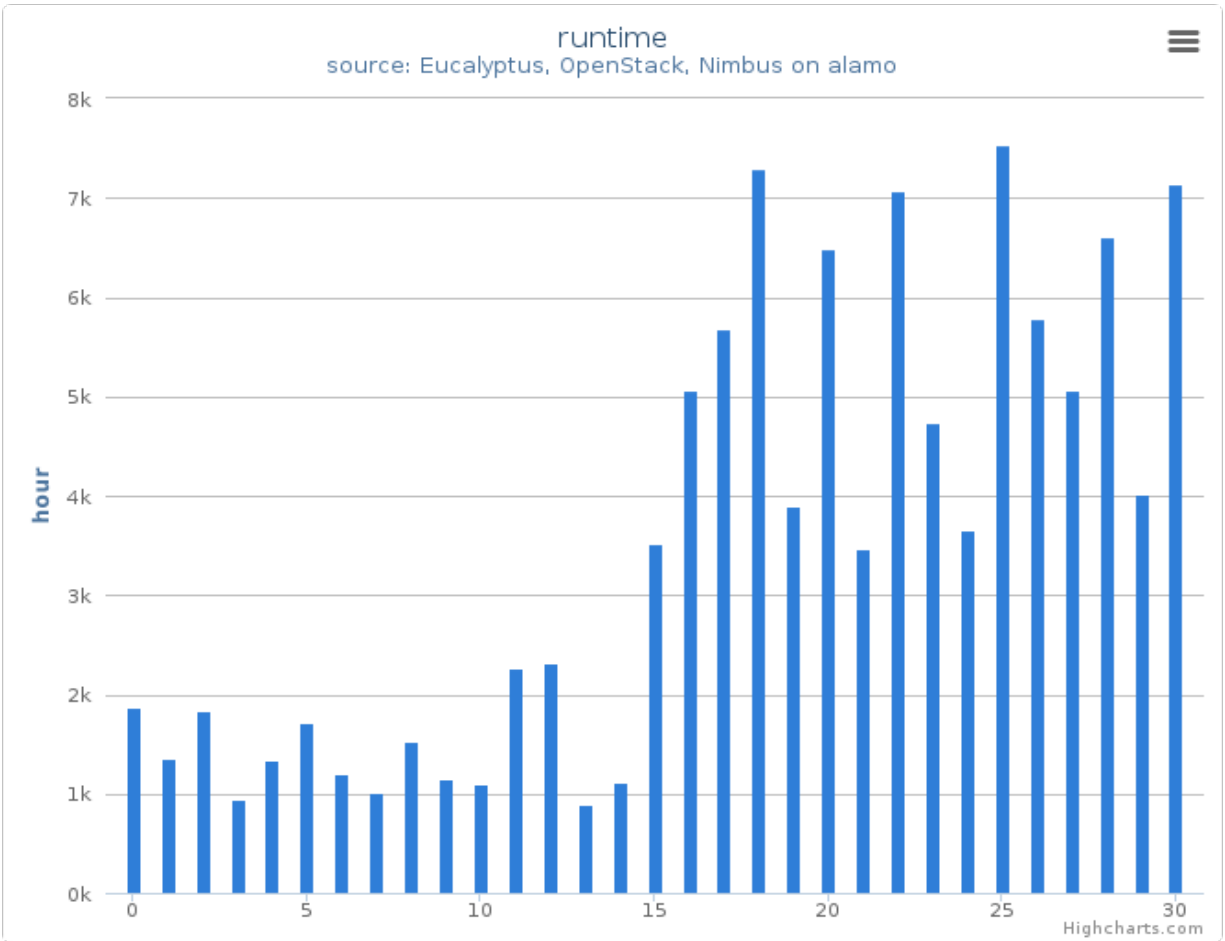- Cloud(IaaS): nimbus, openstack

- Hostname: alamo

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

This column chart represents wall time among systems.

- Period: July 01 – December 23, 2013

- Cloud(IaaS): nimbus, openstack

- Hostname: alamo

USAGE REPORT FOXTROT

- Period: July 01 – December 23, 2013

- 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
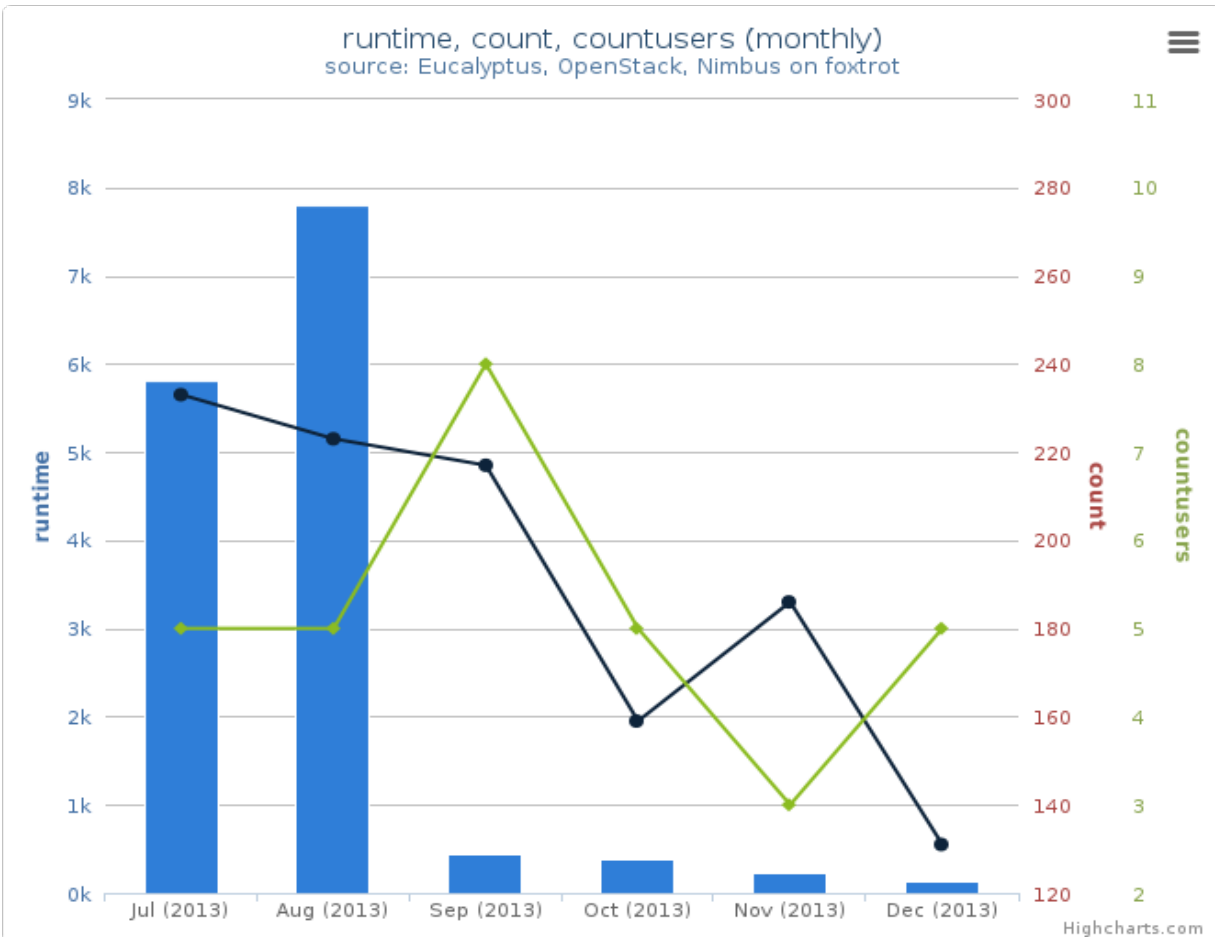
5.1 Histogram

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: July 01 – December 23, 2013

- 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
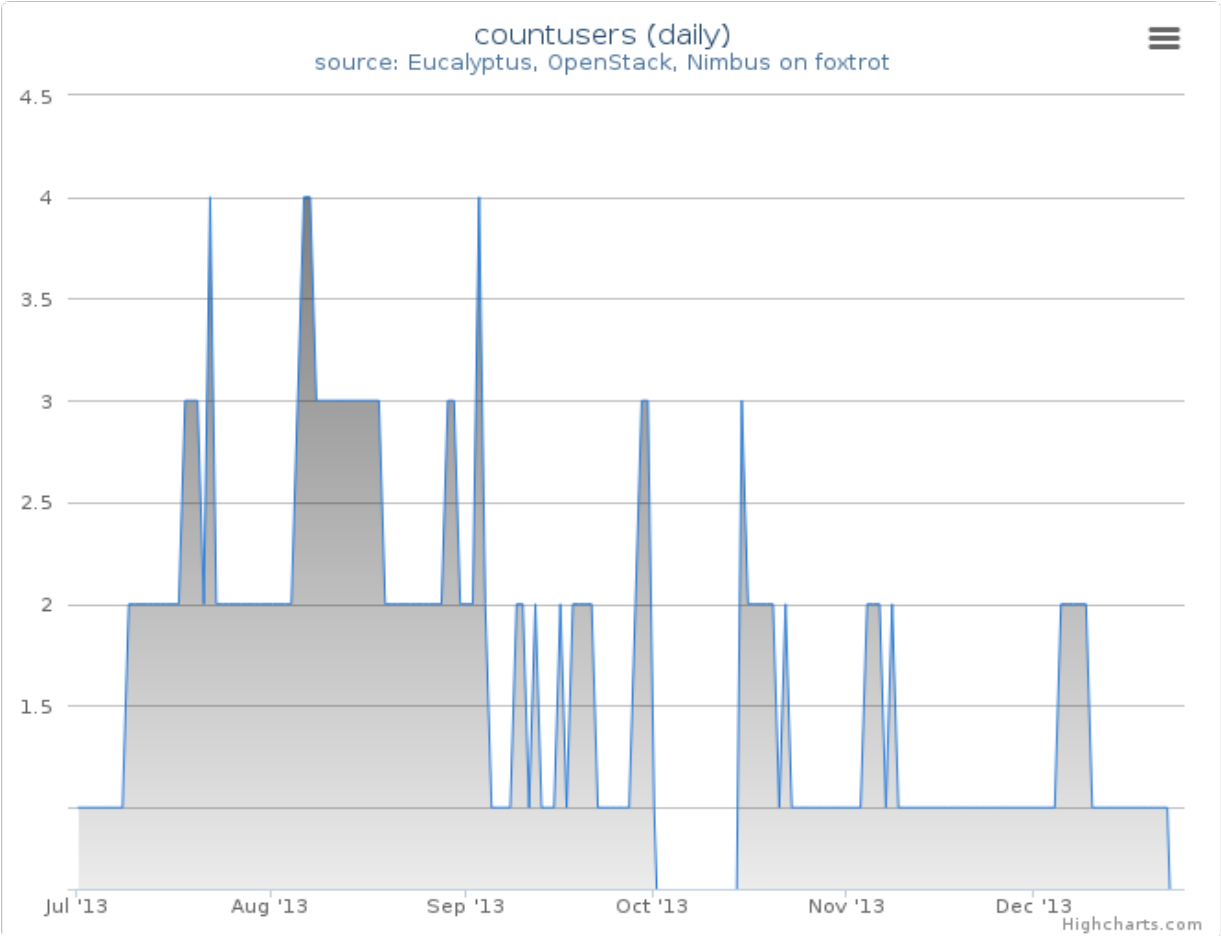
5.1.2 Summary (Daily)

Figure 2: Users count

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

- Period: July 01 – December 23, 2013
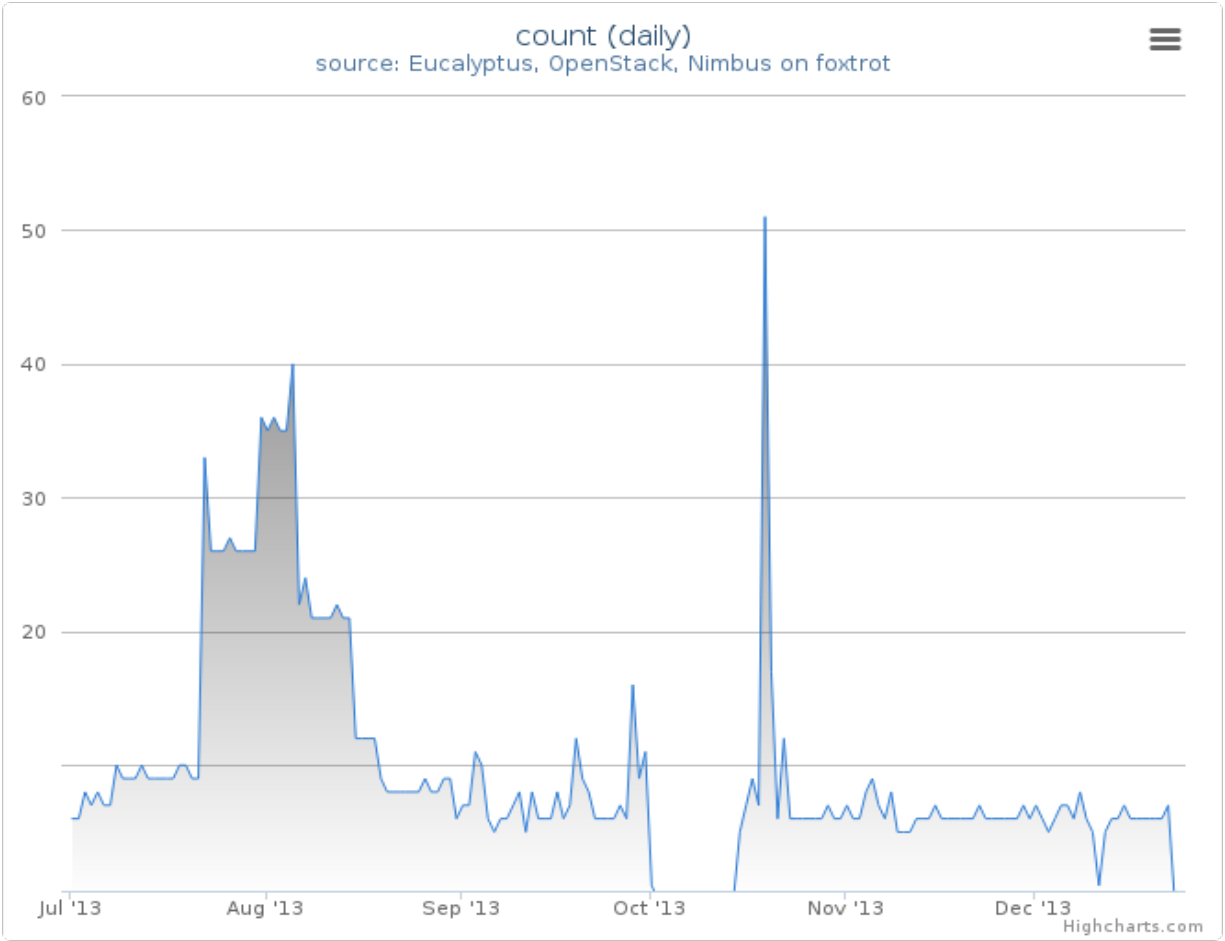- Cloud(IaaS): nimbus
- Hostname: foxtrot

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: July 01 – December 23, 2013
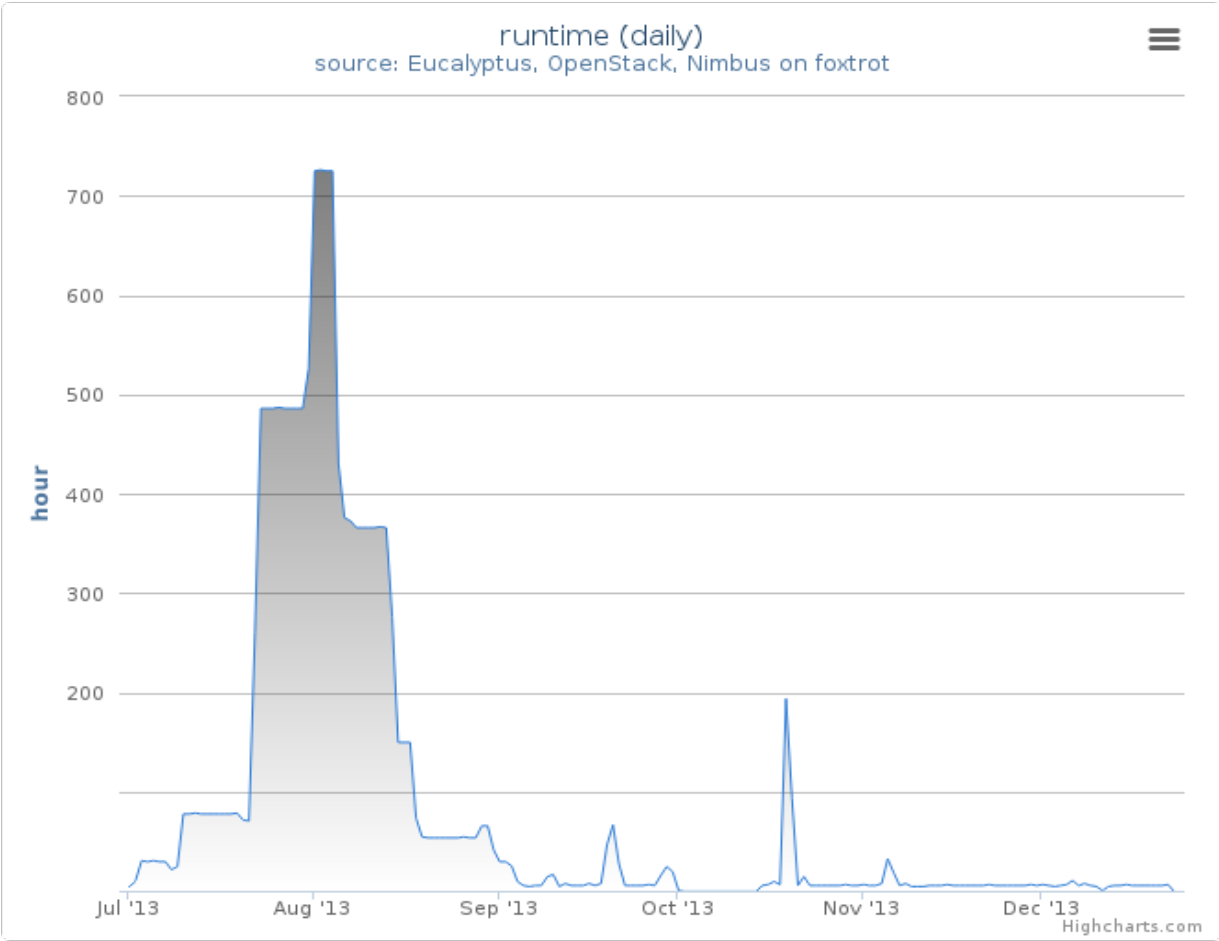
- Cloud(IaaS): nimbus

- 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: July 01 – December 23, 2013
- Cloud(IaaS): nimbus
- Hostname: foxtrot
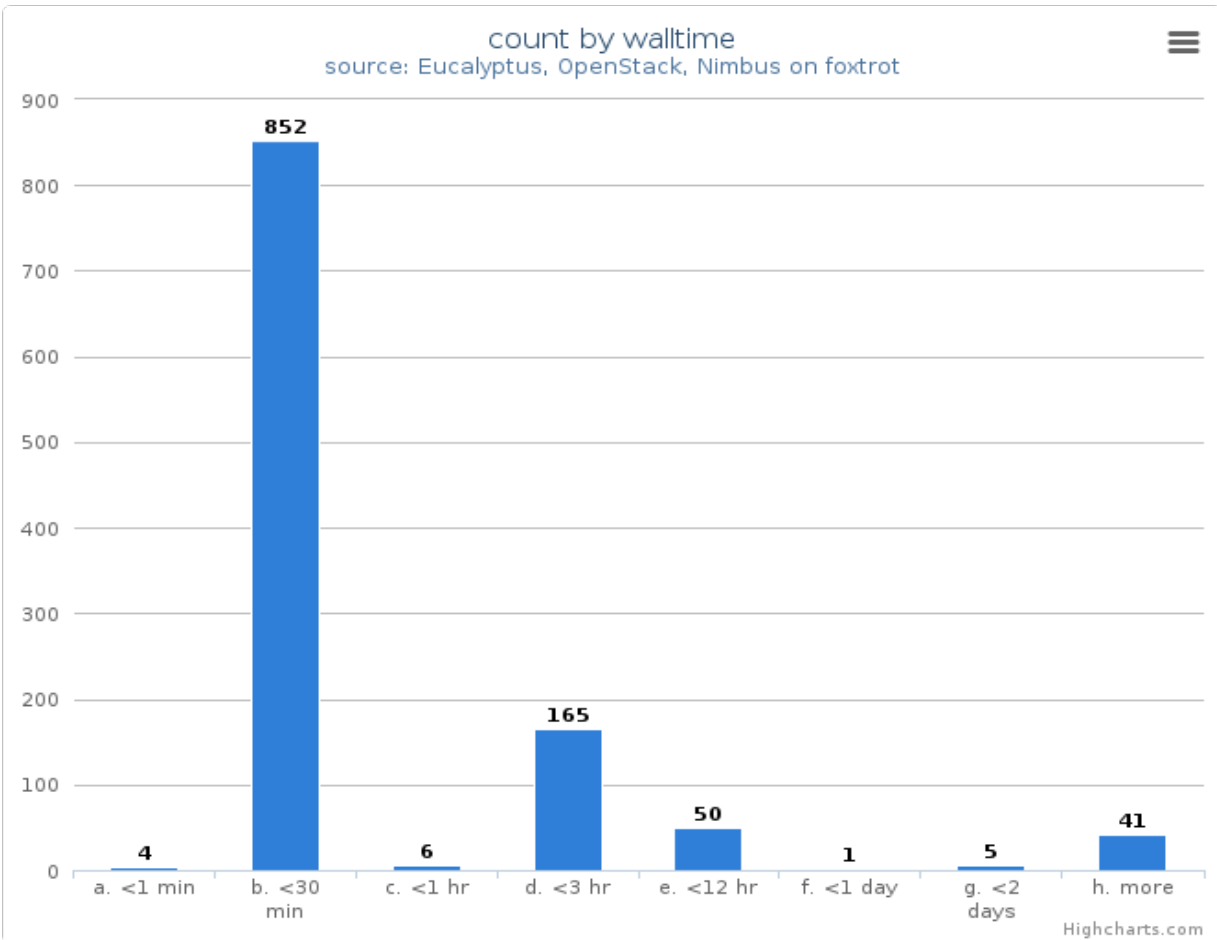
5.2 Distribution

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

- Period: July 01 – December 23, 2013

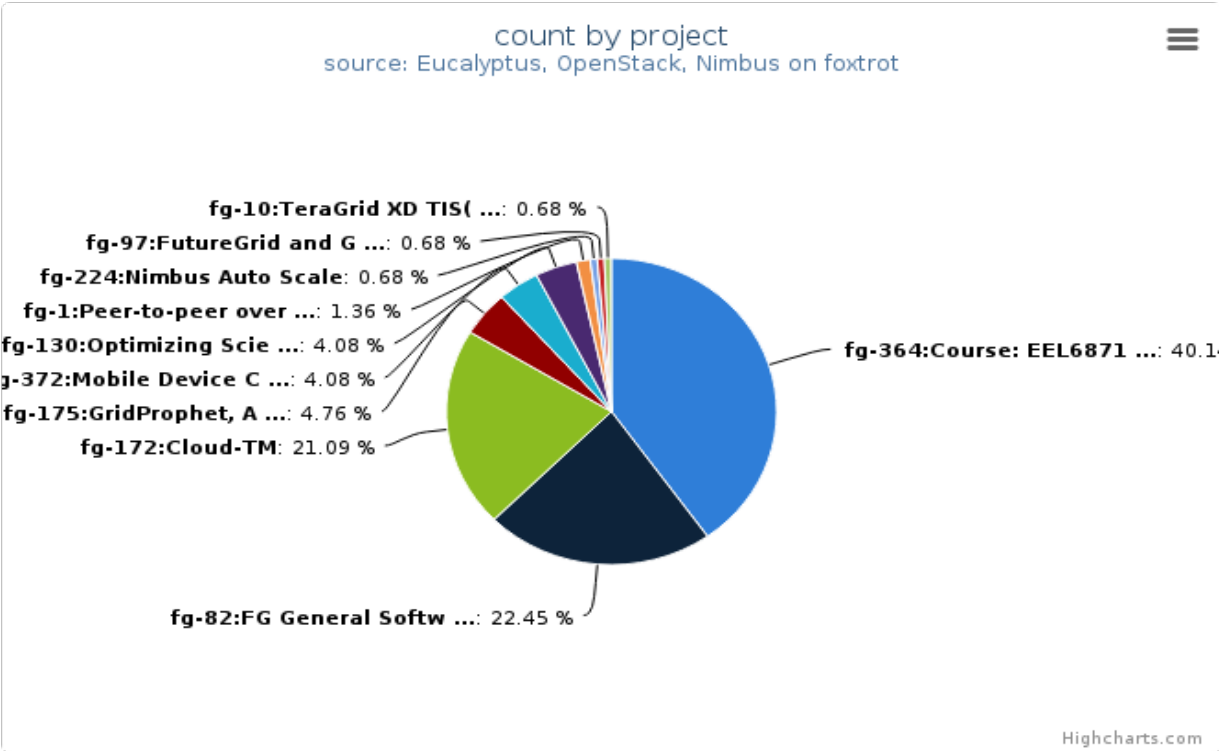- Cloud(IaaS): nimbus

- 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: July 01 – December 23, 2013

- Cloud(IaaS): nimbus

- Hostname: foxtrot

Table 5.1: VMs count by project

| Project	Value
fg-364:Course: EEL6871 Autonomic Computing	59
fg-82:FG General Software Development	33
fg-172:Cloud-TM	31
fg-175:GridProphet, A workflow execution time prediction system for the Grid	7
fg-372:Mobile Device Computation Offloading over SocialVPNs	6
fg-130:Optimizing Scientific Workflows on Clouds	6
fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters	2
fg-224:Nimbus Auto Scale	1
fg-97:FutureGrid and Grid'5000 Collaboration	1
fg-10:TeraGrid XD TIS(Technology Insertion Service) Technology Evaluation Laboratory	1
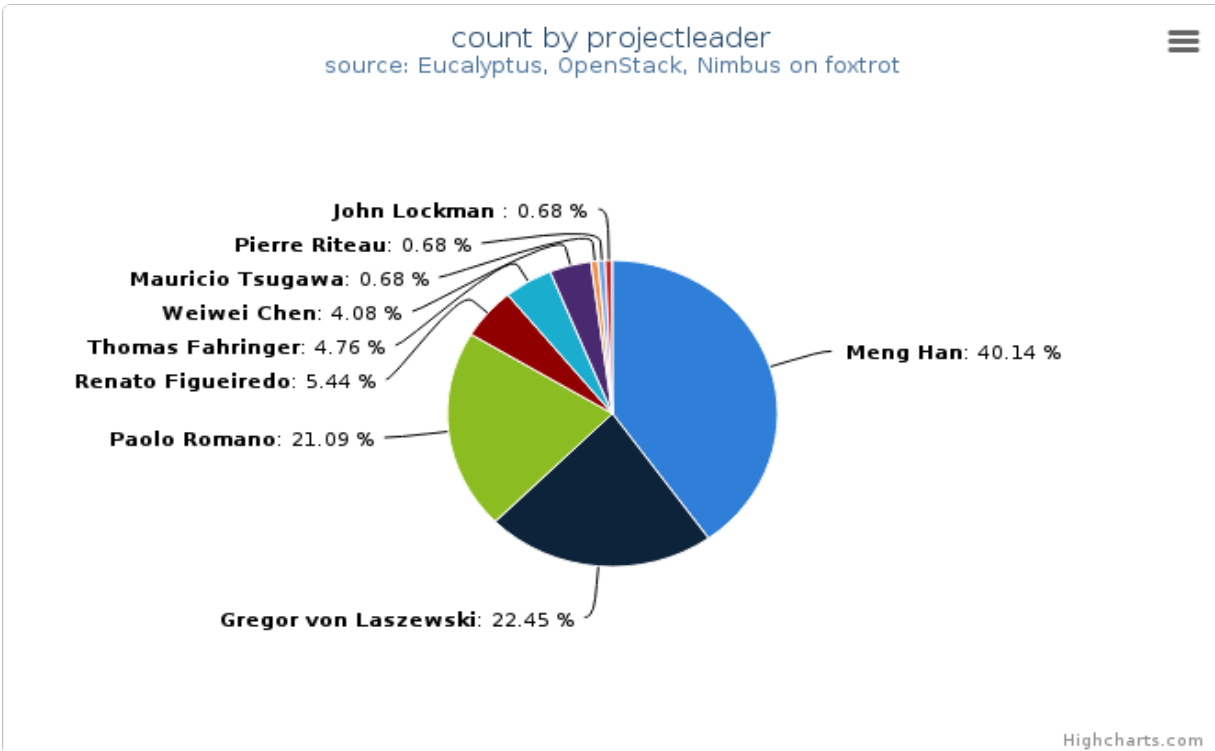
Figure 7: VMs count by project leader

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

- Period: July 01 – December 23, 2013

- Cloud(IaaS): nimbus

- Hostname: foxtrot

Table 5.2: VMs count by project leader

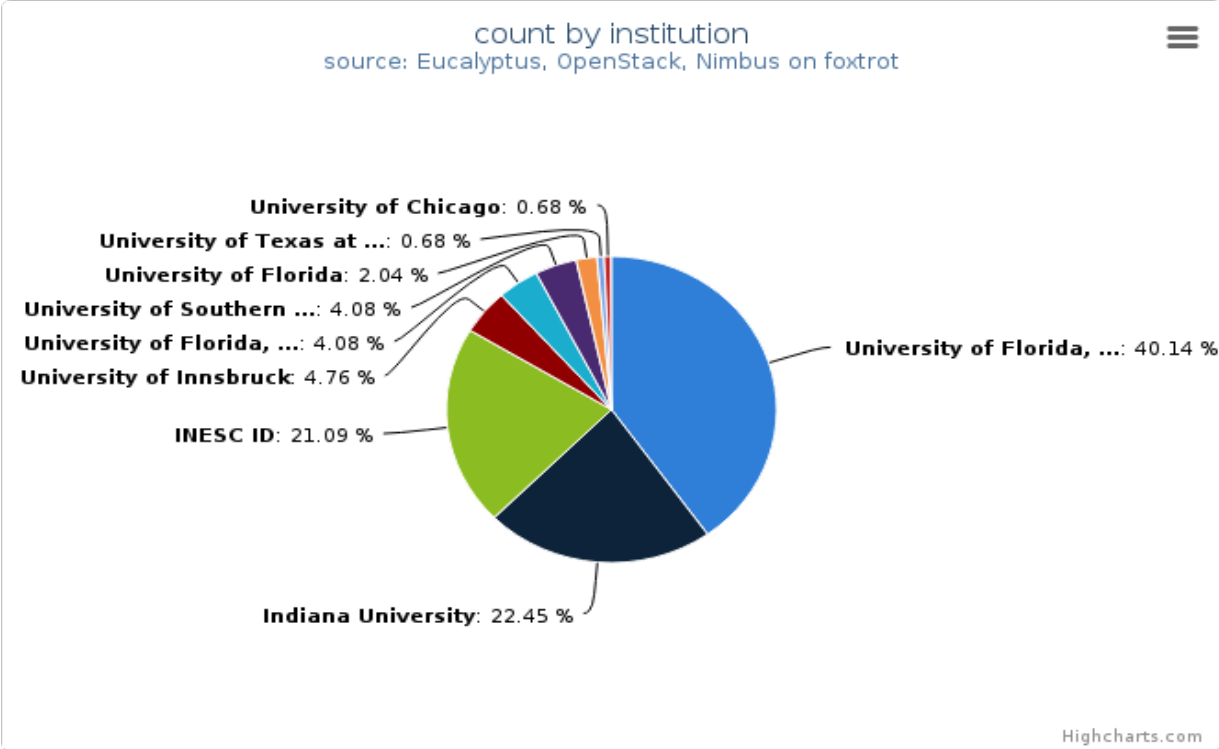| Projectleader	Value
Meng Han	59
Gregor von Laszewski	33
Paolo Romano	31
Renato Figueiredo	8
Thomas Fahringer	7
Weiwei Chen	6
Mauricio Tsugawa	1
Pierre Riteau	1
John Lockman	1

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: July 01 – December 23, 2013

- Cloud(IaaS): nimbus

- Hostname: foxtrot

Table 5.3: VMs count by institution

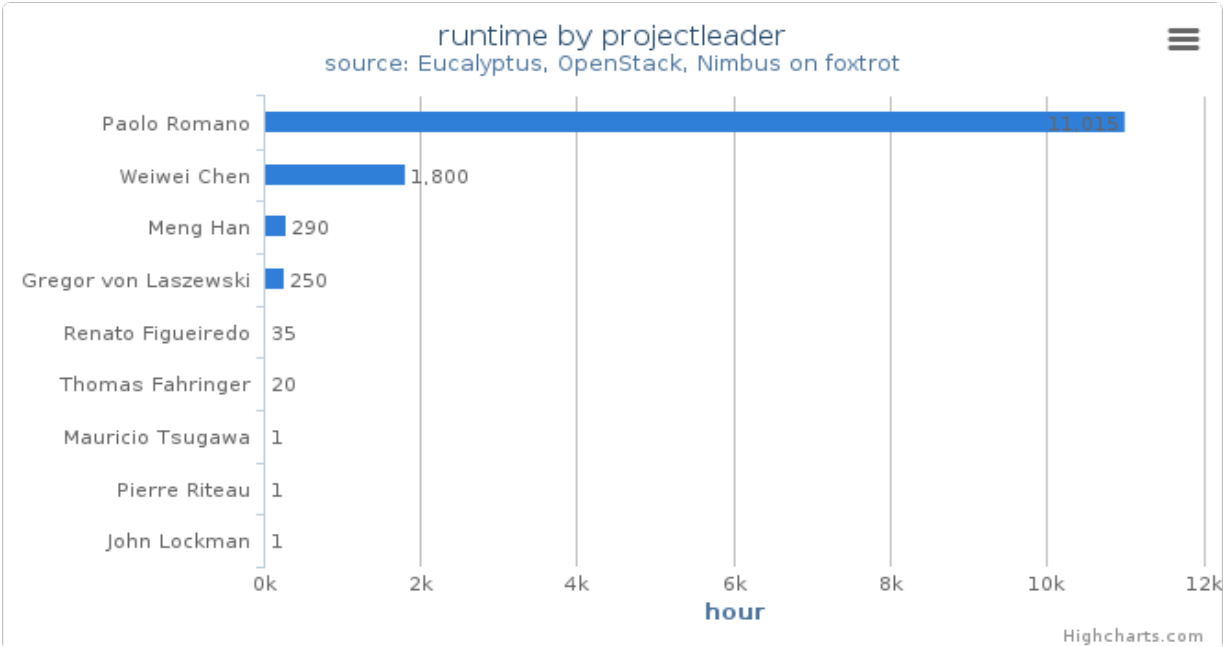| Institution	Value
University of Florida, ACIS	59
Indiana University	33
INESC ID	31
University of Innsbruck	7
University of Florida, Electrical and Computer Engineering	6
University of Southern California	6
University of Florida	3
University of Texas at Austin	1
University of Chicago	1

Figure 9: Wall time (hours) by project leader

This chart illustrates proportionate total run times by project leader.

- Period: July 01 – December 23, 2013

- Cloud(IaaS): nimbus

- Hostname: foxtrot

5.3 System information

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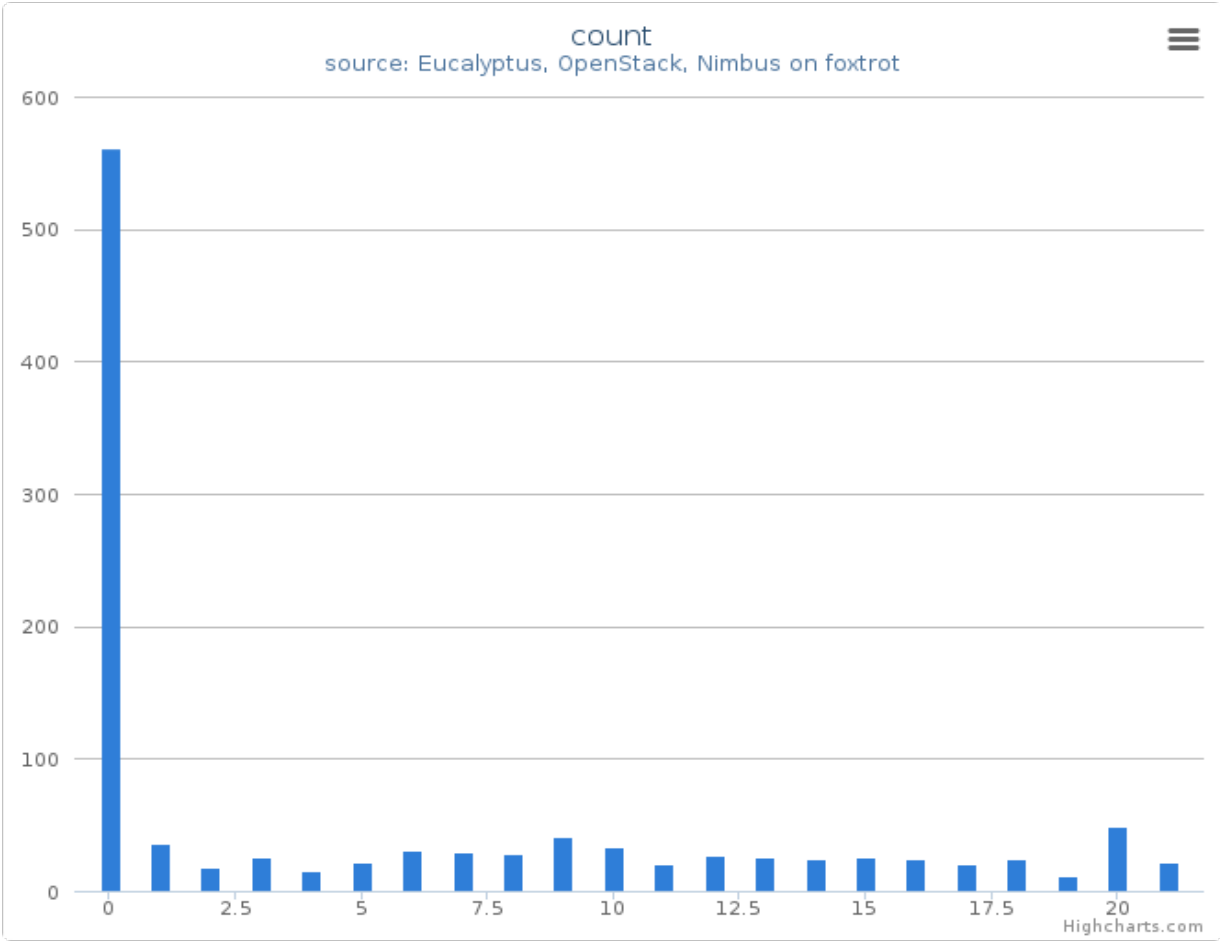
Figure 10: VMs count by systems (compute nodes) in Cluster (foxtrot)

This column chart represents VMs count among systems.

- Period: July 01 – December 23, 2013

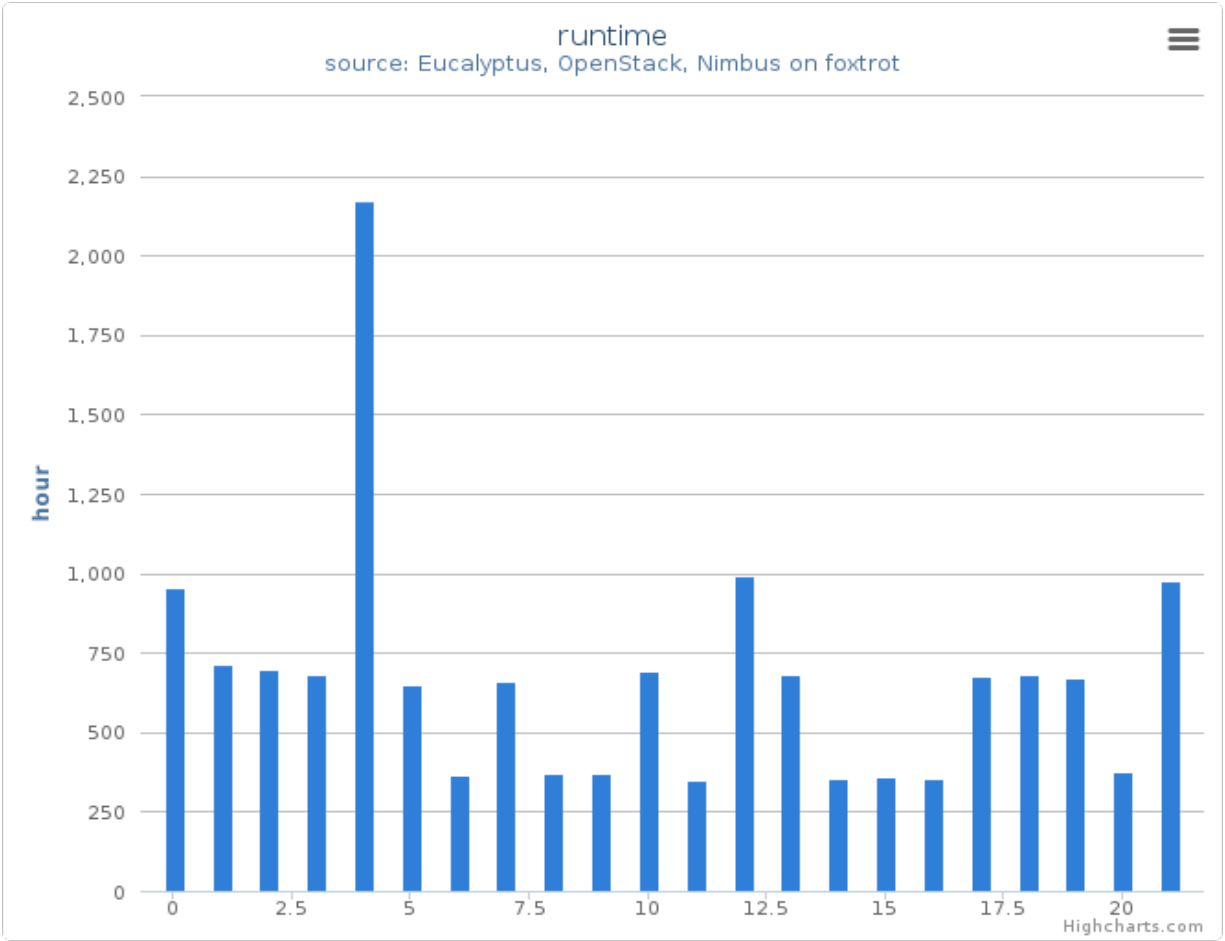- Cloud(IaaS): nimbus

- Hostname: foxtrot

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

- Period: July 01 – December 23, 2013

- Cloud(IaaS): nimbus

- Hostname: foxtrot

USAGE REPORT HOTEL

- Period: July 01 – December 23, 2013

- 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
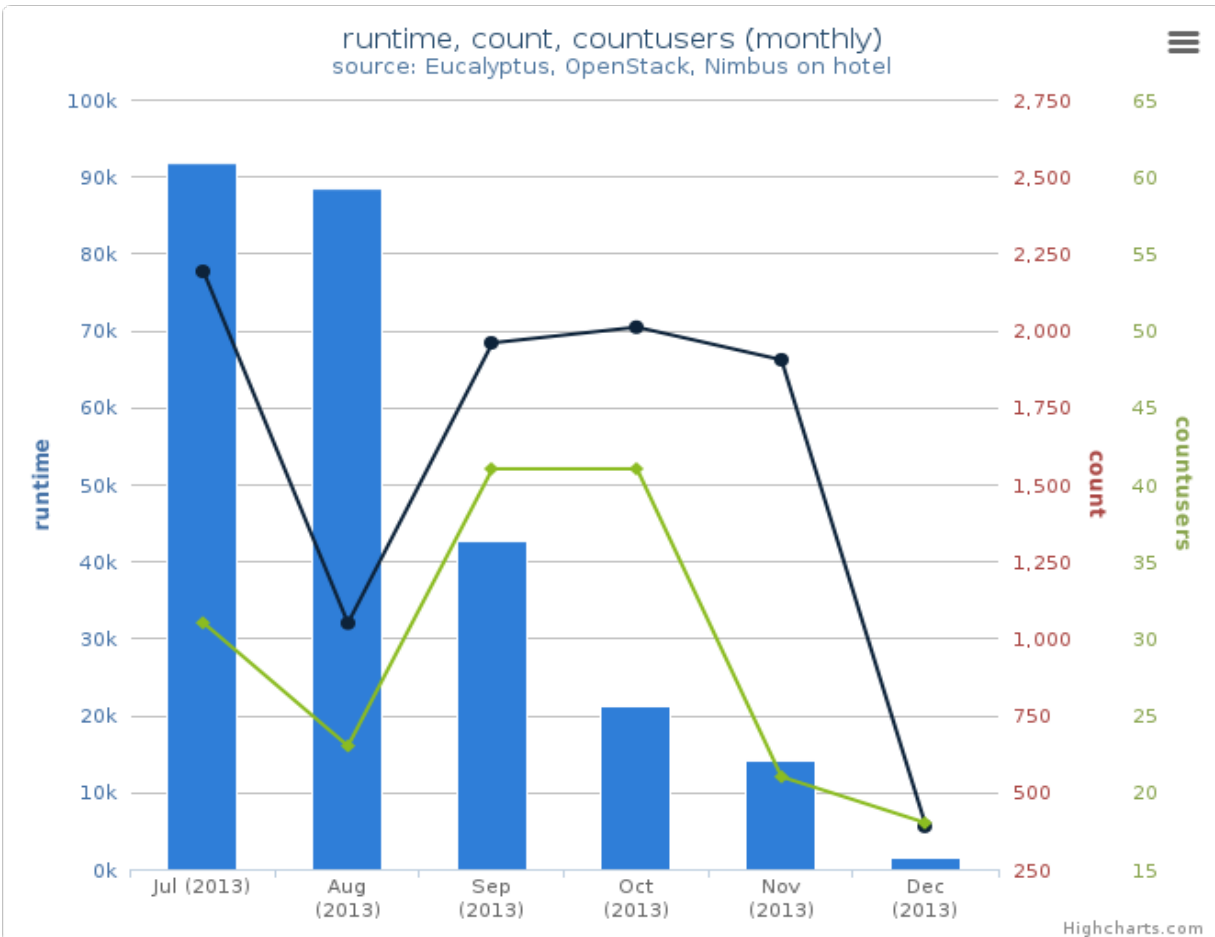
6.1 Histogram

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: July 01 – December 23, 2013

- 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
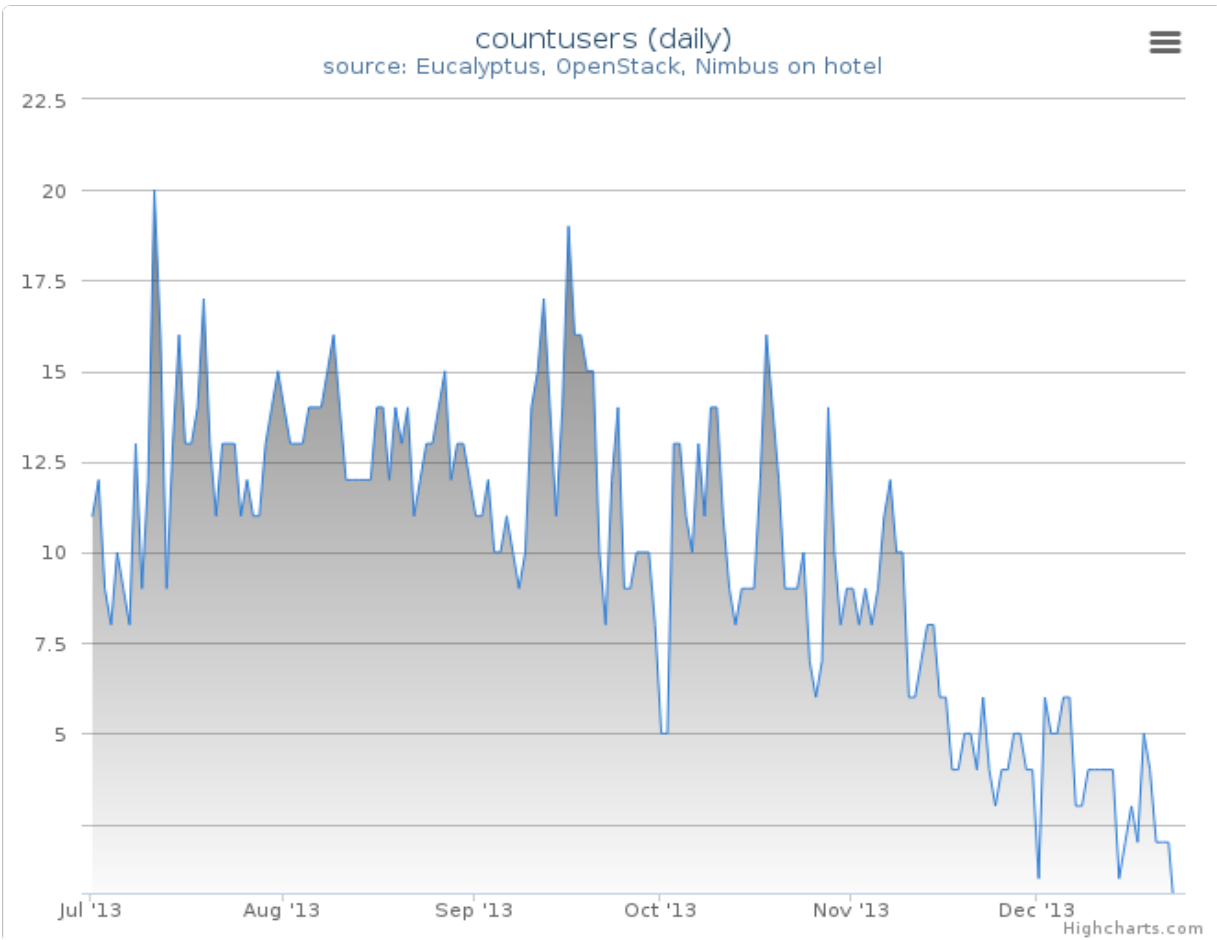
6.1.2 Summary (Daily)

Figure 2: Users count

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

- Period: July 01 – December 23, 2013

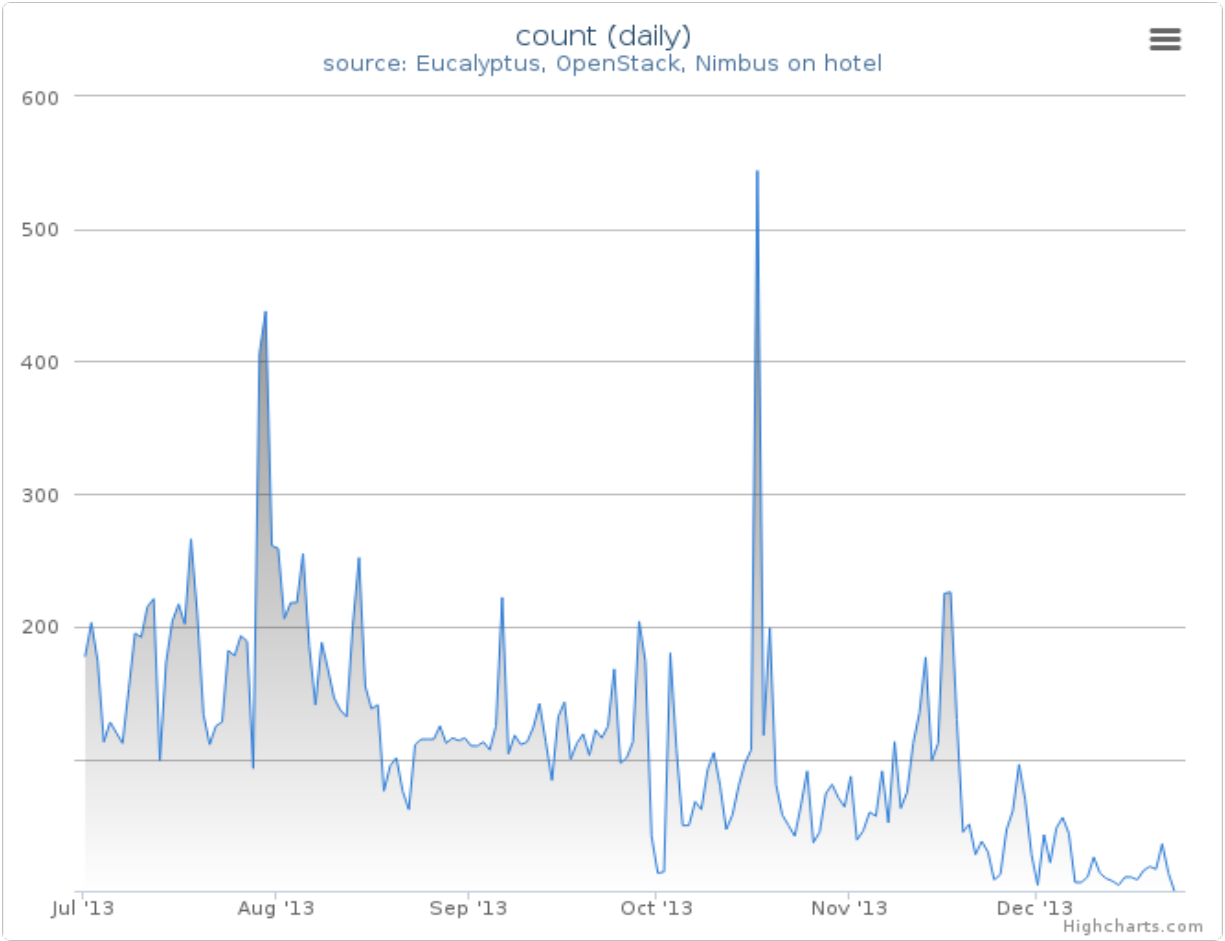- Cloud(IaaS): nimbus

- 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: July 01 – December 23, 2013
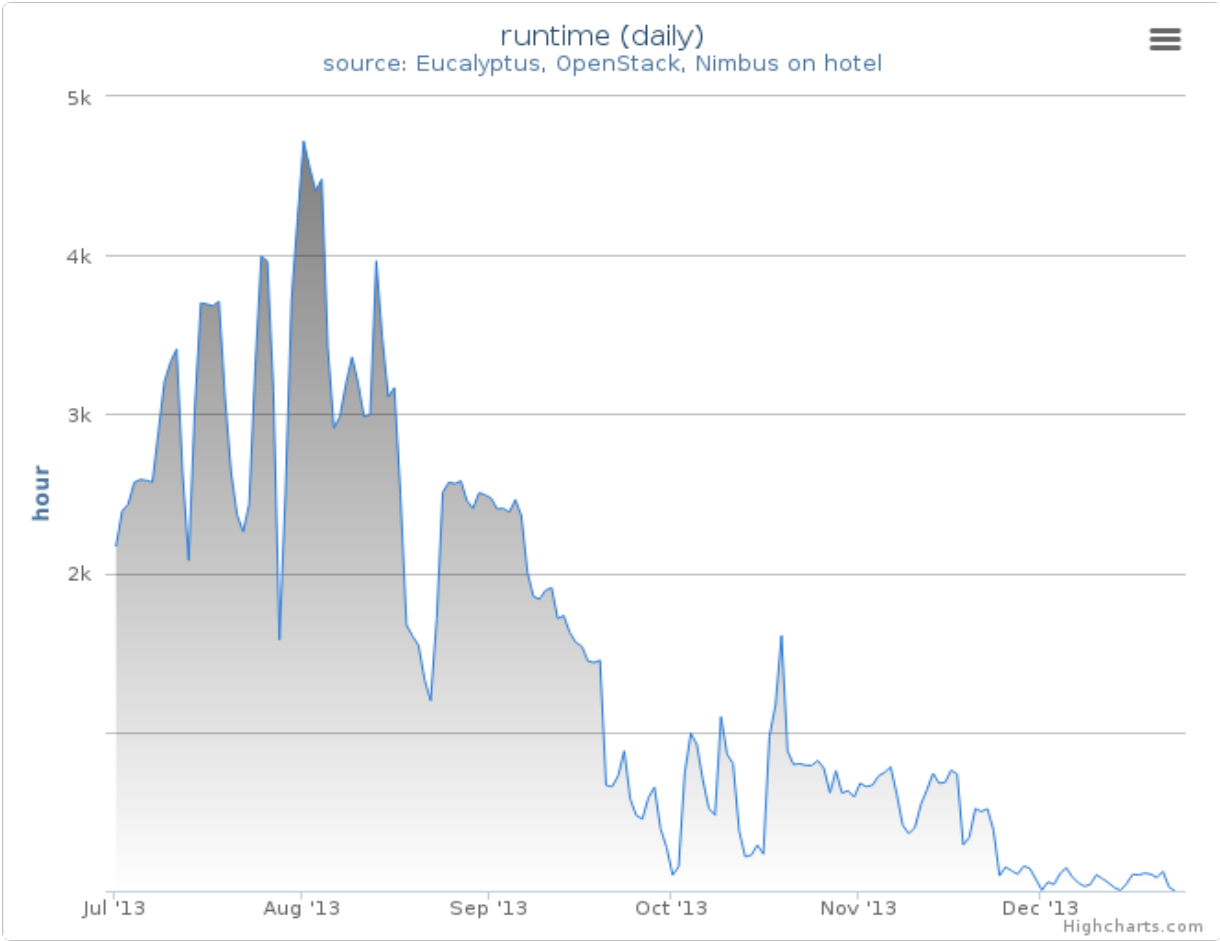
- Cloud(IaaS): nimbus

- 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: July 01 – December 23, 2013
- Cloud(IaaS): nimbus
- Hostname: hotel

6.2 Distribution

Figure 5: VM count by wall time

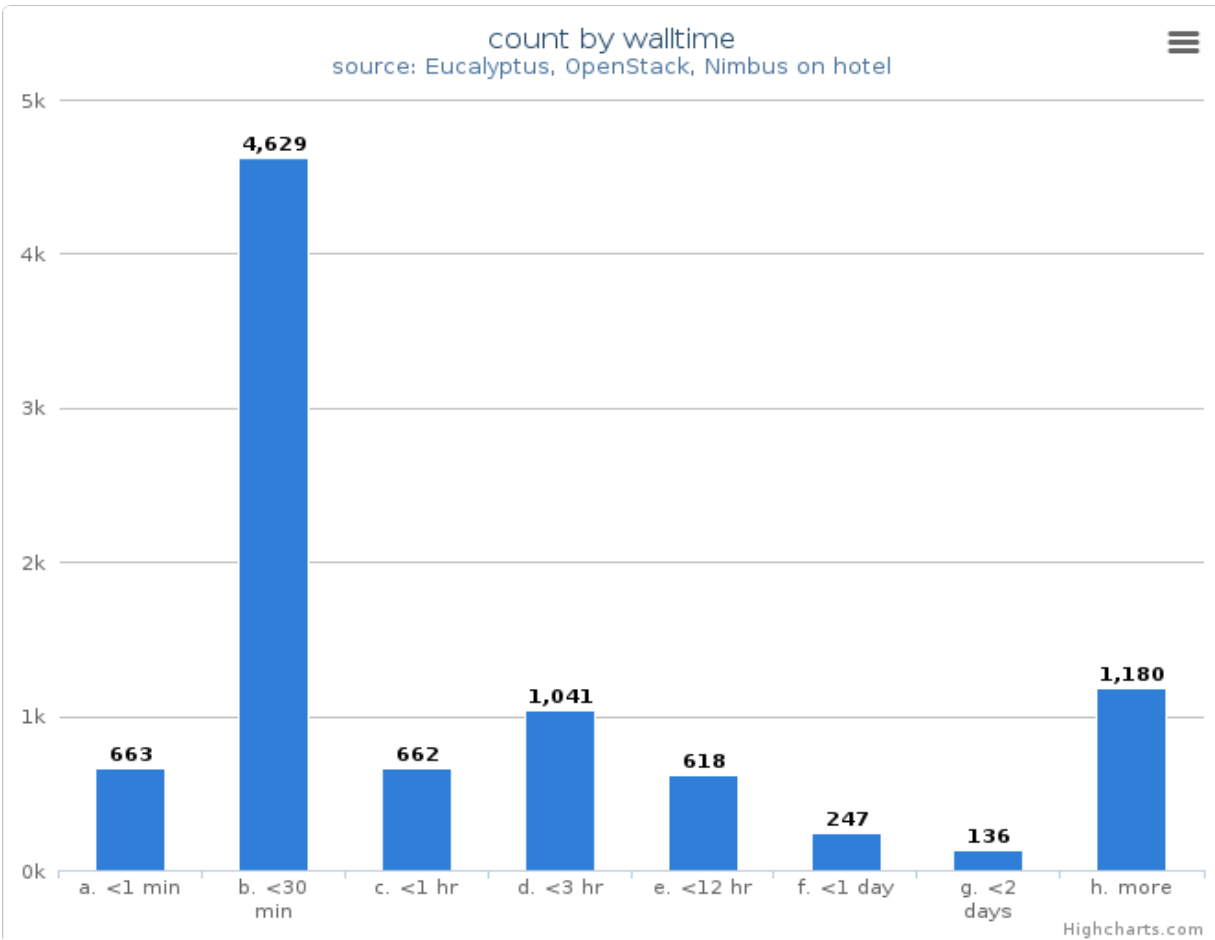This chart illustrates usage patterns of VM instances in terms of running wall time.

- Period: July 01 – December 23, 2013
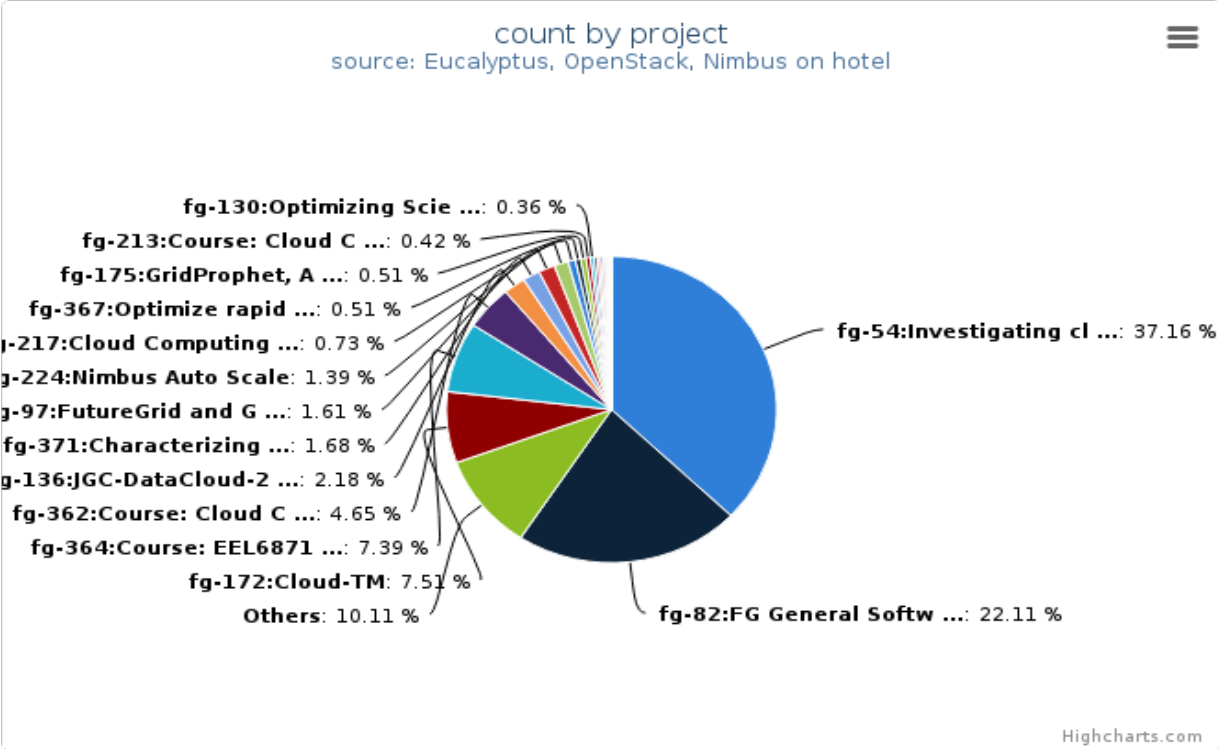
- Cloud(IaaS): nimbus

- 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: July 01 – December 23, 2013

- Cloud(IaaS): nimbus

- Hostname: hotel

Table 6.1: VMs count by project

| Project	Value
fg-54:Investigating cloud computing as a solution for analyzing particle physics data	2815
fg-82:FG General Software Development	1675
Others	766
fg-172:Cloud-TM	569
fg-364:Course: EEL6871 Autonomic Computing	560
fg-362:Course: Cloud Computing and Storage (UF)	352
fg-136:JGC-DataCloud-2012 paper experiments	165
fg-371:Characterizing Infrastructure Cloud Performance for Scientific Computing	127
fg-97:FutureGrid and Grid'5000 Collaboration	122
fg-224:Nimbus Auto Scale	105
fg-217:Cloud Computing In Education	55
fg-367:Optimize rapid deployment and updating of VM images at the remote compute cluster	39
fg-175:GridProphet, A workflow execution time prediction system for the Grid	39
fg-213:Course: Cloud Computing class - second edition	32
fg-130:Optimizing Scientific Workflows on Clouds	27
fg-52:Cost-Aware Cloud Computing	24
fg-10:TeraGrid XD TIS(Technology Insertion Service) Technology Evaluation Laboratory	22
fg-47:Parallel scripting using cloud resources	21
fg-374:Course: Cloud and Distributed Computing	16
fg-381:Authentication of Mobile Cloud Computing	14
fg-340:Research: Parallel Computing for Machine Learning	8
fg-341:Course: Parallel Computing	5
fg-372:Mobile Device Computation Offloading over SocialVPNs	5
fg-201:ExTENCI Testing, Validation, and Performance	4
fg-150:SC11: Using and Building Infrastructure Clouds for Science	3
fg-391:Topics in Parallel Computation	2
fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters	2
fg-60:Wide area distributed file system for MapReduce applications on FutureGrid platform	1
fg-355:Course: Data Center Scale Computing Class	1
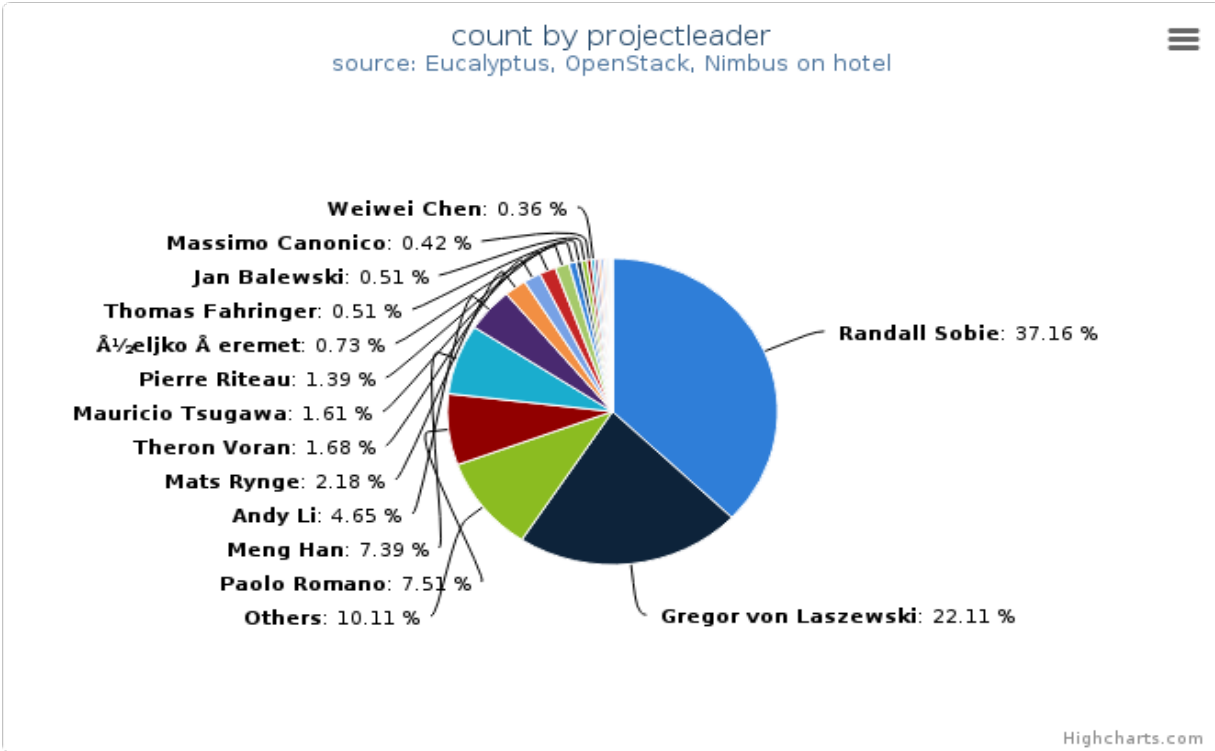
Figure 7: VMs count by project leader

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

- Period: July 01 – December 23, 2013

- Cloud(IaaS): nimbus

- Hostname: hotel

Table 6.2: VMs count by project
leader

| Projectleader	Value
Randall Sobie	2815
Gregor von Laszewski	1675
Others	766
Paolo Romano	569
Meng Han	560
Andy Li	352
Mats Rynge	165
Theron Voran	127
Mauricio Tsugawa	122
Pierre Riteau	105
Željko Šeremet	55
Thomas Fahringer	39
Jan Balewski	39
Massimo Canonico	32
Weiwei Chen	27
David Lowenthal	24
John Lockman	22
Michael Wilde	21
Philip Rhodes	16
Shane Green	14
Wilson Rivera	13
Renato Figueiredo	7
Preston Smith	4
John Bresnahan	3
Heru Suhartanto	2
Dirk Grunwald	1
Lizhe Wang	1
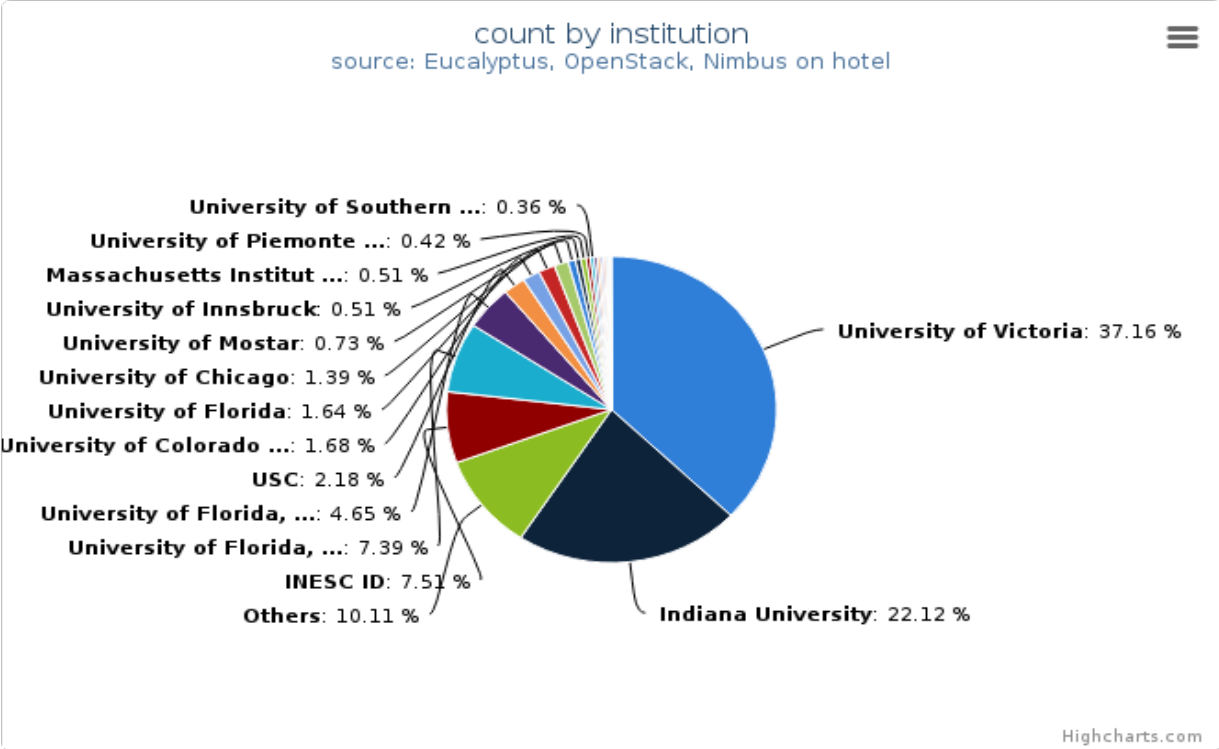
Figure 8: VMs count by institution

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

- Period: July 01 – December 23, 2013

- Cloud(IaaS): nimbus

- Hostname: hotel

Table 6.3: VMs count by institution

| Institution	Value
University of Victoria	2815
Indiana University	1676
Others	766
INESC ID	569
University of Florida, ACIS	560
University of Florida, Department of Electrical and Computer Eng	352
USC	165
University of Colorado at Boulder, Computer Science Department	127
University of Florida	124
University of Chicago	105
University of Mostar	55
University of Innsbruck	39
Massachusetts Institute of Technology, Laboratory for Nuclear Sc	39
University of Piemonte Orientale	32
University of Southern California	27
University of Arizona	24
University of Texas at Austin	22
Argonne National Laboratory	21
University of Mississippi, Department of Computer Science	16
Colorado Technical University, Computer Science and Engineering	14
University of Puerto Rico, Electrical and Computer Emgineering D	13
University of Florida, Electrical and Computer Engineering	5
Purdue University	4
Nimbus	3
Universitas Indonesia, Faculty of Computer Science	2
Univ. of Colorado, Boulder, Computer Science	1
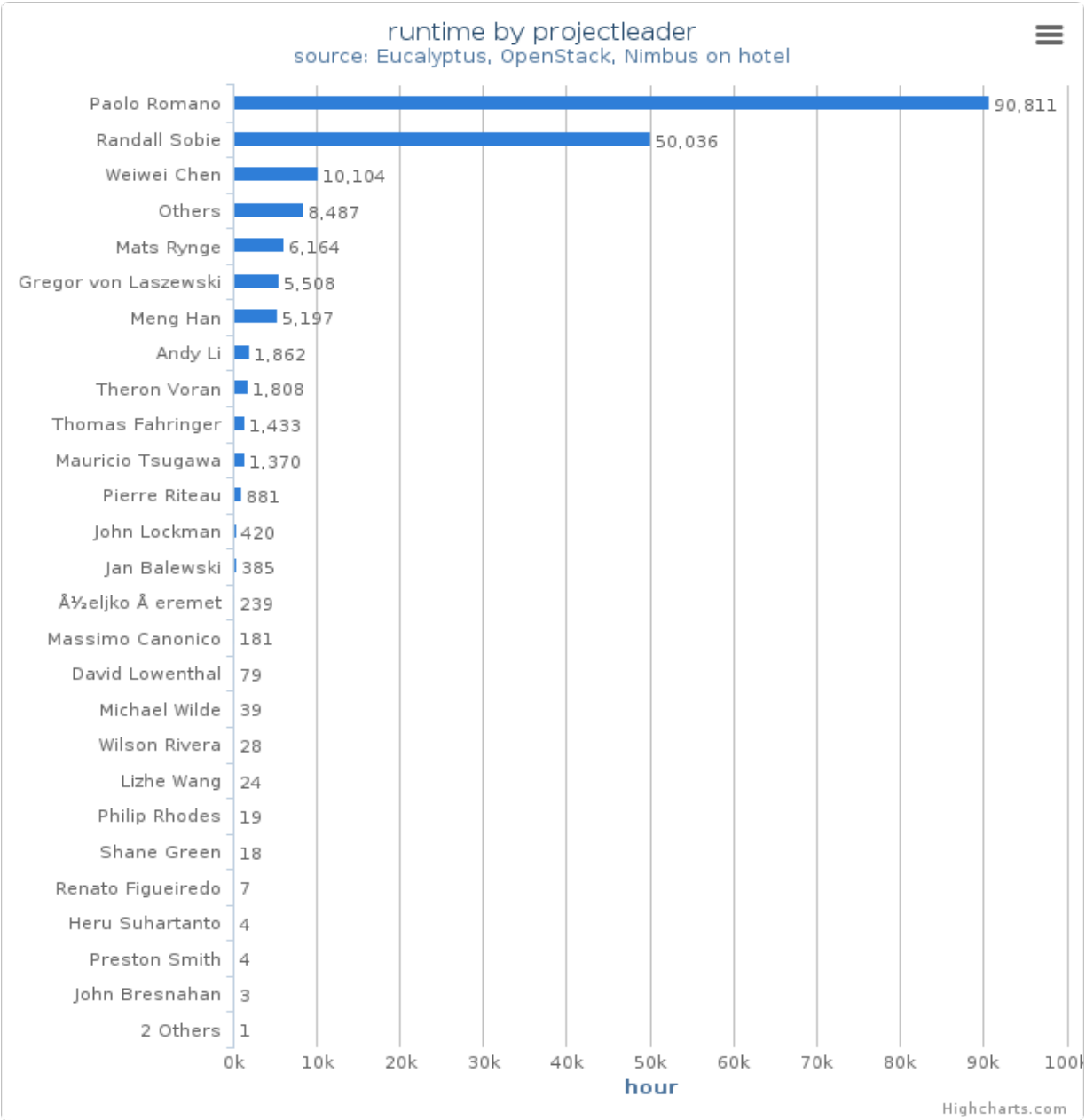
Figure 9: Wall time (hours) by project leader

This chart illustrates proportionate total run times by project leader.

- Period: July 01 – December 23, 2013

- Cloud(IaaS): nimbus

- Hostname: hotel

6.3 System information

System information shows utilization distribution as to VMs count and wall time. Each cluster represents a compute node.
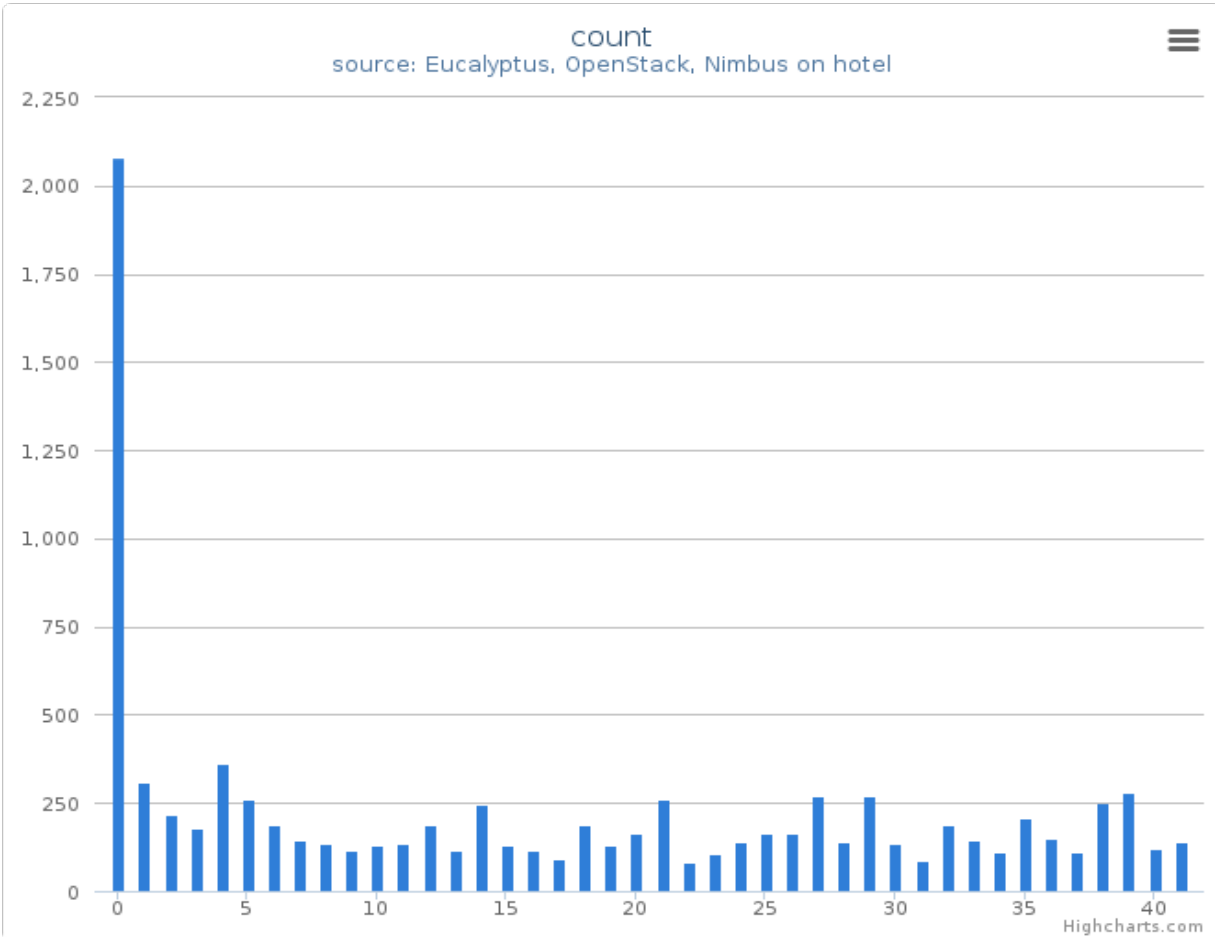

Figure 10: VMs count by systems (compute nodes) in Cluster (hotel)
This column chart represents VMs count among systems.

- Period: July 01 – December 23, 2013

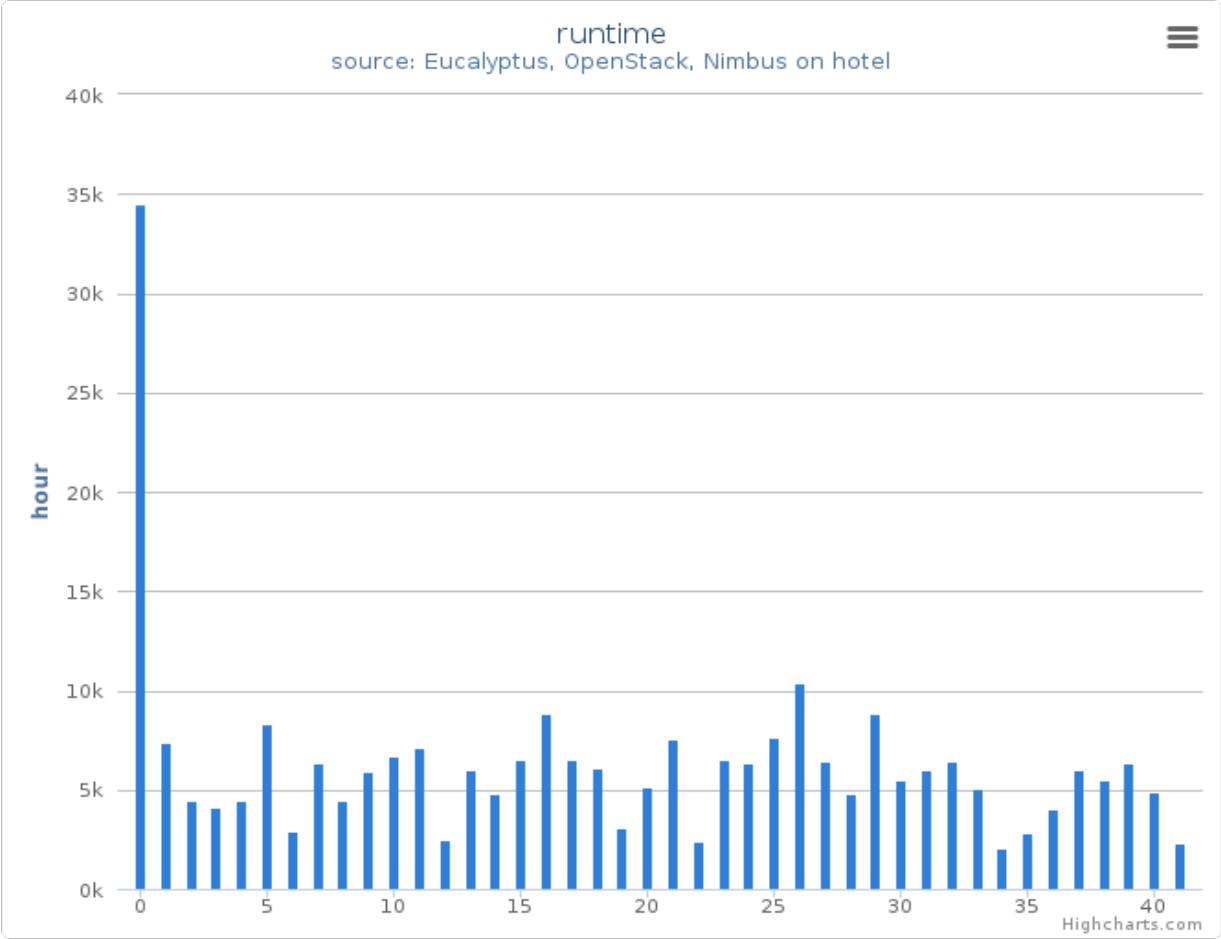- Cloud(IaaS): nimbus

- Hostname: hotel

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

- Period: July 01 – December 23, 2013

- Cloud(IaaS): nimbus

- Hostname: hotel

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

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.