
FG Resource Report

Release 0.4

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July 28, 2014

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SUMMARY REPORT (ALL)

- Period: April 01 – June 30, 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)

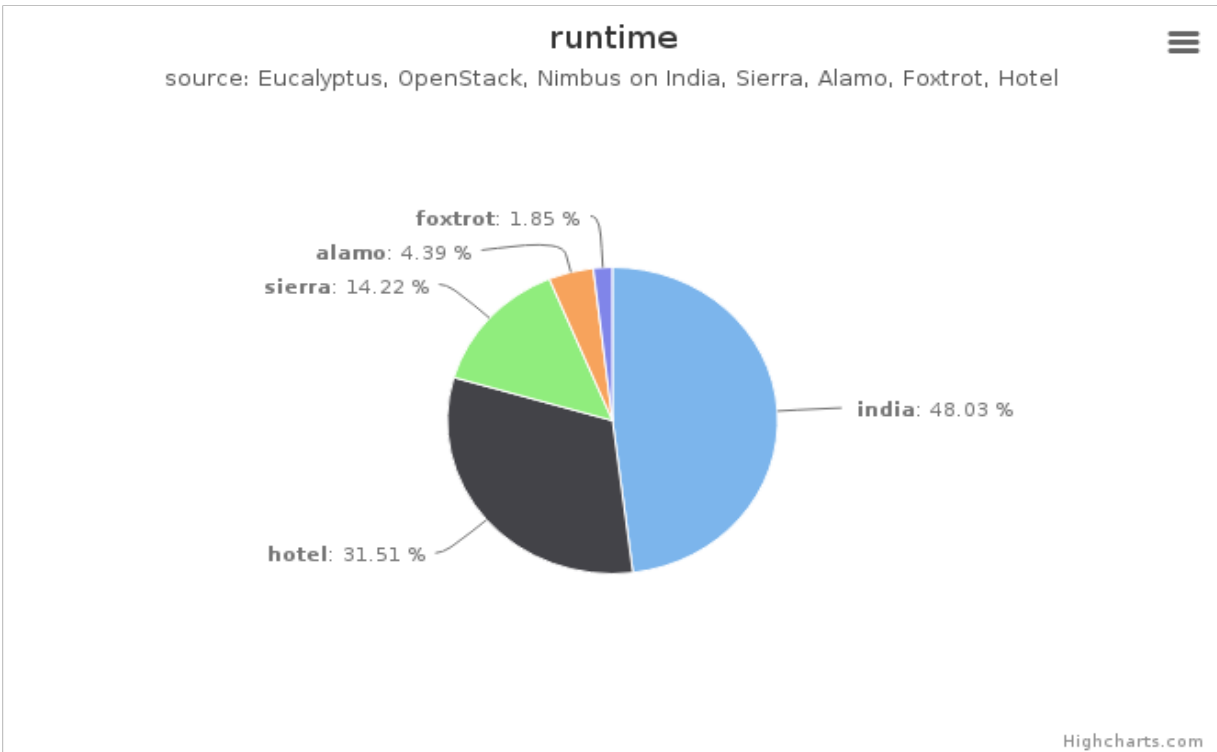


Figure 1. Wall time (hours) by Clusters

This chart represents overall usage of wall time (hours).

- Period: April 01 – June 30, 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	102905.0
hotel	67499.0
sierra	30463.0
alamo	9403.0
foxtrot	3974.0

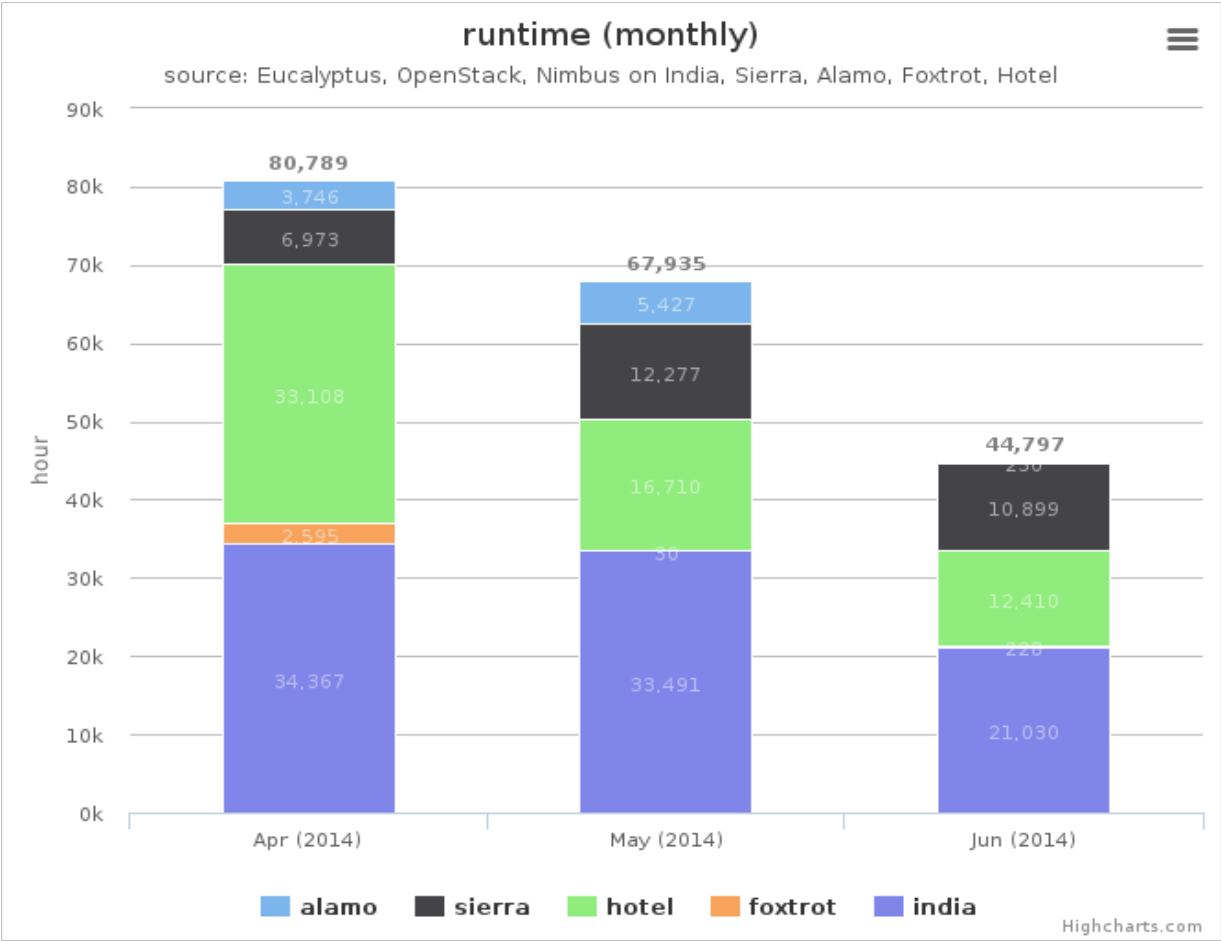


Figure 2. Wall time (hours) by Clusters (monthly)
This stacked column chart represents average monthly usage of wall time (hours).

- Period: April 01 – June 30, 2014
- **Cloud:**
 - india: Eucalyptus, Openstack
 - sierra: Eucalyptus, Nimbus
 - hotel: Nimbus
 - alamo: Nimbus
 - foxtrot: Nimbus

1.2 VM Count by Clusters (Total, monthly)

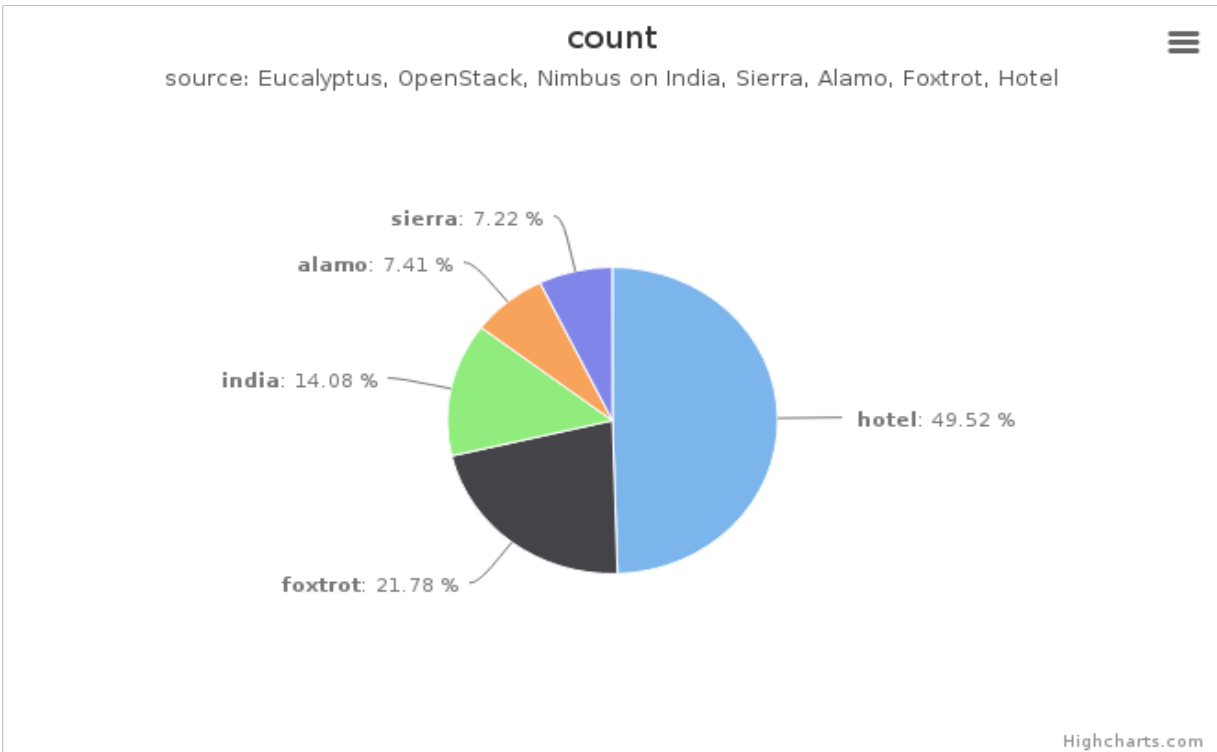


Figure 3. VMs count by Clusters

This chart represents overall VM instances count during the period.

- Period: April 01 – June 30, 2014
- **Cloud:**
 - india: Eucalyptus, Openstack
 - sierra: Eucalyptus, Nimbus
 - hotel: Nimbus
 - alamo: Nimbus
 - foxtrot: Nimbus

Table 1.2: VM instance count by Clusters

Total	Value
hotel	4941
foxtrot	2173
india	1405
alamo	739
sierra	720

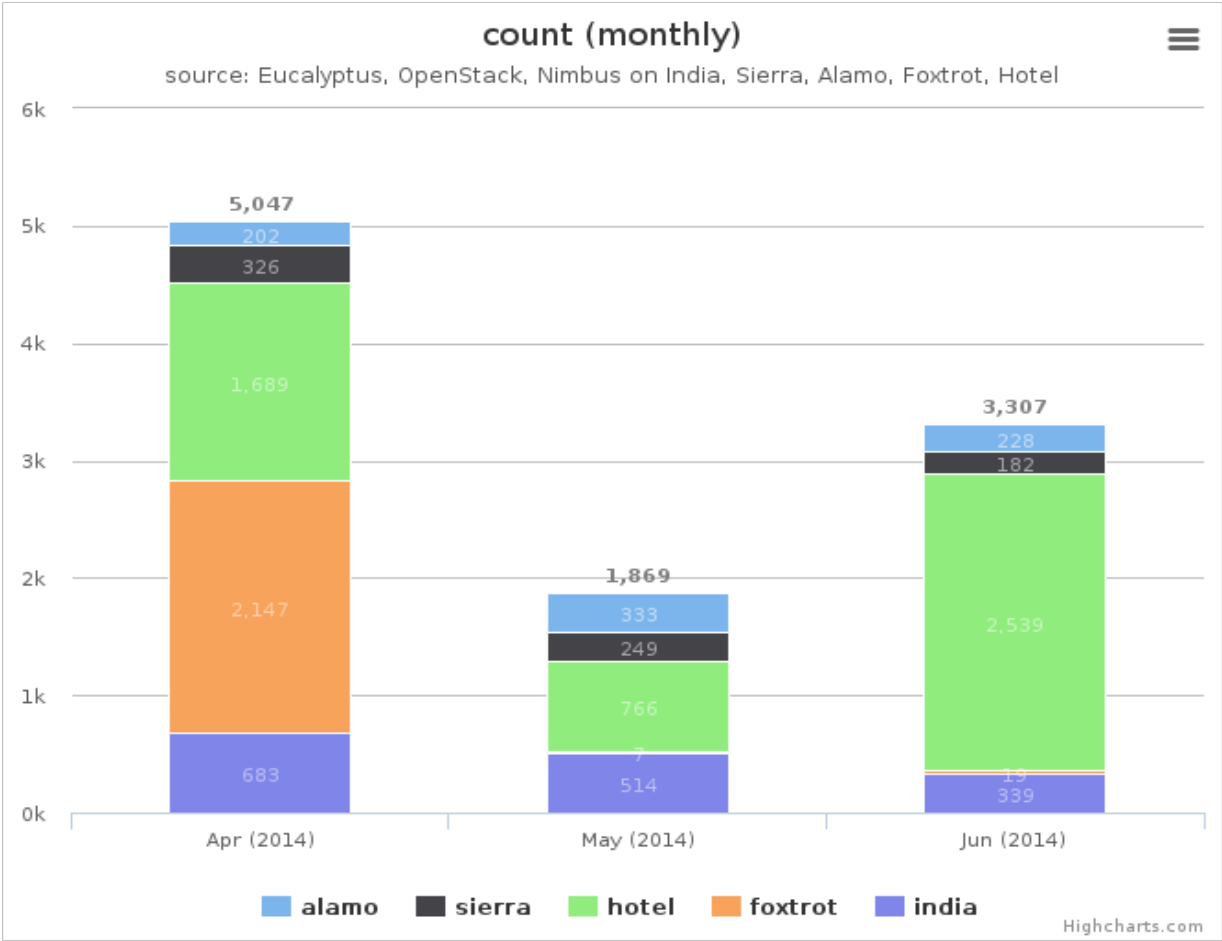


Figure 4. VMs count by Clusters (monthly)
This stacked column chart represents average VM instances count per month.

- Period: April 01 – June 30, 2014
- **Cloud:**
 - india: Eucalyptus, Openstack
 - sierra: Eucalyptus, Nimbus
 - hotel: Nimbus
 - alamo: Nimbus
 - foxtrot: Nimbus

1.3 Users Count by Clusters (Total, monthly)

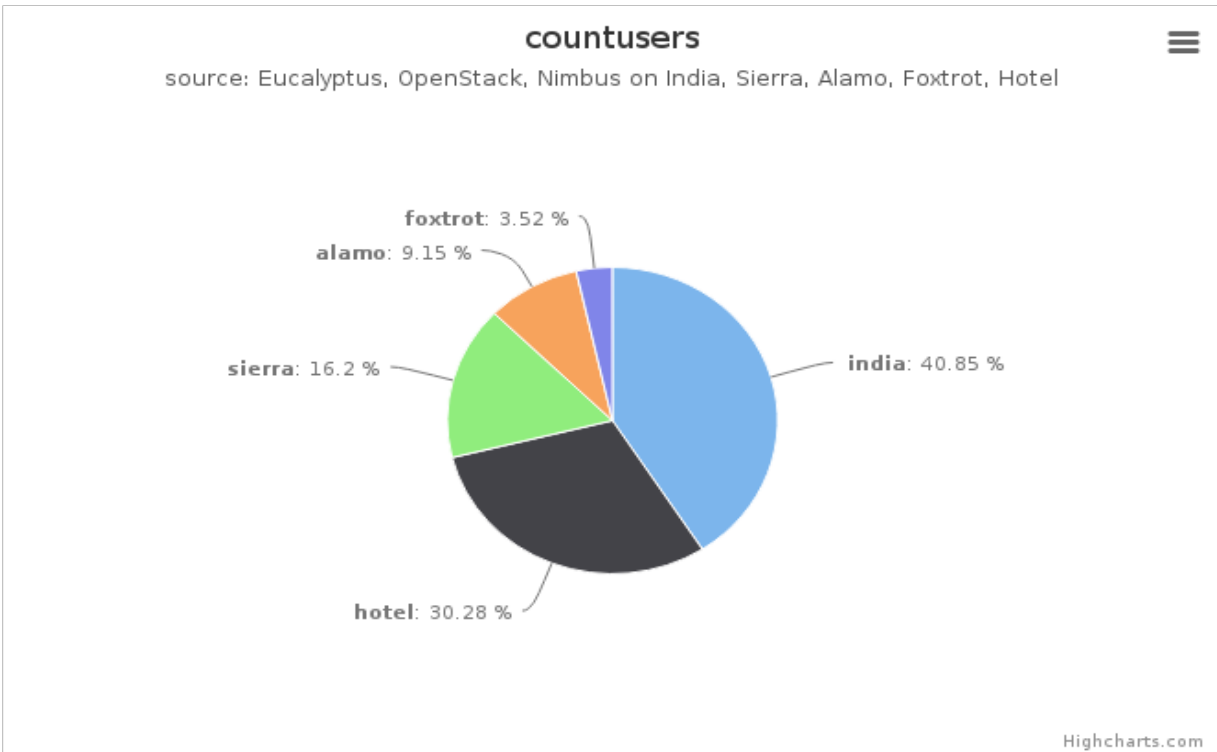


Figure 5. Unique User count by Clusters
 This chart represents total number of unique active users.

- Period: April 01 – June 30, 2014
- **Cloud:**
 - india: Eucalyptus, Openstack
 - sierra: Eucalyptus, Nimbus
 - hotel: Nimbus
 - alamo: Nimbus
 - foxtrot: Nimbus

Table 1.3: Unique User count by Clusters

Total	Value
india	58
hotel	43
sierra	23
alamo	13
foxtrot	5

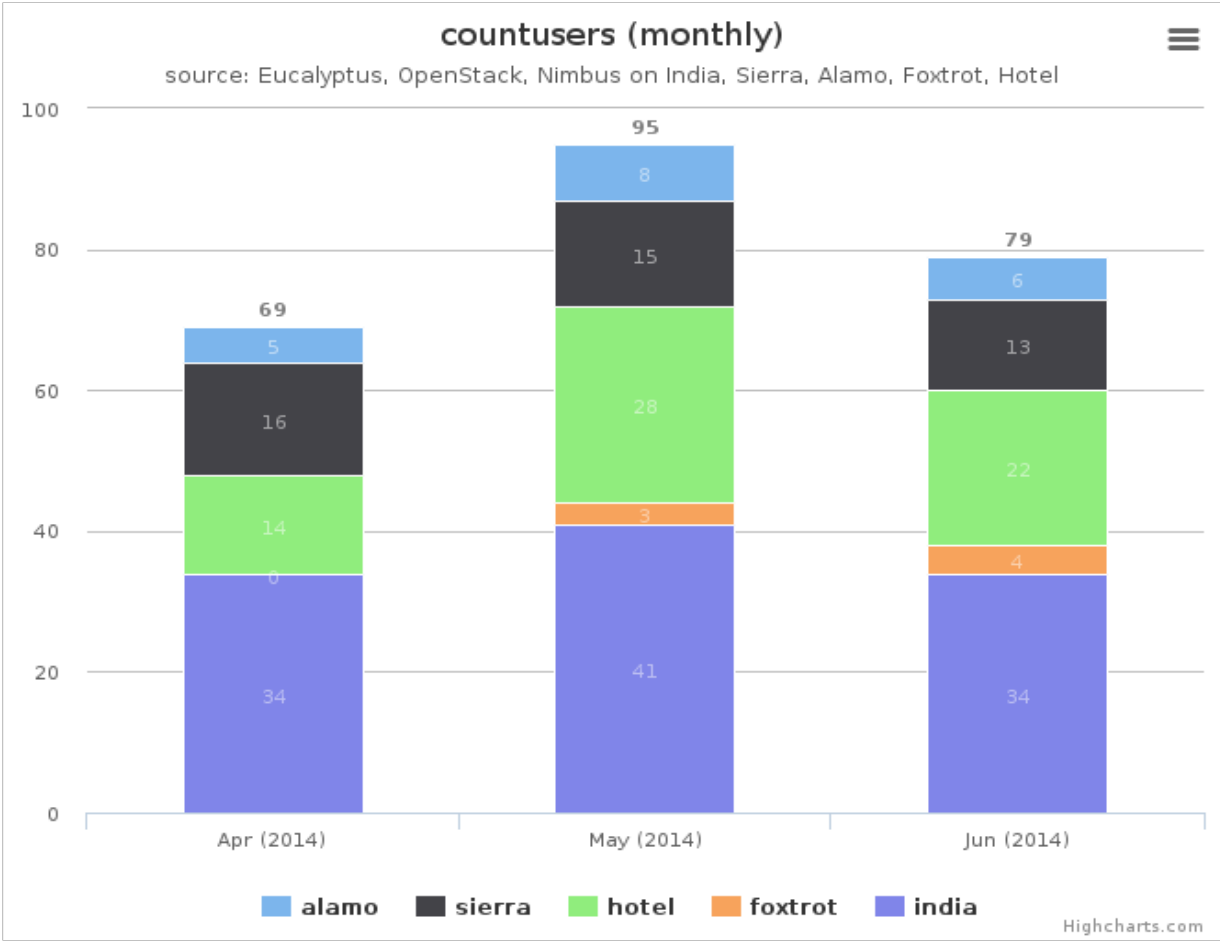


Figure 6. Users count by Clusters (Monthly)
This stacked column chart represents average count of active users per month.

- Period: April 01 – June 30, 2014
- **Cloud:**
 - india: Eucalyptus, Openstack
 - sierra: Eucalyptus, Nimbus
 - hotel: Nimbus
 - alamo: Nimbus
 - foxtrot: Nimbus

USAGE REPORT SIERRA

- Period: April 01 – June 30, 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)

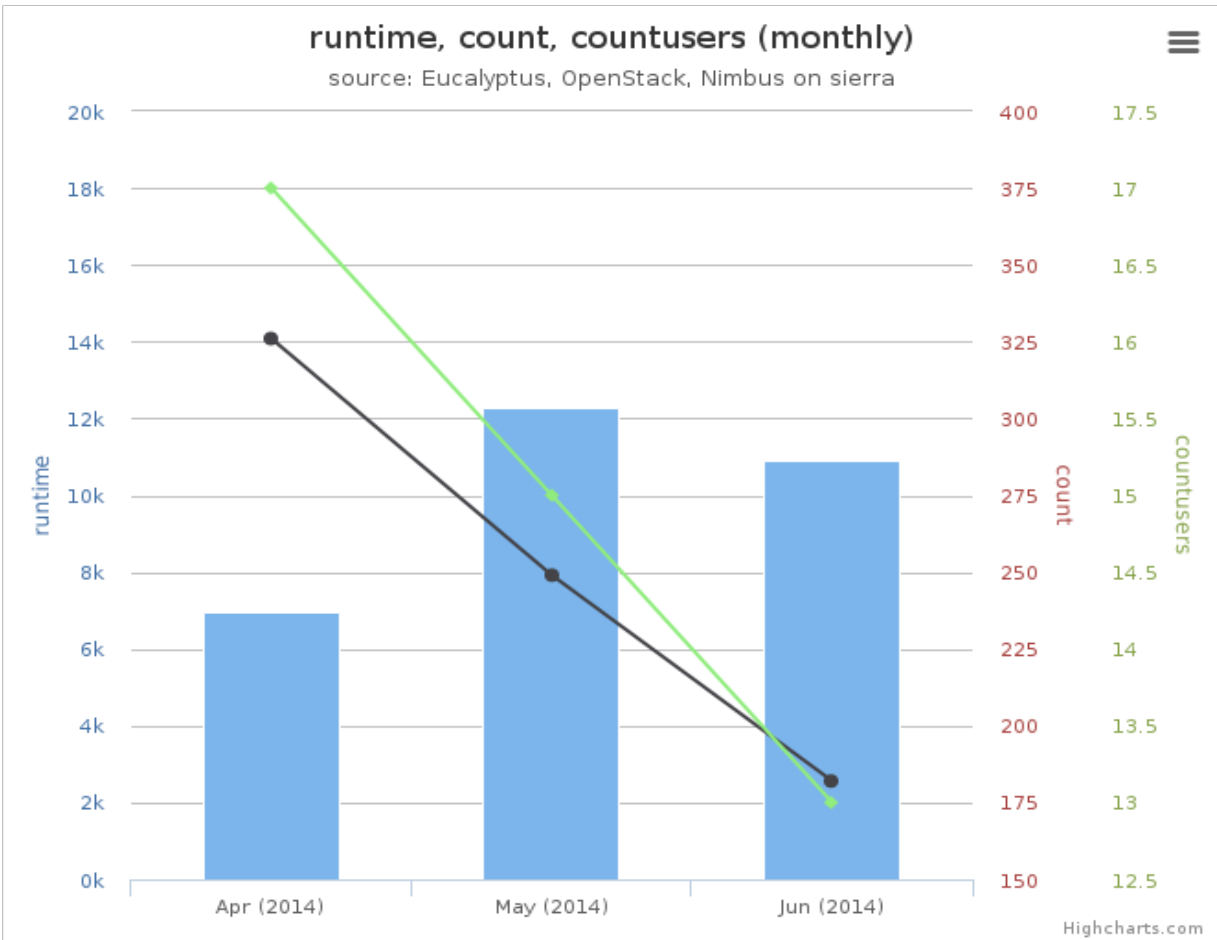


Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)

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

- Period: April 01 – June 30, 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)

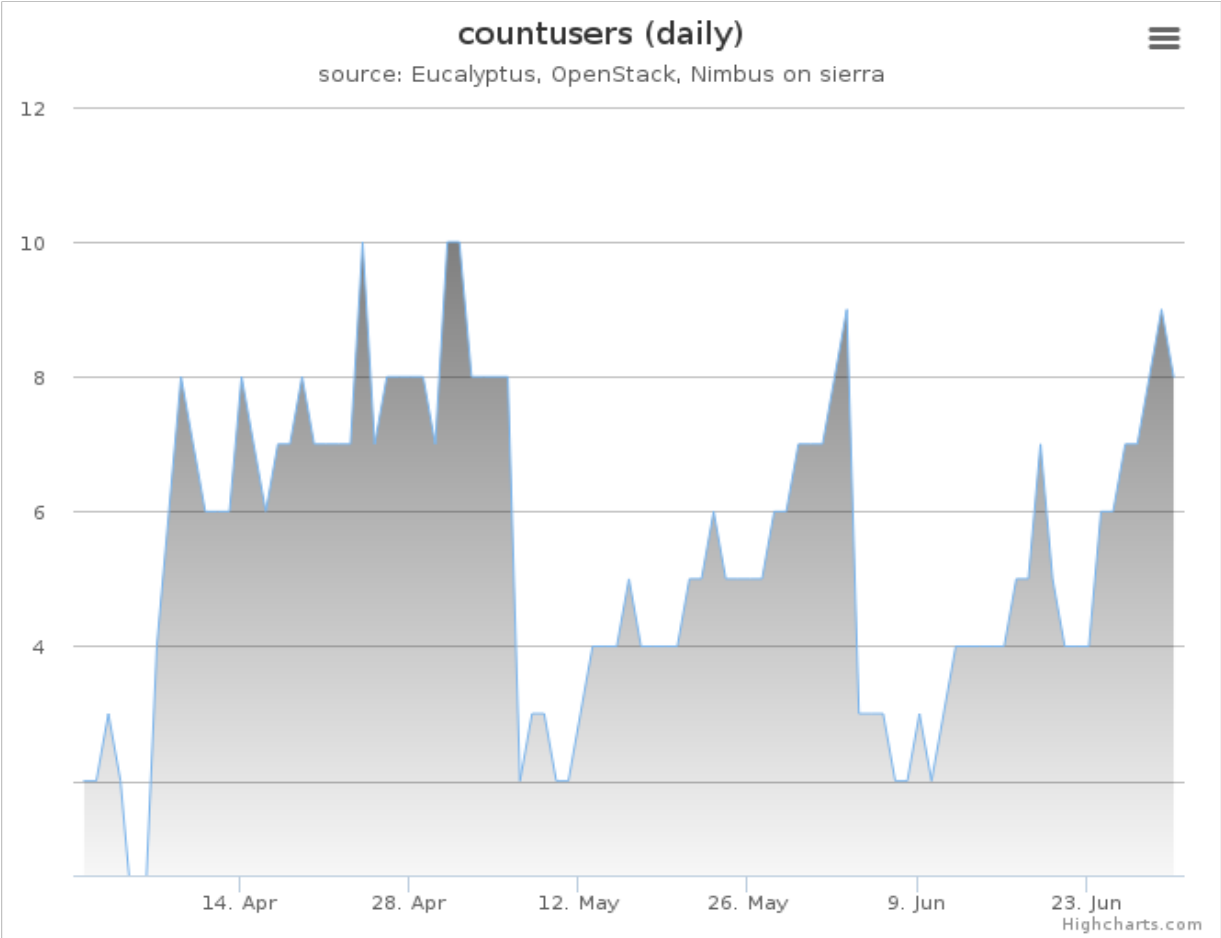


Figure 2: Users count

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

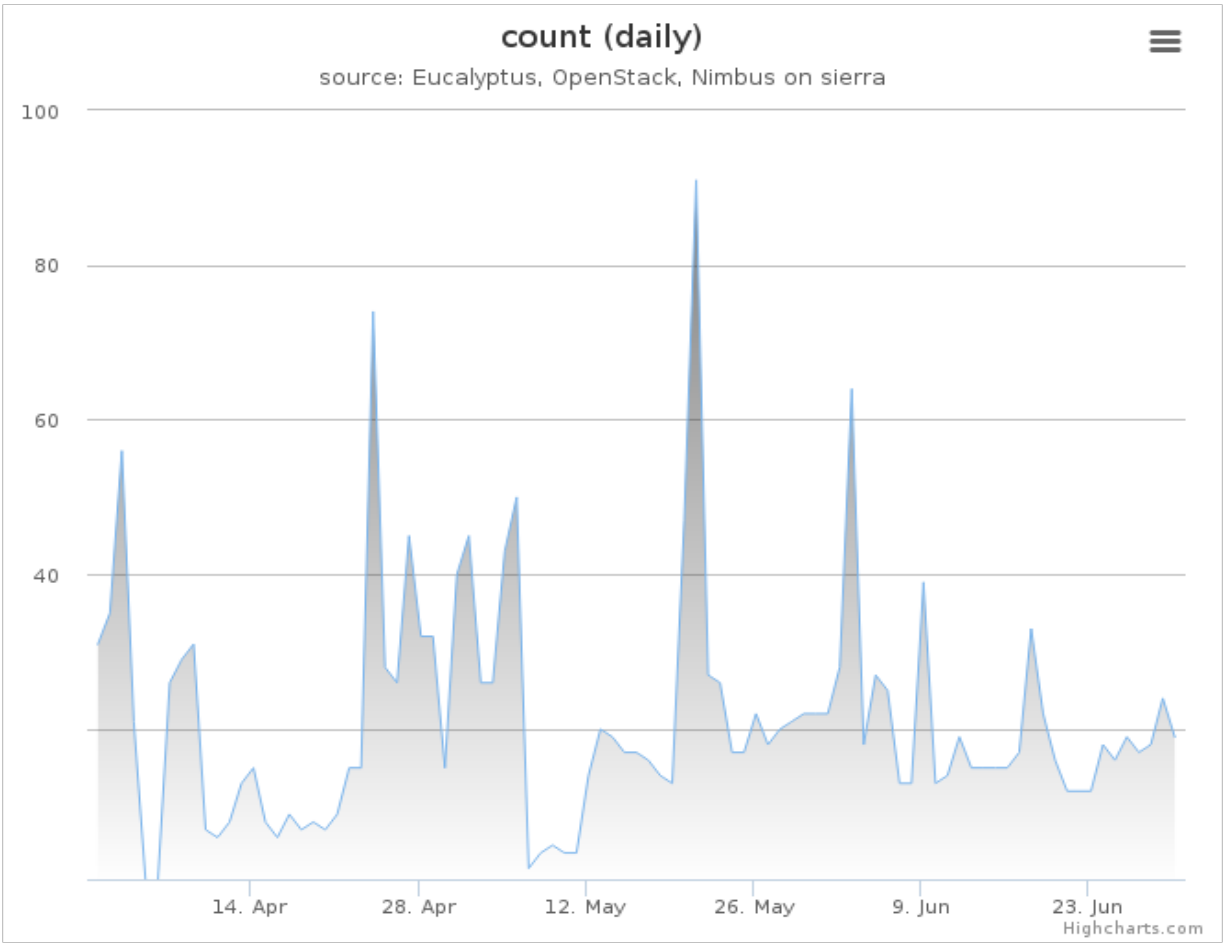


Figure 3: VMs count

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

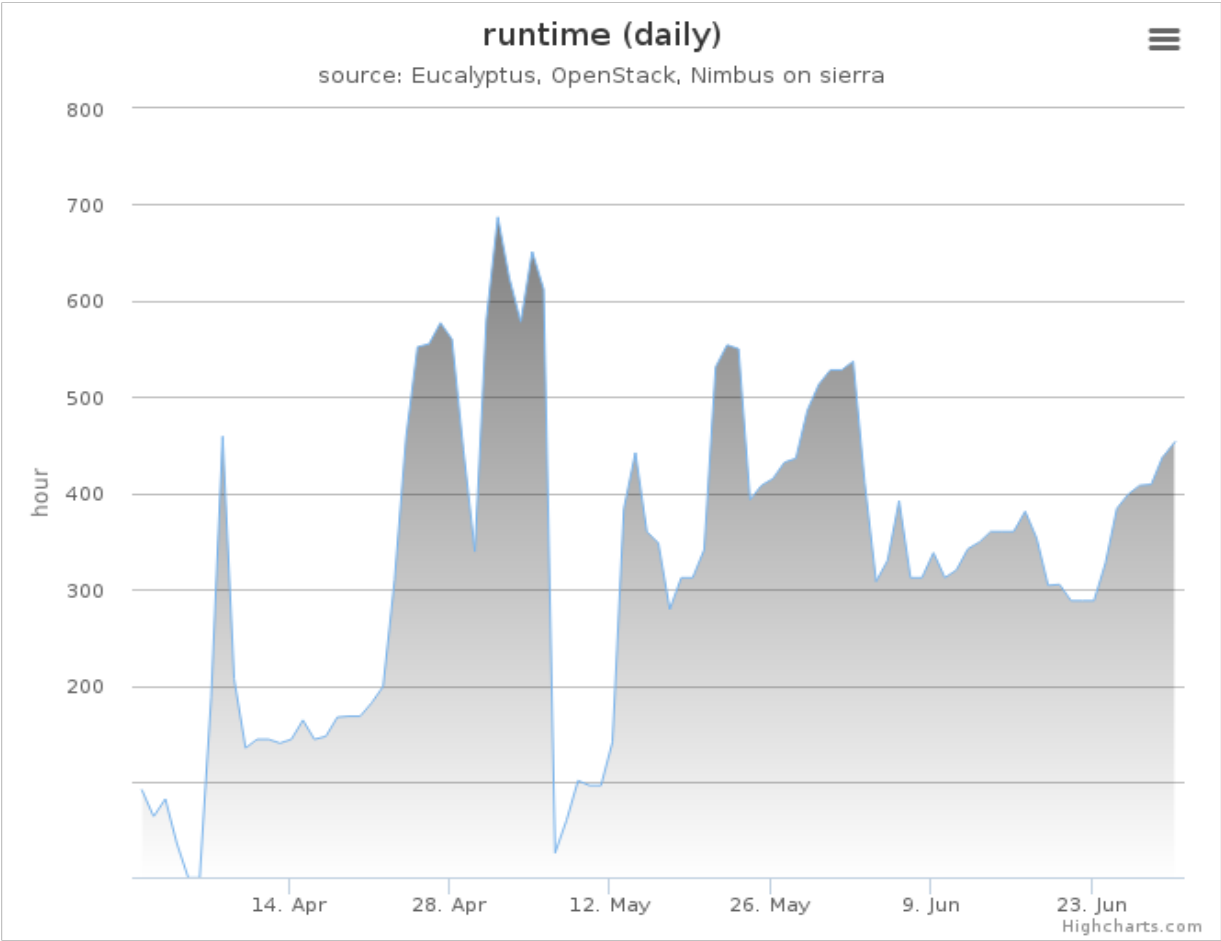


Figure 4: Wall time (hours)
This time series chart represents daily wall time (hours) for cloud services and shows historical changes during the period.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

2.2 Distribution

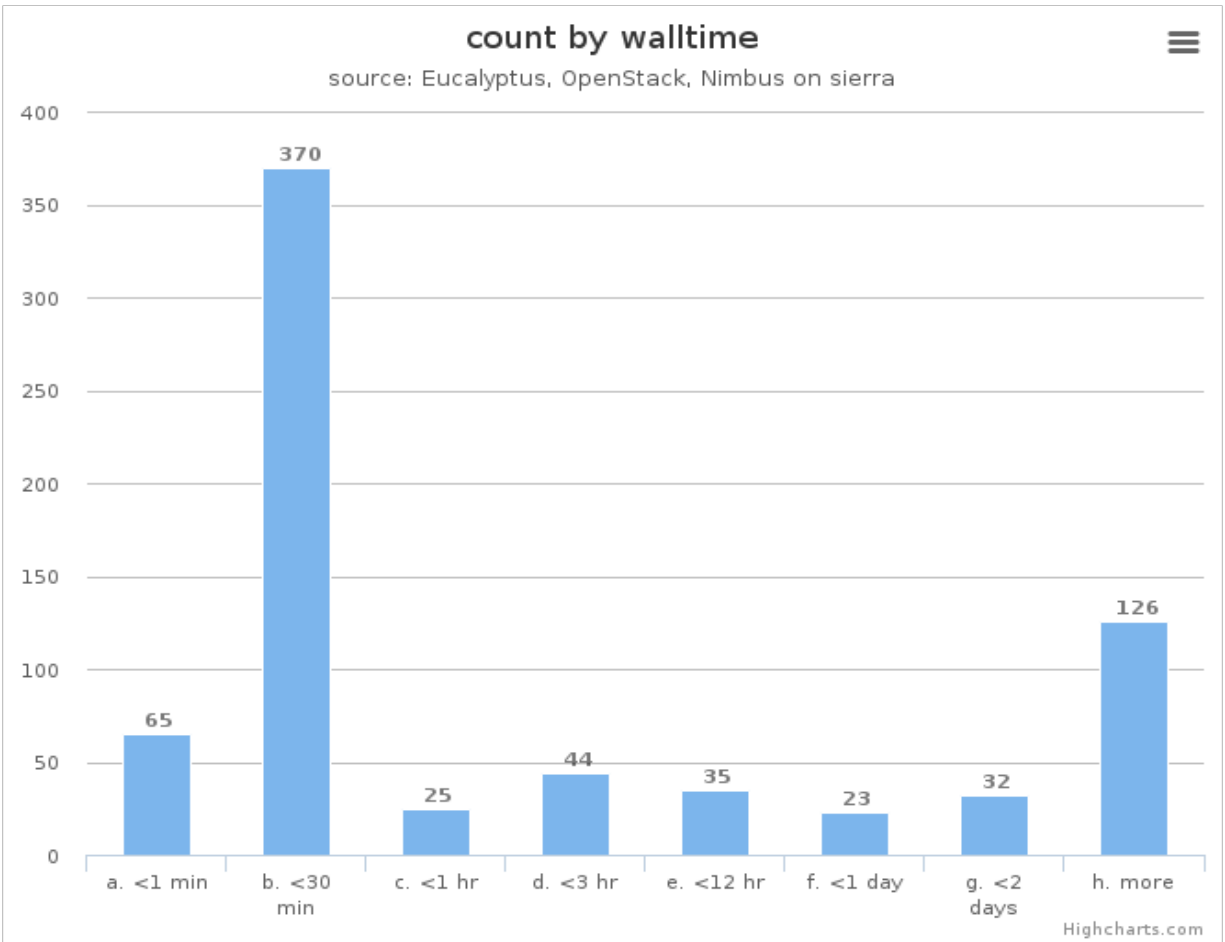


Figure 5: VM count by wall time

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

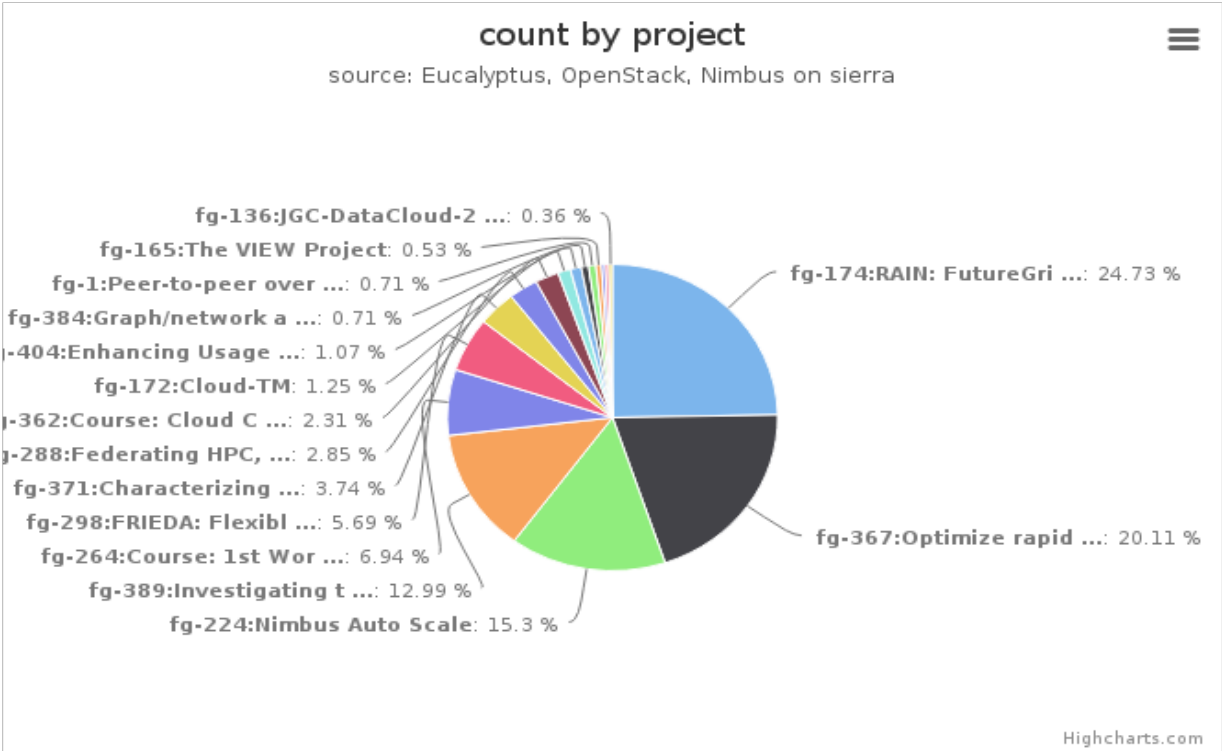


Figure 6: VMs count by project
This chart illustrates the proportion of launched VM instances by project groups. The same data in tabular form follows.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

Table 2.1: VMs count by project

Project	Value
fg-174:RAIN: FutureGrid Dynamic provisioning Framework	139
fg-367:Optimize rapid deployment and updating of VM images at the remote compute cluster	113
fg-224:Nimbus Auto Scale	86
fg-389:Investigating the Apache Big Data Stack	73
fg-264:Course: 1st Workshop on bioKepler Tools and Its Applications	39
fg-298:FRIEDA: Flexible Robust Intelligent Elastic Data Management	32
fg-371:Characterizing Infrastructure Cloud Performance for Scientific Computing	21
fg-288:Federating HPC, Cyberinfrastructure and Clouds using CometCloud	16
fg-362:Course: Cloud Computing and Storage (UF)	13
fg-172:Cloud-TM	7
fg-404:Enhancing Usage of cloud Infrastructure	6
fg-384:Graph/network analysis Resource manager	4
fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters	4
fg-165:The VIEW Project	3
fg-82:FG General Software Development	2
fg-432:2014 Topics in Parallel Computation	2
fg-136:JGC-DataCloud-2012 paper experiments	2

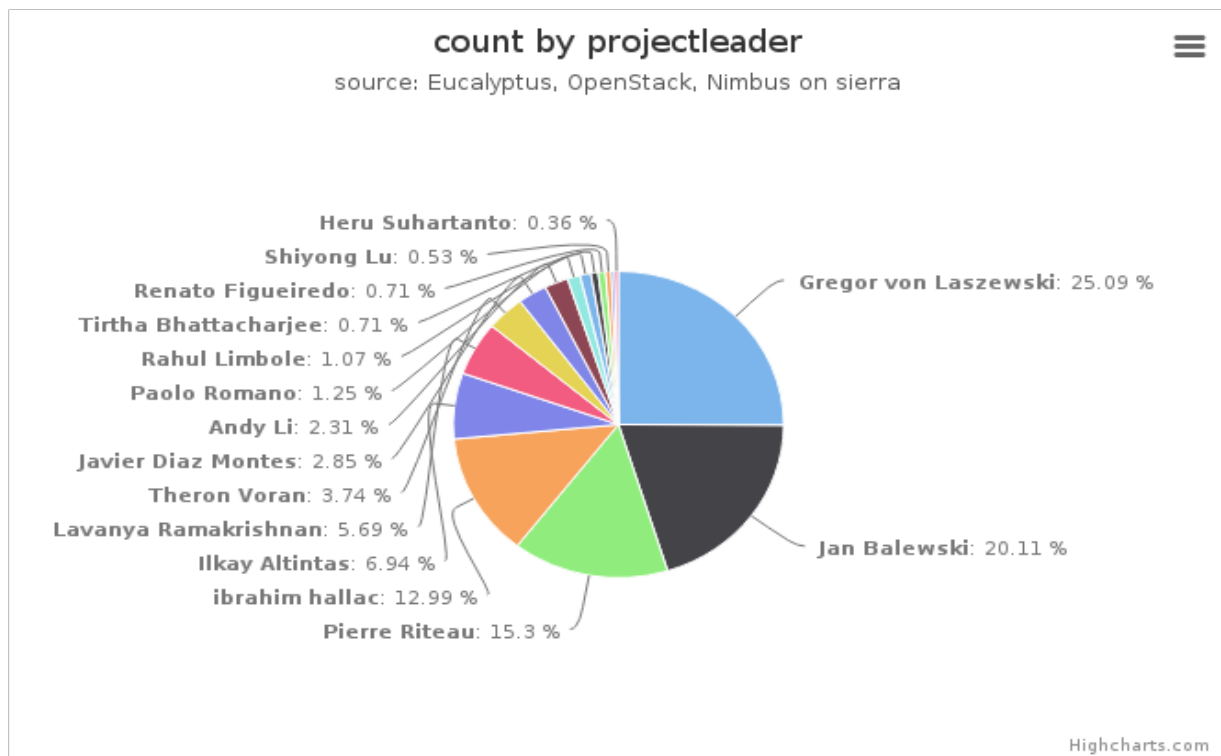


Figure 7: VMs count by project leader

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

Table 2.2: VMs count by project leader

Projectleader	Value
Gregor von Laszewski	141
Jan Balewski	113
Pierre Riteau	86
ibrahim hallac	73
Ilkay Altintas	39
Lavanya Ramakrishnan	32
Theron Voran	21
Javier Diaz Montes	16
Andy Li	13
Paolo Romano	7
Rahul Limbole	6
Tirtha Bhattacharjee	4
Renato Figueiredo	4
Shiyong Lu	3
Mats Rynge	2
Heru Suhartanto	2

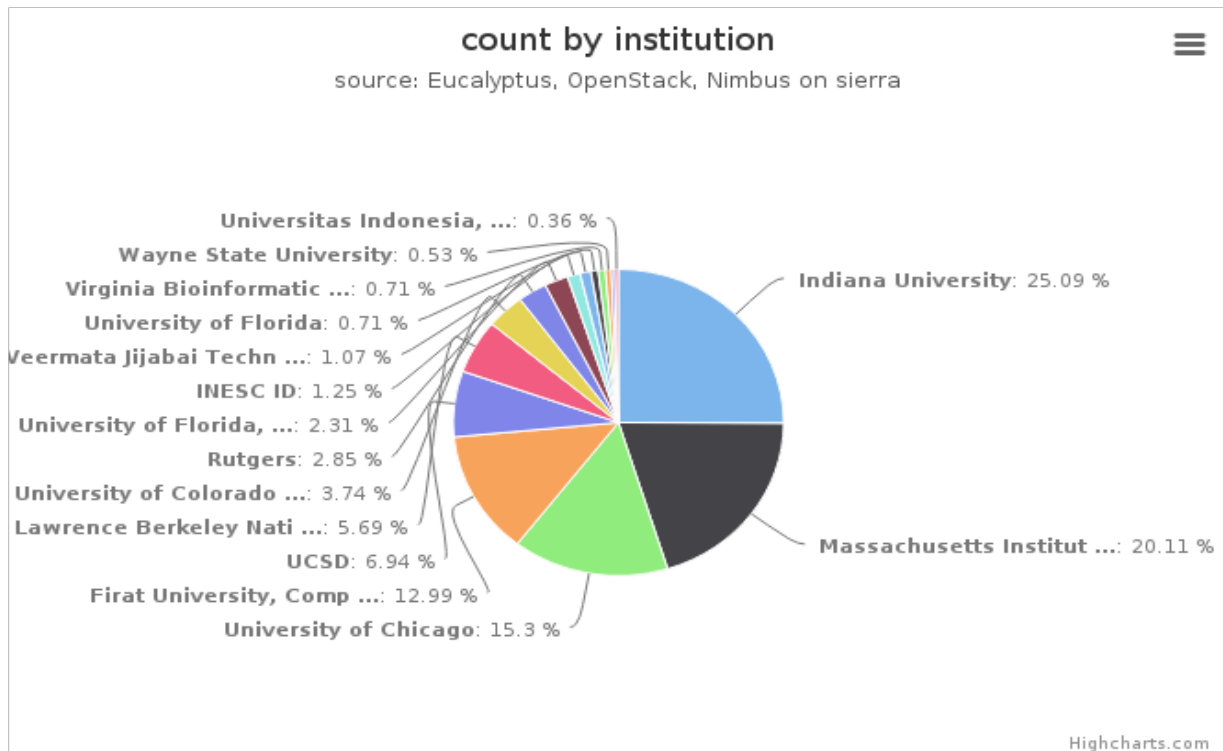


Figure 8: VMs count by institution

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

Table 2.3: VMs count by institution

Institution	Value
Indiana University	141
Massachusetts Institute of Technology, Laboratory for Nuclear Sc	113
University of Chicago	86
Firat University, Computer Science Department	73
UCSD	39
Lawrence Berkeley National Lab	32
University of Colorado at Boulder, Computer Science Department	21
Rutgers	16
University of Florida, Department of Electrical and Computer Eng	13
INESC ID	7
Veer mata Jijabai Technological Institute Mumbai, Computer Scienc	6
University of Florida	4
Virginia Bioinformatics Institute, Virginia Polytechnic Institut	4
Wayne State University	3
USC	2
Universitas Indonesia, Faculty of Computer Science	2

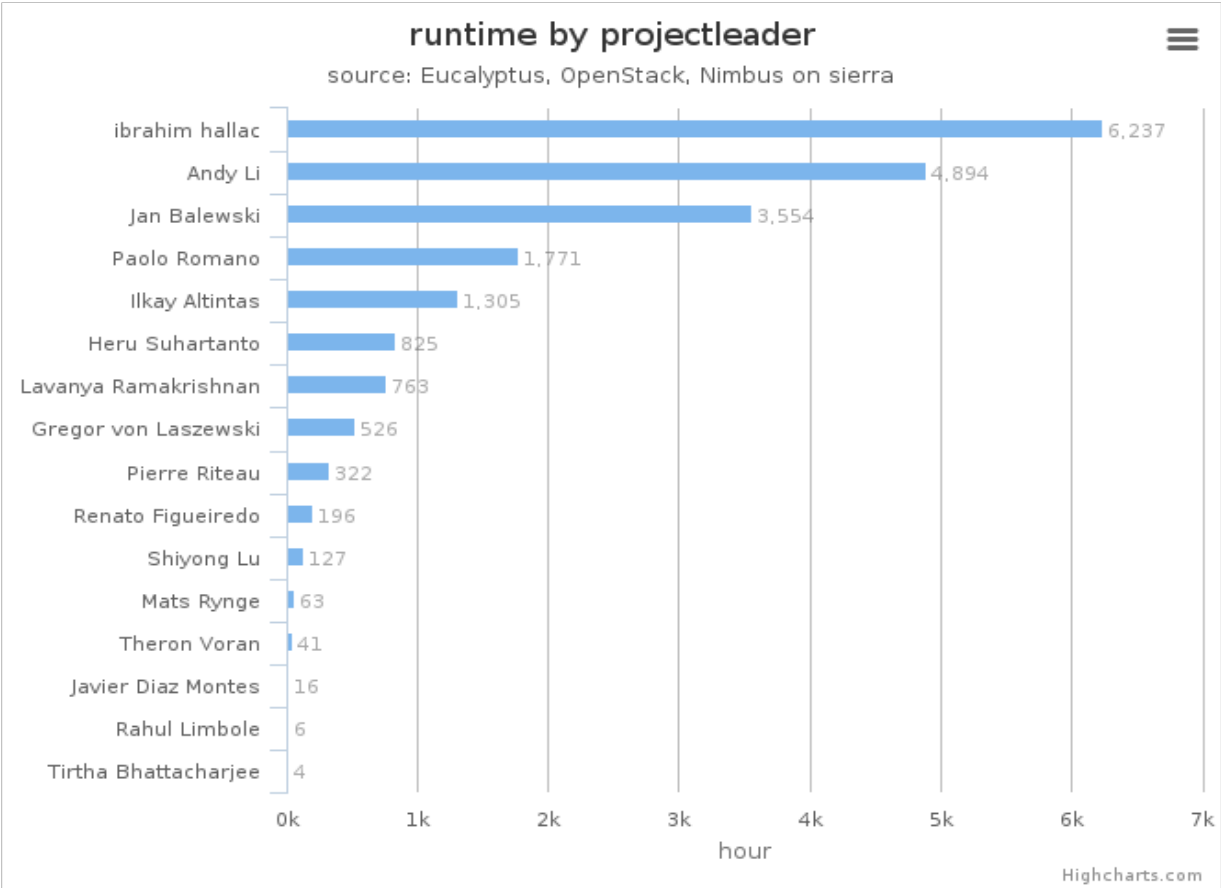


Figure 9: Wall time (hours) by project leader
This chart illustrates proportionate total run times by project leader.

- Period: April 01 – June 30, 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.

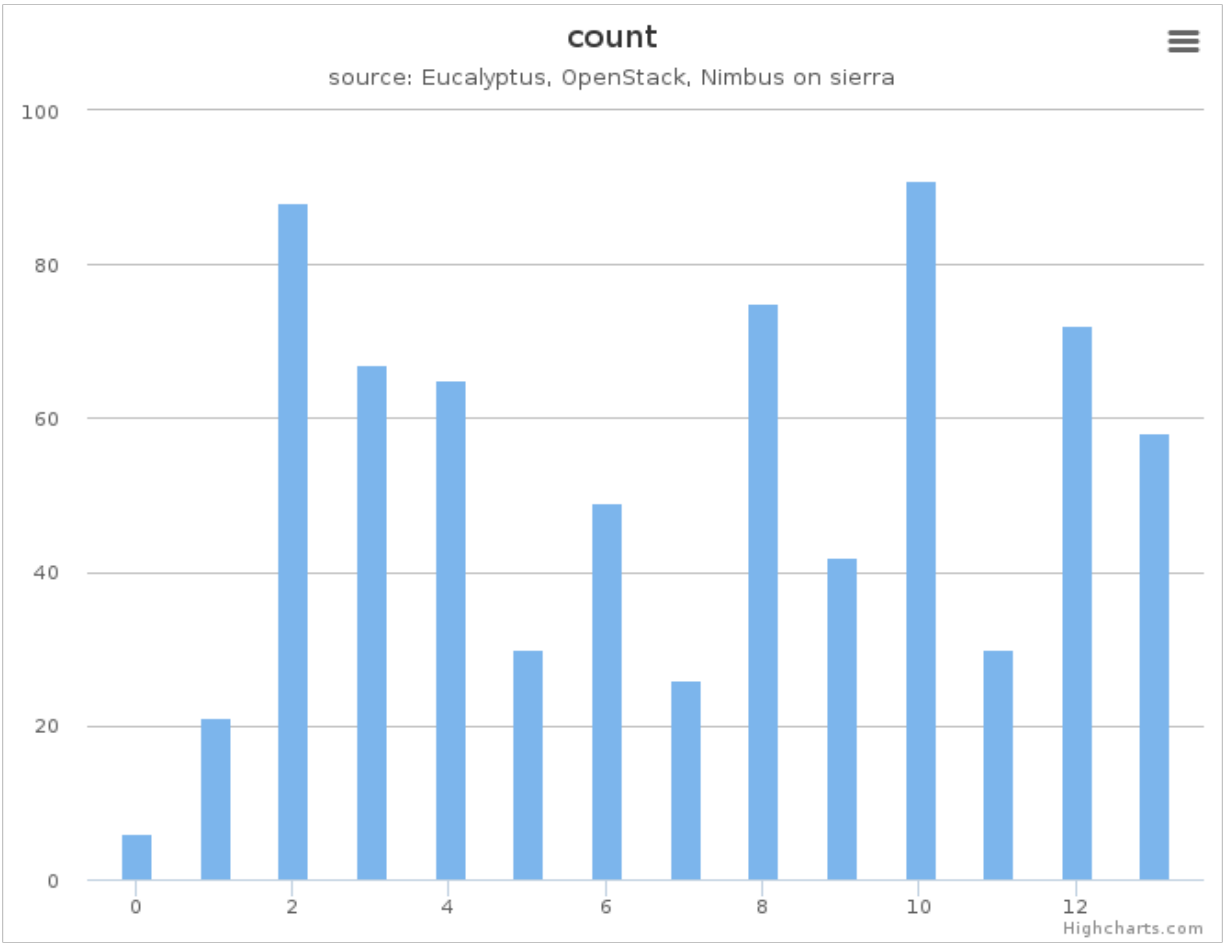


Figure 10: VMs count by systems (compute nodes) in Cluster (sierra)
This column chart represents VMs count among systems.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

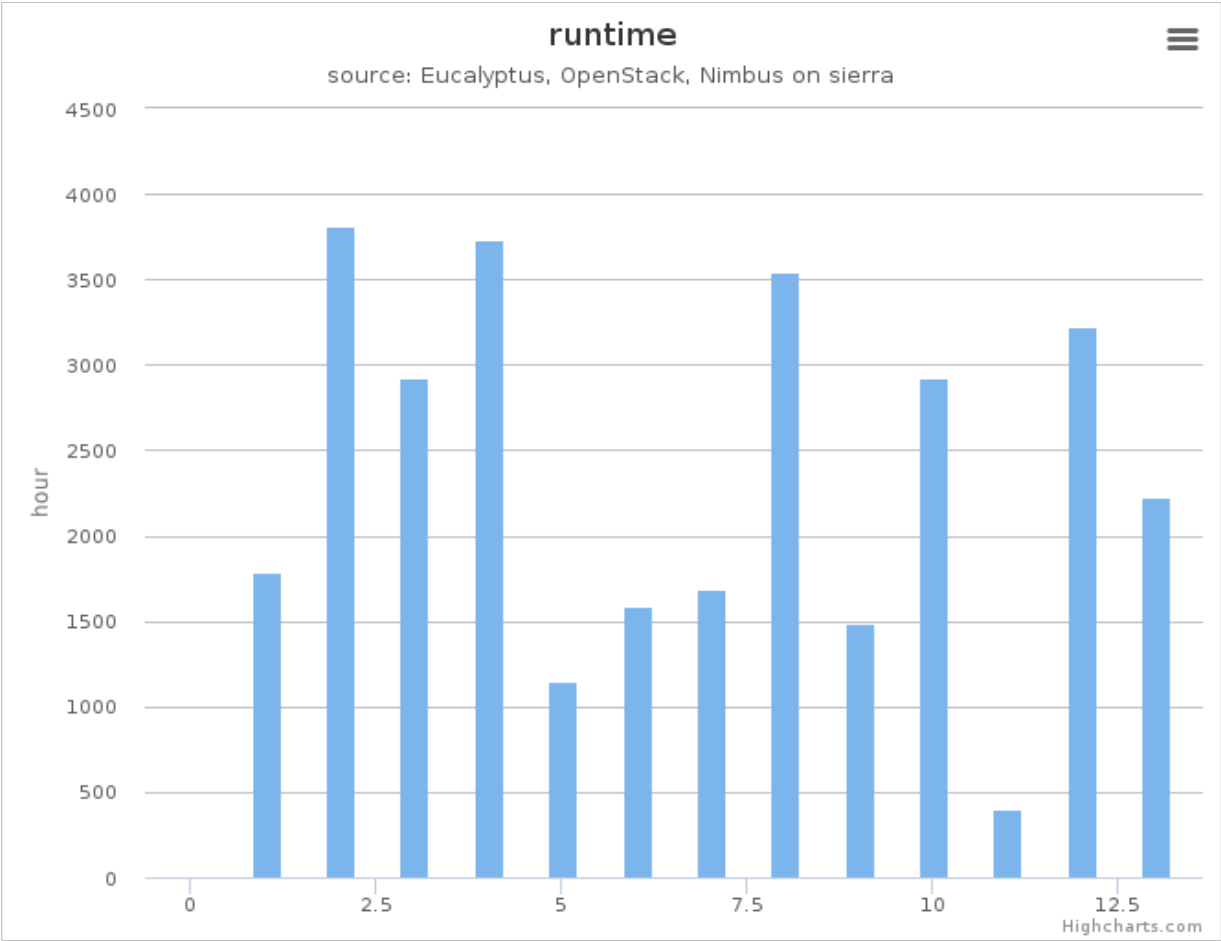


Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (sierra)
This column chart represents wall time among systems.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

USAGE REPORT INDIA

- Period: April 01 – June 30, 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)

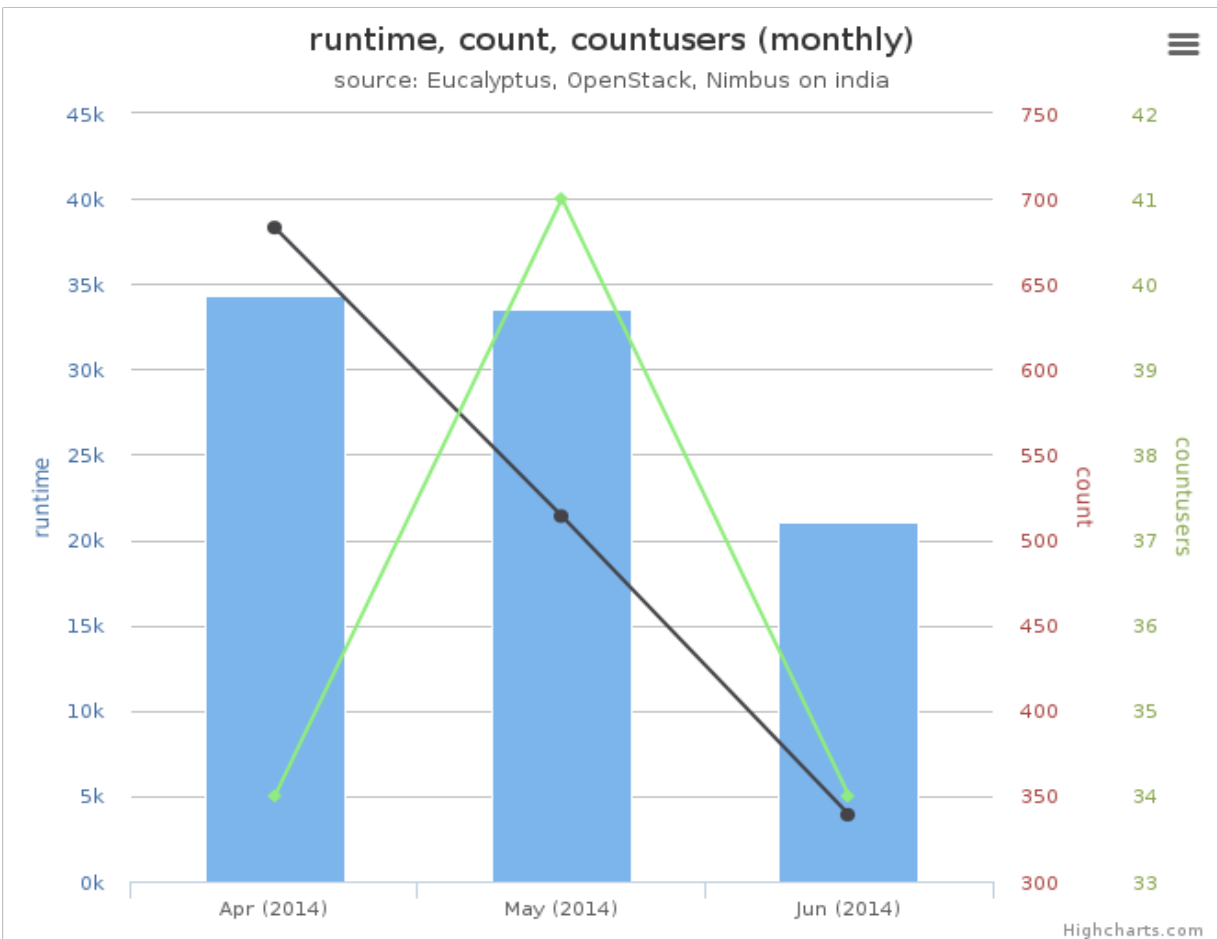


Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)

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

- Period: April 01 – June 30, 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)

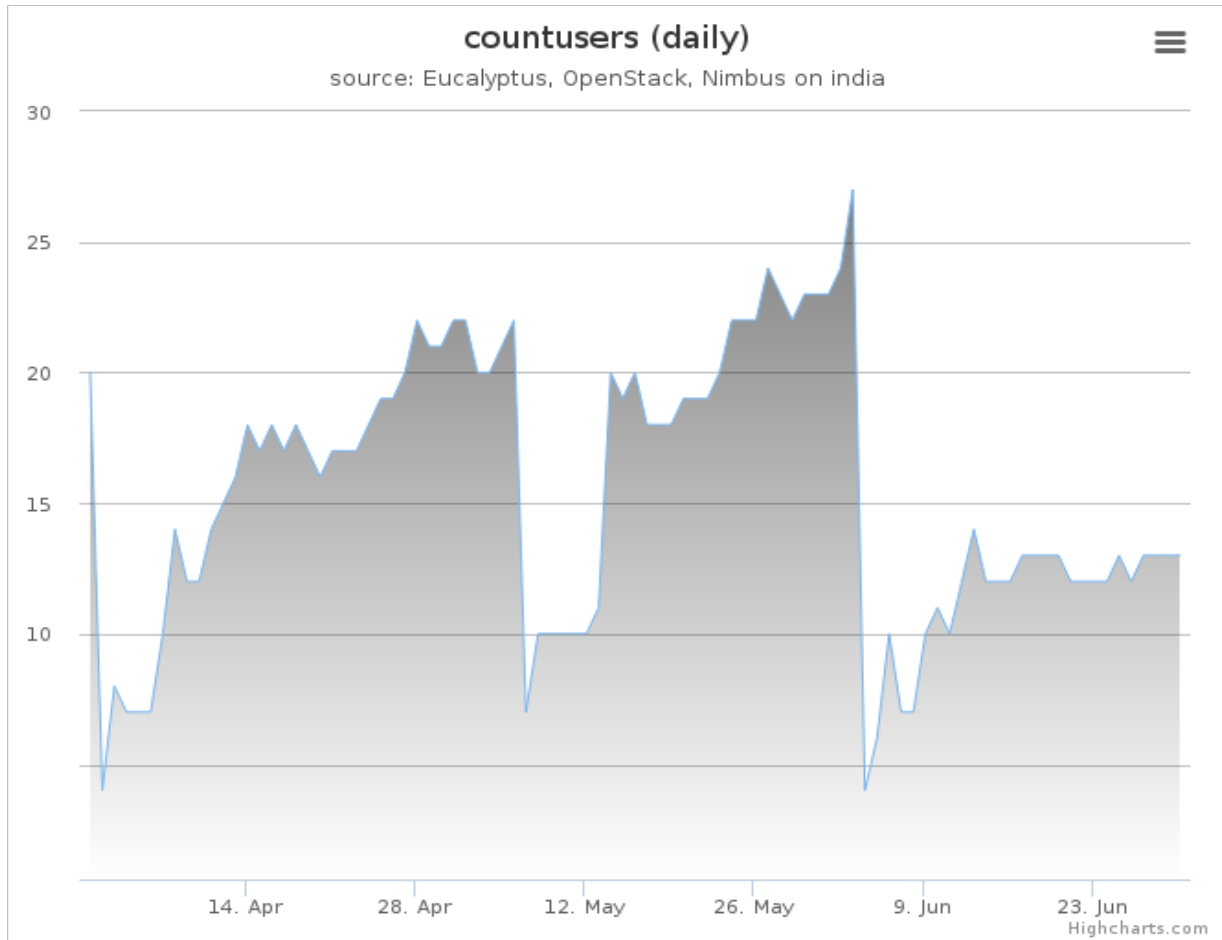


Figure 2: Users count

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

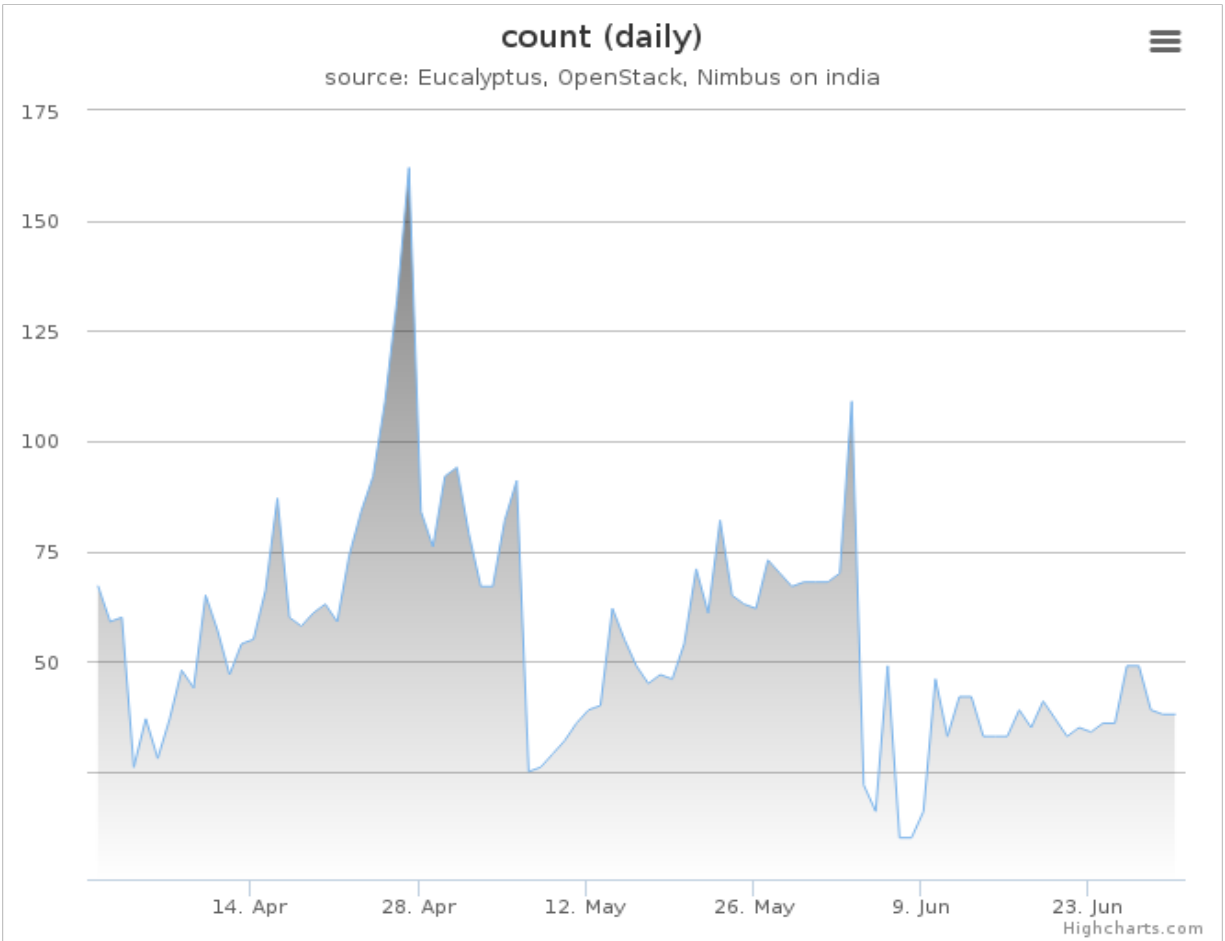


Figure 3: VMs count

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

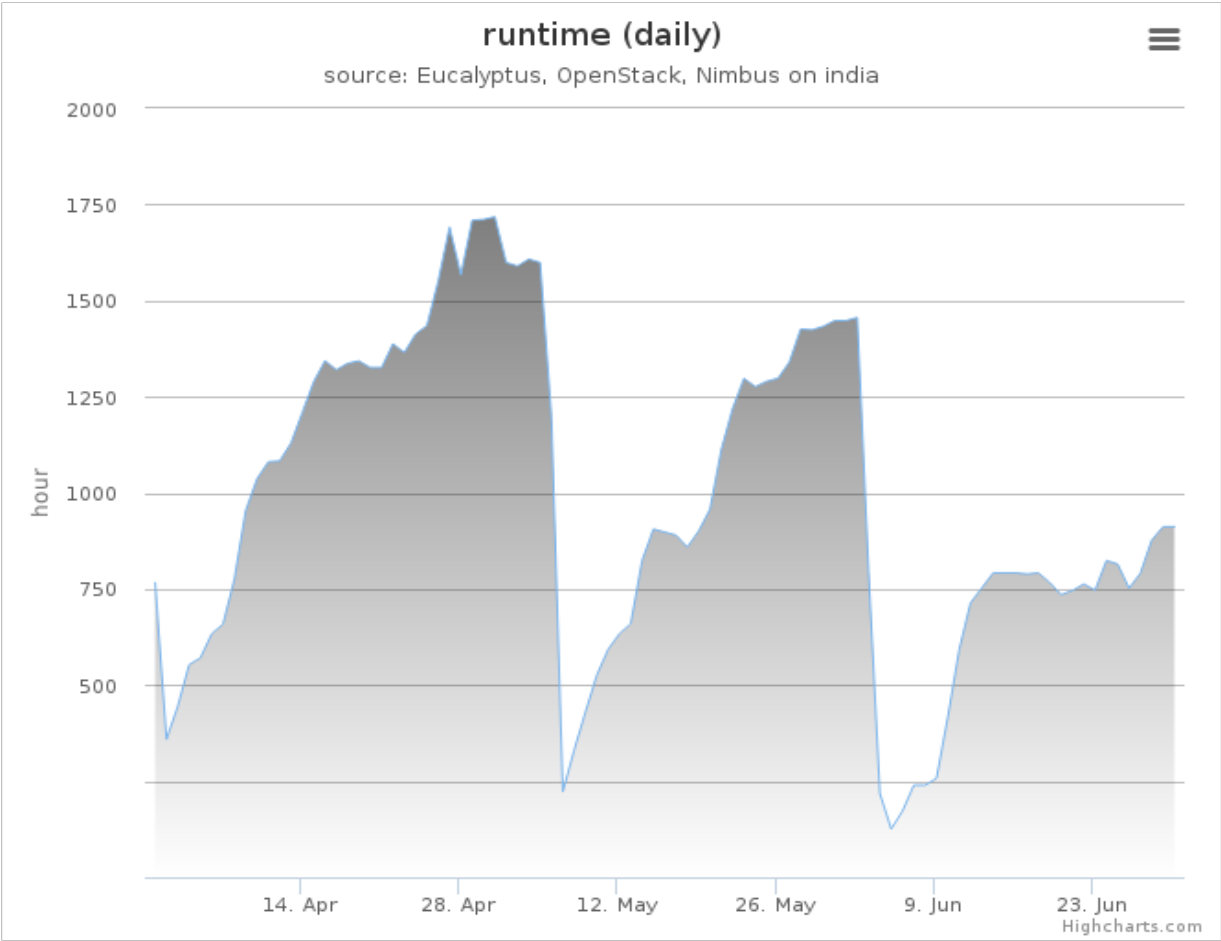


Figure 4: Wall time (hours)
This time series chart represents daily wall time (hours) for cloud services and shows historical changes during the period.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

3.2 Distribution

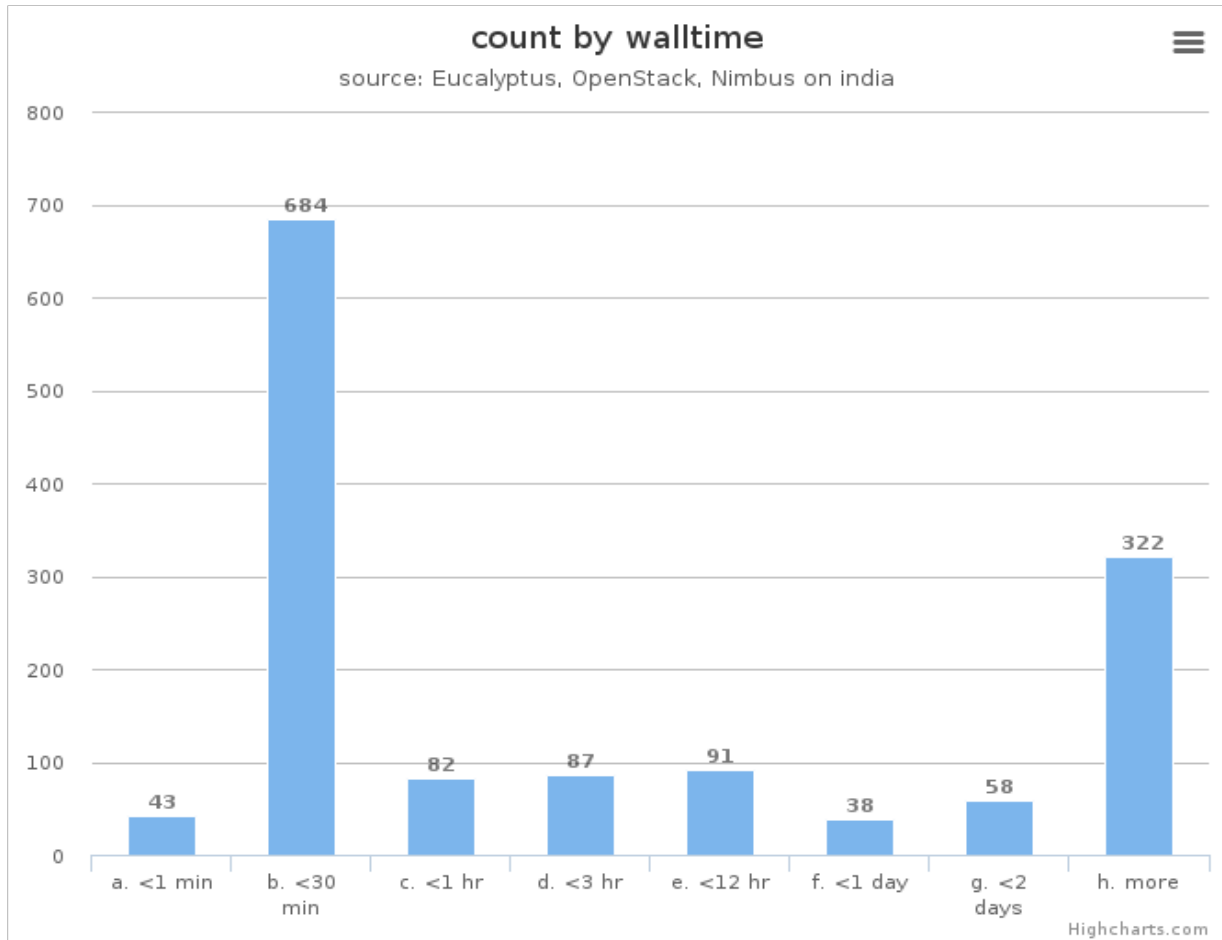


Figure 5: VM count by wall time

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

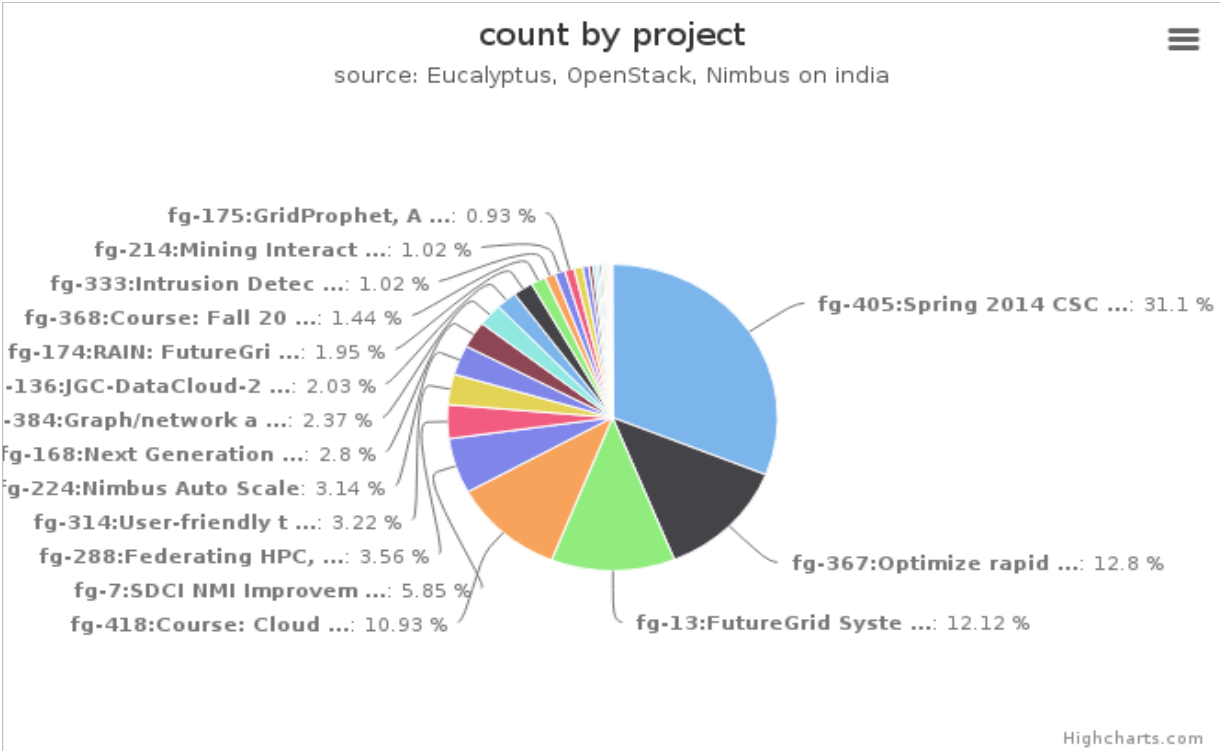


Figure 6: VMs count by project
This chart illustrates the proportion of launched VM instances by project groups. The same data in tabular form follows.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

Table 3.1: VMs count by project

Project
fg-405:Spring 2014 CSCI-B649 Cloud Computing MOOC for residential and online students
fg-367:Optimize rapid deployment and updating of VM images at the remote compute cluster
fg-13:FutureGrid Systems Development and Prototyping
fg-418:Course: Cloud Computing Class - fourth edition
fg-7:SDCI NMI Improvement: Pegasus: From Concept to Execution- - -Mapping Scientific Workflows onto the National Cyberinfrastructure
fg-288:Federating HPC, Cyberinfrastructure and Clouds using CometCloud
fg-314>User-friendly tools to play with cloud platforms
fg-224:Nimbus Auto Scale
fg-168:Next Generation Sequencing in the Cloud
fg-384:Graph/network analysis Resource manager
fg-136:JGC-DataCloud-2012 paper experiments

Contin

Table 3.1 – continued from previous page

Project
fg-174:RAIN: FutureGrid Dynamic provisioning Framework
fg-368:Course: Fall 2013 P434 Distributed Systems Undergraduate Course
fg-333:Intrusion Detection and Prevention for Infrastructure as a Service Cloud Computing System
fg-214:Mining Interactions between Network Community Structure and Information Diffusion
fg-175:GridProphet, A workflow execution time prediction system for the Grid
fg-362:Course: Cloud Computing and Storage (UF)
fg-382:Reliability Analysis using Hadoop and MapReduce
fg-316:Course: Cloud Computing Class - third edition
fg-10:TeraGrid XD TIS(Technology Insertion Service) Technology Evaluation Laboratory
fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters
fg-165:The VIEW Project
fg-248:Geophysical fluid dynamics education and research
fg-411:ILS-Z604 Big Data Analytics for Web and Text - SP14 Group #2
fg-432:2014 Topics in Parallel Computation
fg-110:FutureGrid Systems Development
fg-20:Development of an information service for FutureGrid
fg-42:SAGA
fg-45:Experiments in Distributed Computing
fg-372:Mobile Device Computation Offloading over SocialVPNs

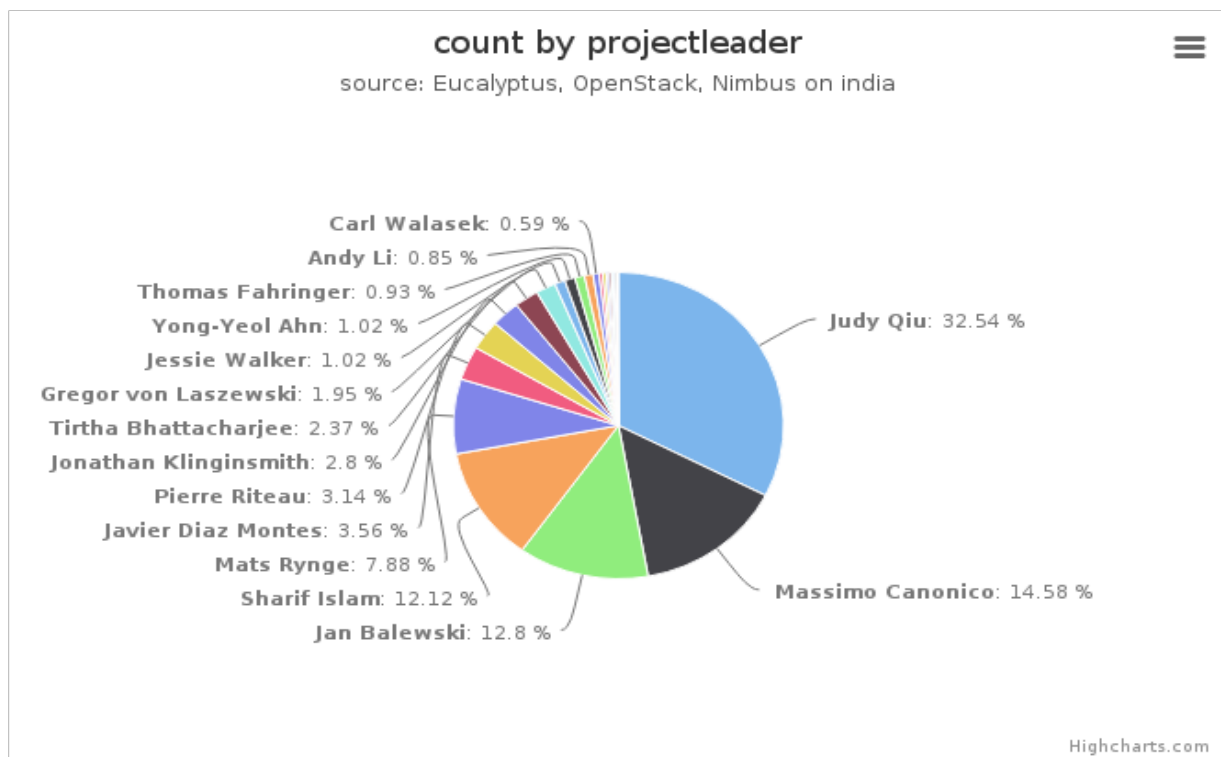


Figure 7: VMs count by project leader

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

follows.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

Table 3.2: VMs count by project leader

Projectleader	Value
Judy Qiu	384
Massimo Canonico	172
Jan Balewski	151
Sharif Islam	143
Mats Rynge	93
Javier Diaz Montes	42
Pierre Riteau	37
Jonathan Klinginsmith	33
Tirtha Bhattacharjee	28
Gregor von Laszewski	23
Jessie Walker	12
Yong-Yeol Ahn	12
Thomas Fahringer	11
Andy Li	10
Carl Walasek	7
Renato Figueiredo	4
John Lockman	4
Glenn Flierl	3
Shiyong Lu	3
Shantenu Jha	2
Heru Suhartanto	2
Trevor Edelblute	2
Gary Miksik	1
Hyungro Lee	1

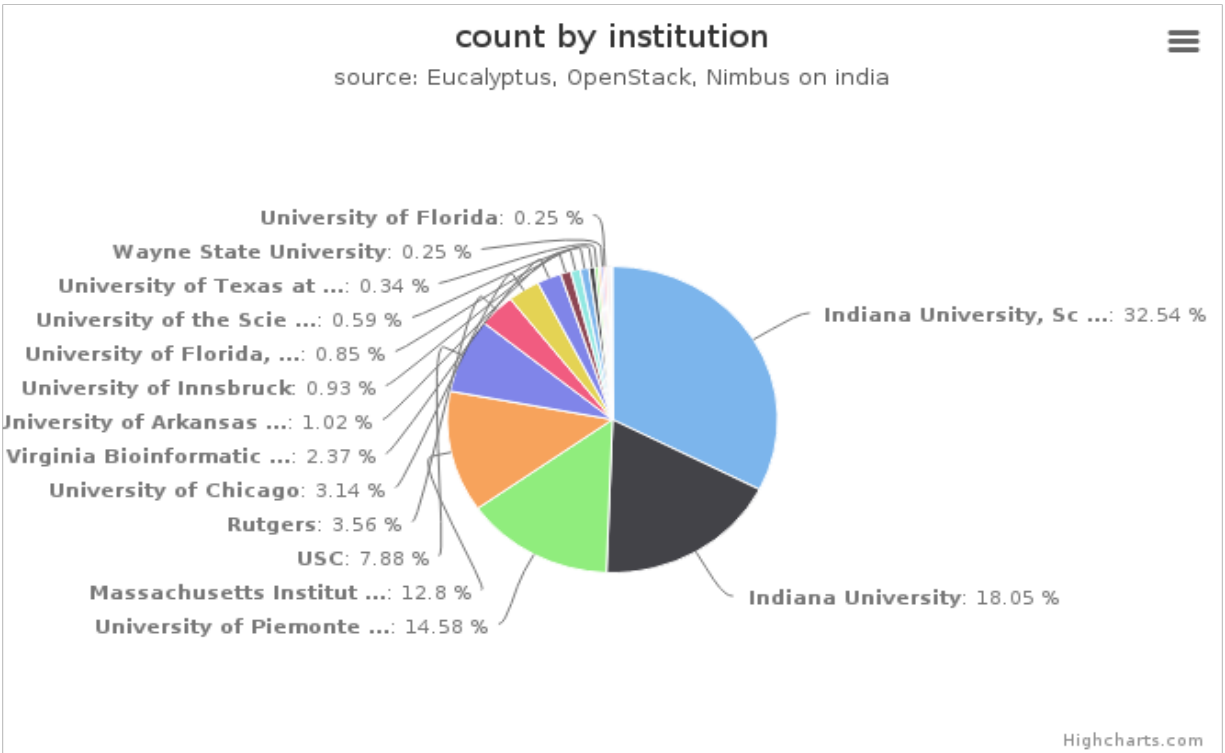


Figure 8: VMs count by institution

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

Table 3.3: VMs count by institution

Institution	Value
Indiana University, School of Informatics and Computing	384
Indiana University	213
University of Piemonte Orientale, Computer Science Department	172
Massachusetts Institute of Technology, Laboratory for Nuclear Sc	151
USC	93
Rutgers	42
University of Chicago	37
Virginia Bioinformatics Institute, Virginia Polytechnic Institut	28
University of Arkansas at Pine Bluff , Computer Science	12
University of Innsbruck	11
University of Florida, Department of Electrical and Computer Eng	10
University of the Sciences , Mathematics, Physics, and Statistic	7
University of Texas at Austin	4
Massachusetts Institute of Technology	3
Wayne State University	3
University of Florida	3
Louisiana State University	2
Indiana University, Department of Information & Library Science,	2
Universitas Indonesia, Faculty of Computer Science	2
University of Florida, Electrical and Computer Engineering	1

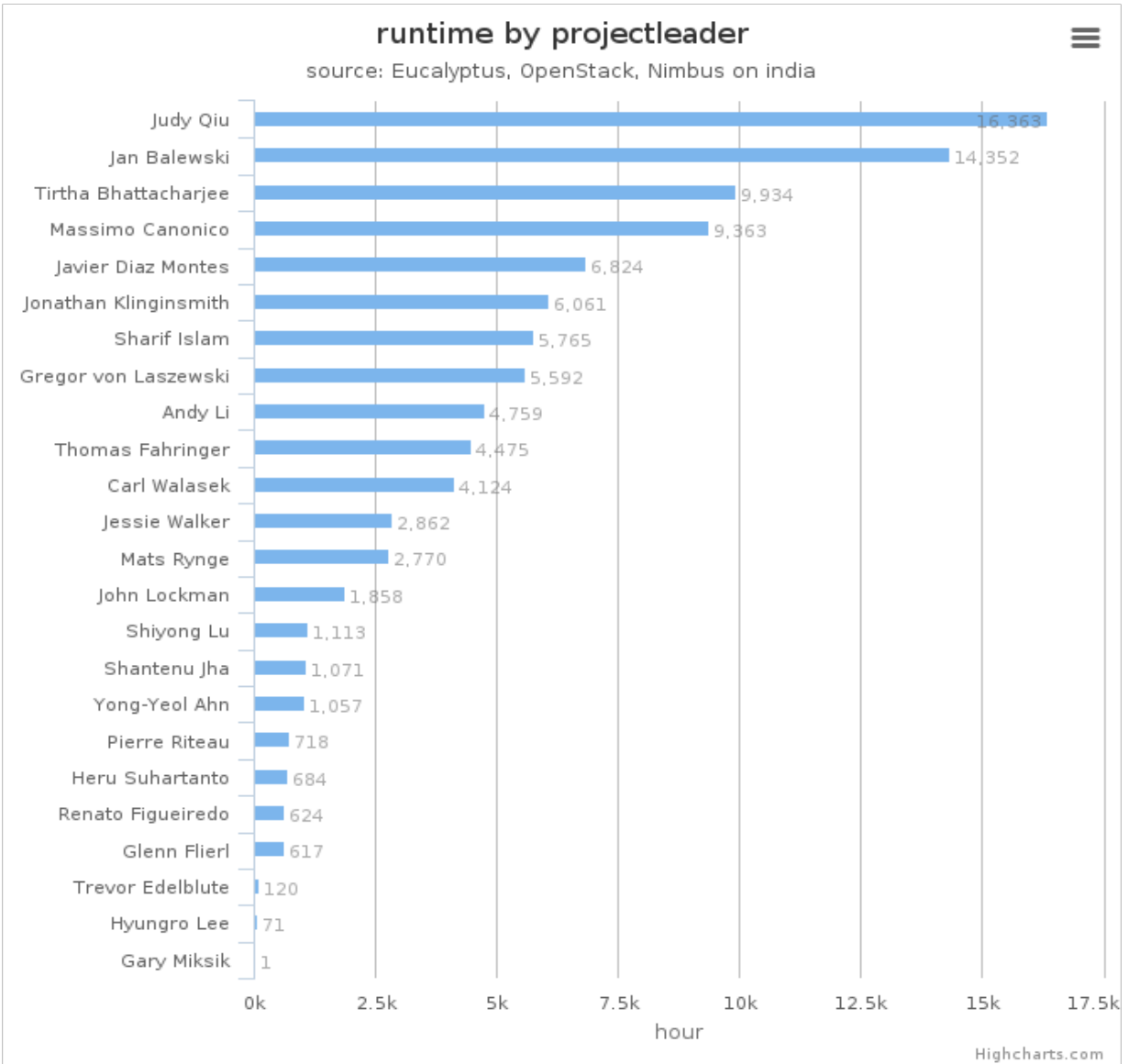


Figure 9: Wall time (hours) by project leader
This chart illustrates proportionate total run times by project leader.

- Period: April 01 – June 30, 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.

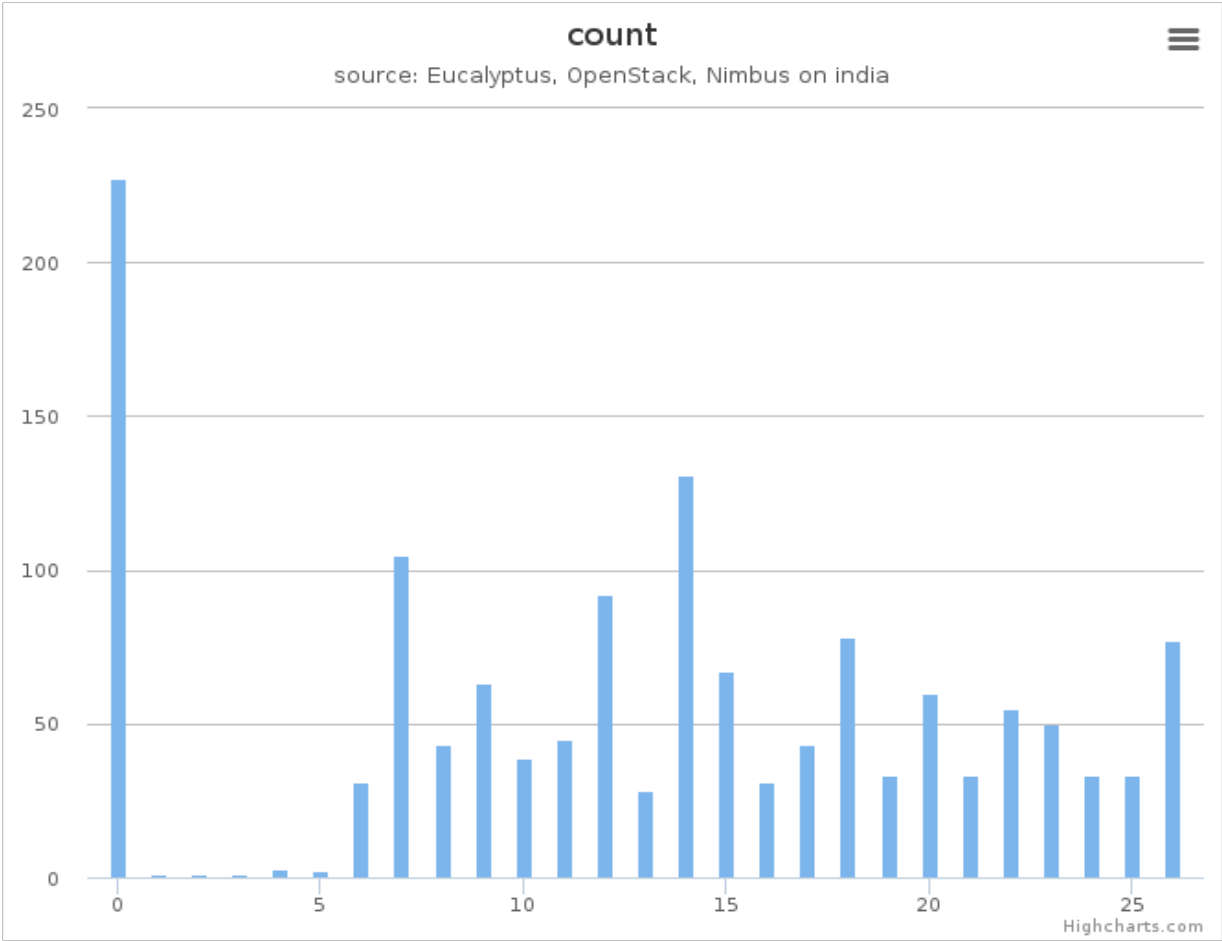


Figure 10: VMs count by systems (compute nodes) in Cluster (india)
This column chart represents VMs count among systems.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

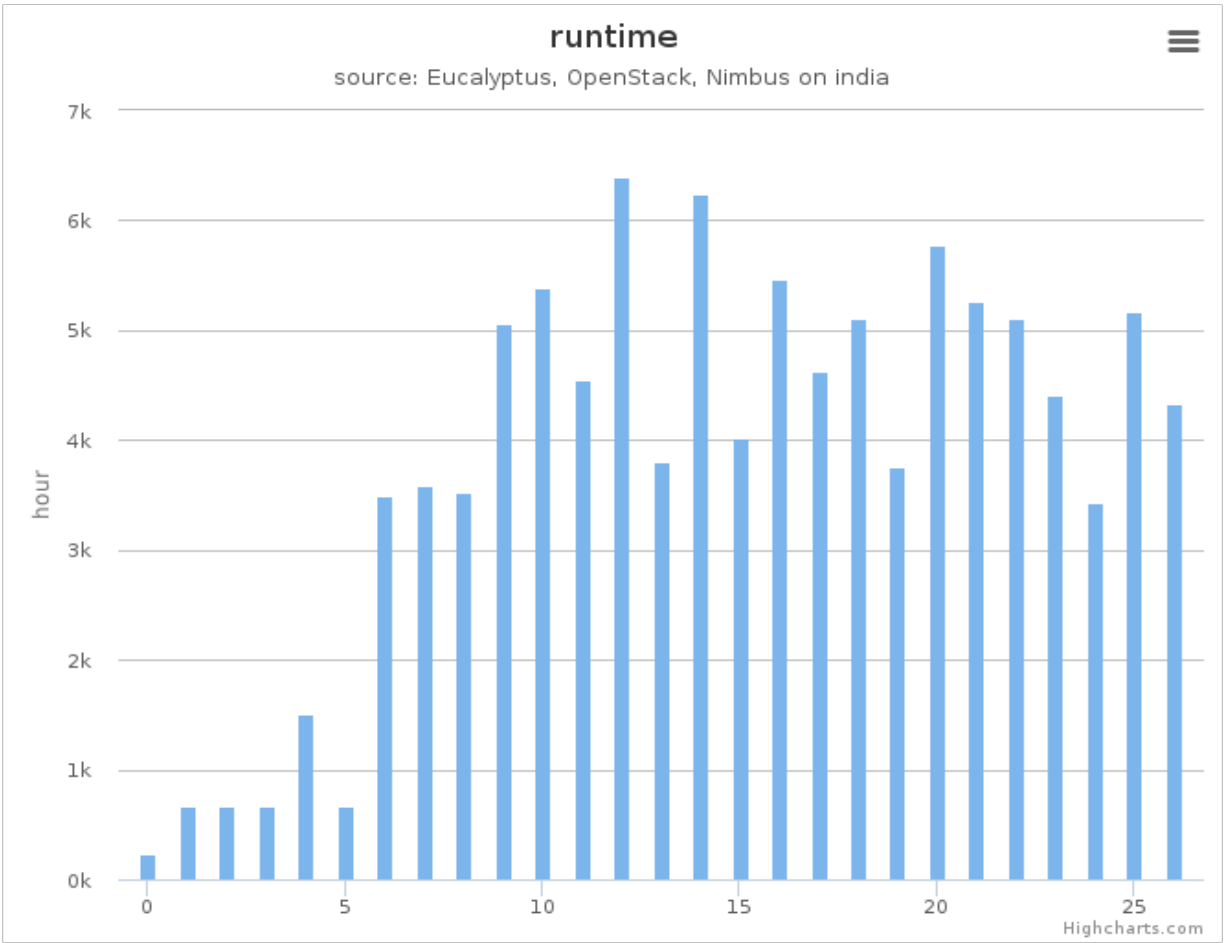


Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (india)
This column chart represents wall time among systems.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

USAGE REPORT HOTEL

- Period: April 01 – June 30, 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)

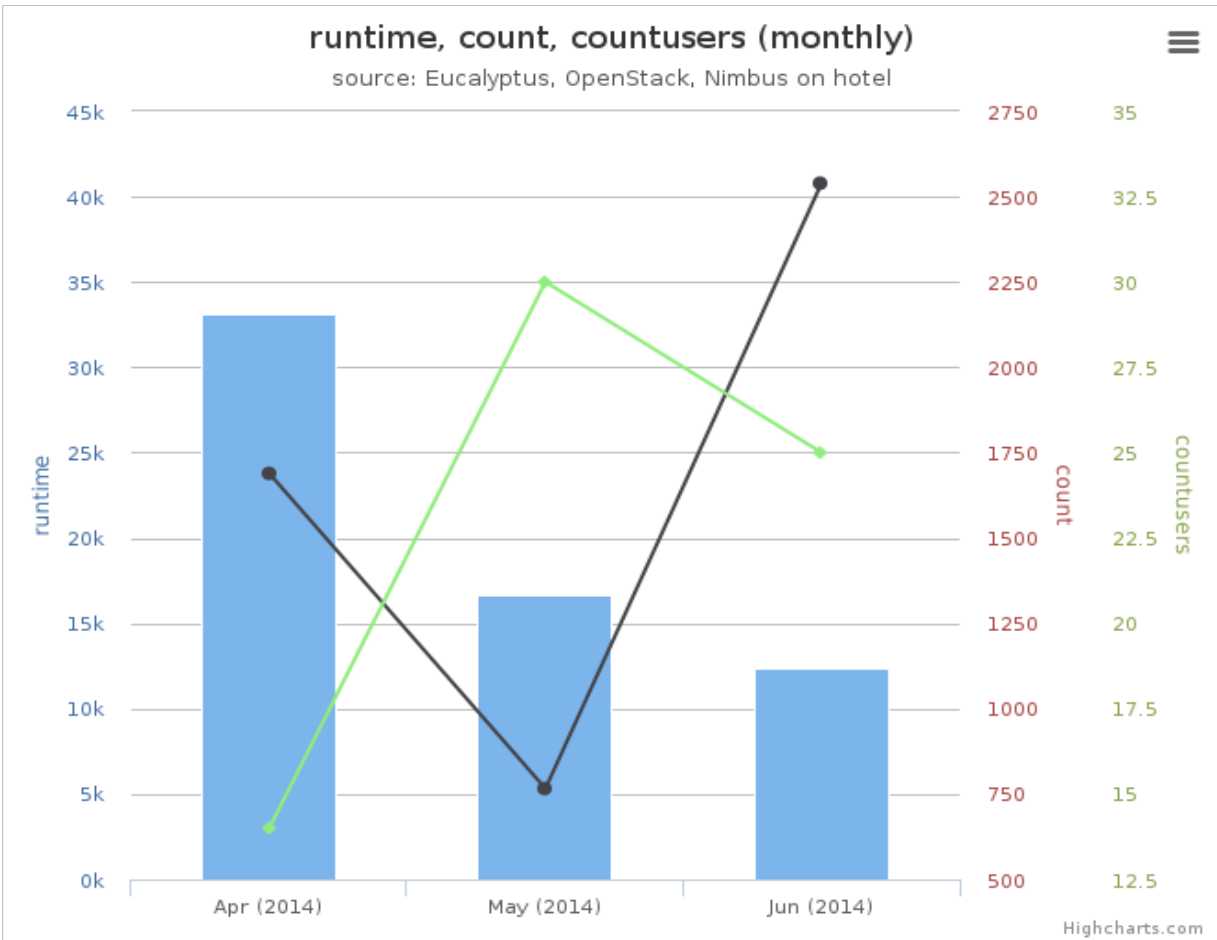


Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)

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

- Period: April 01 – June 30, 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)

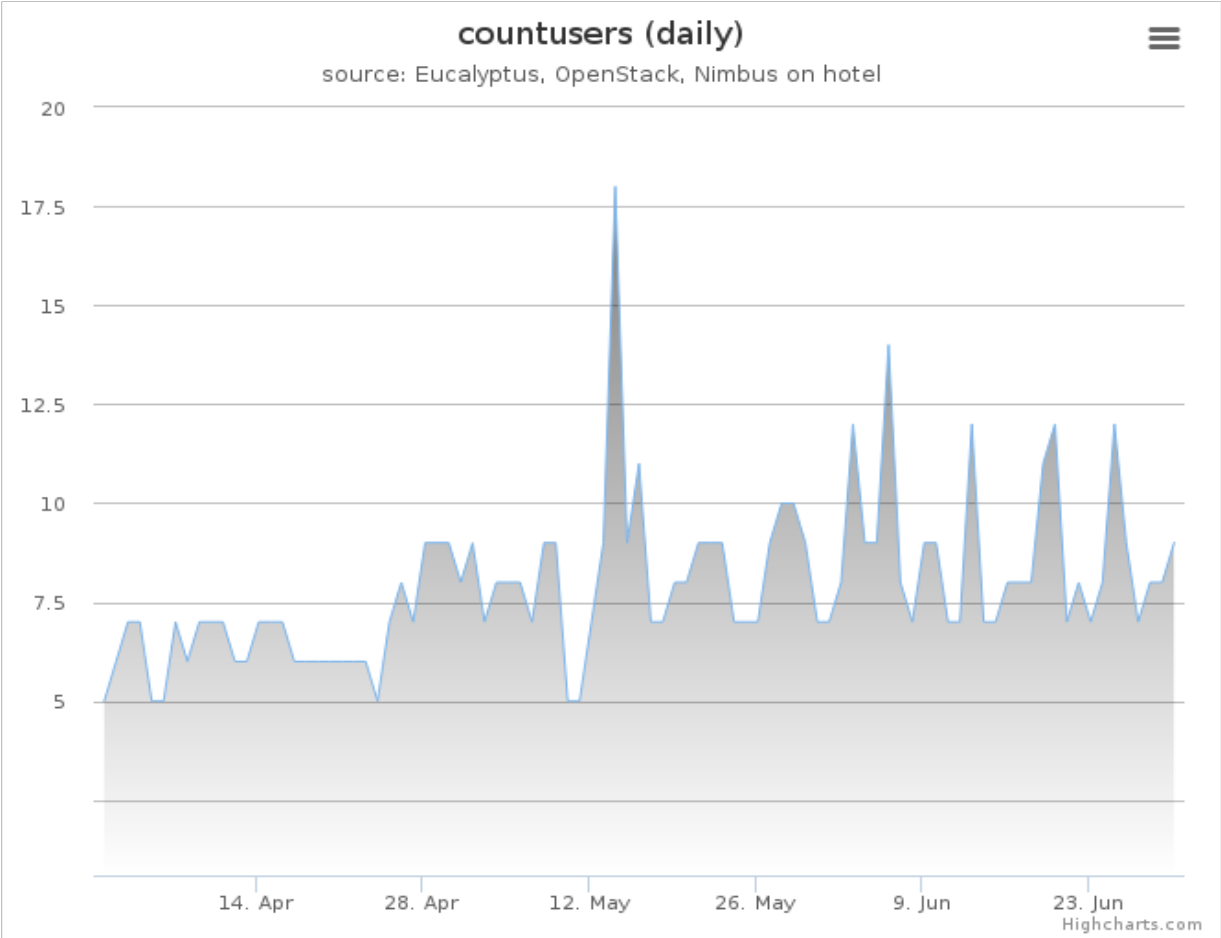


Figure 2: Users count
This time series chart represents daily active user count for cloud services and shows historical changes during the period.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus
- Hostname: hotel

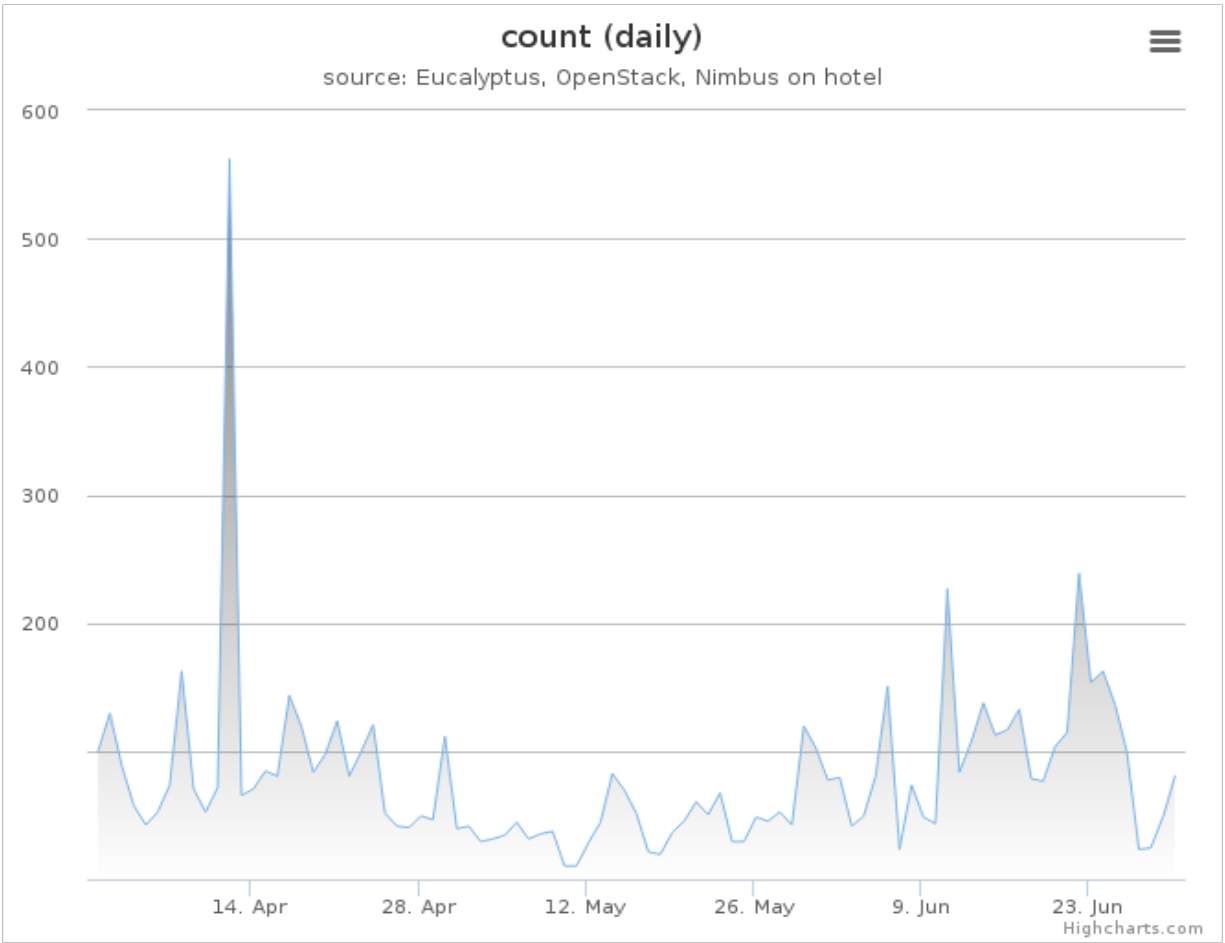


Figure 3: VMs count

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus
- Hostname: hotel

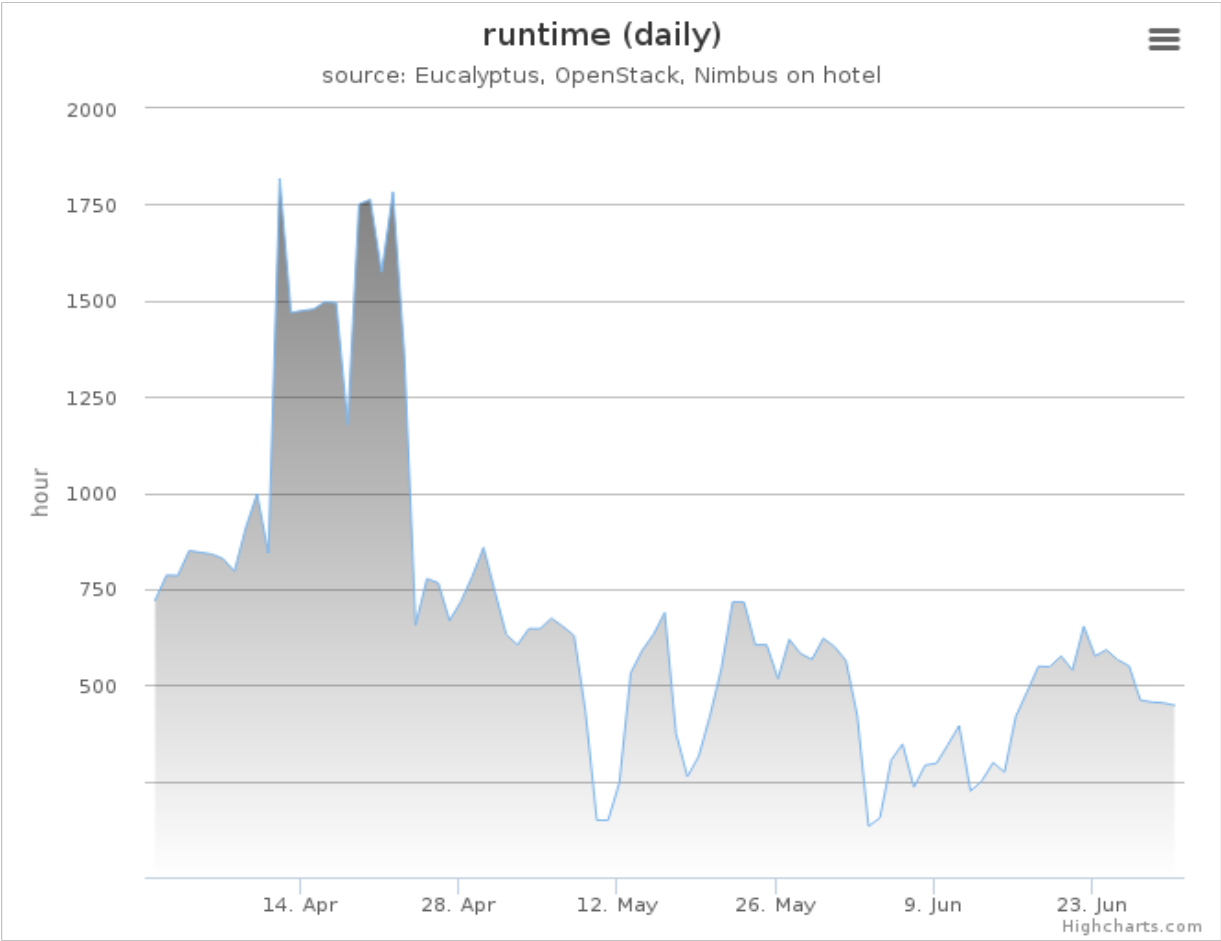


Figure 4: Wall time (hours)
This time series chart represents daily wall time (hours) for cloud services and shows historical changes during the period.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus
- Hostname: hotel

4.2 Distribution

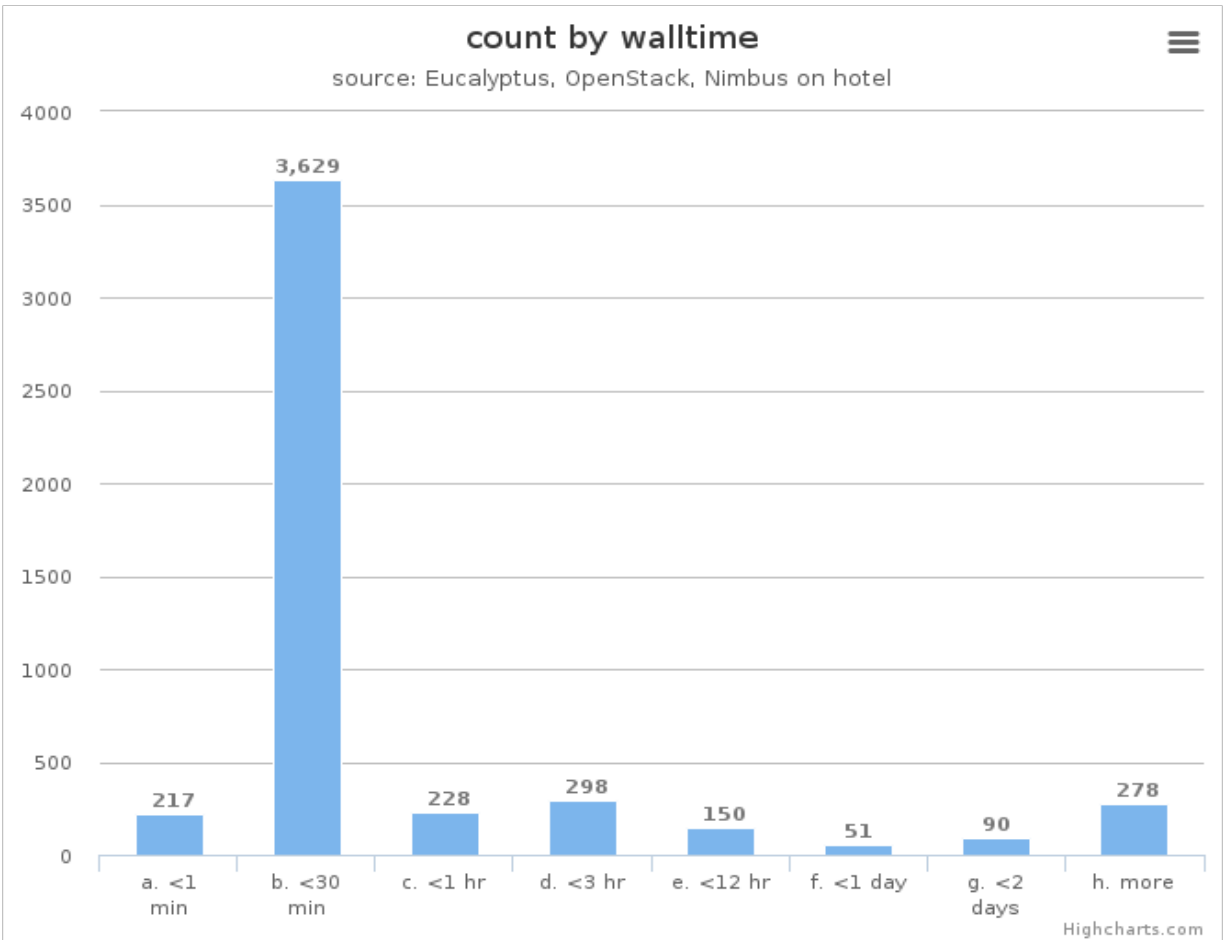


Figure 5: VM count by wall time

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus
- Hostname: hotel

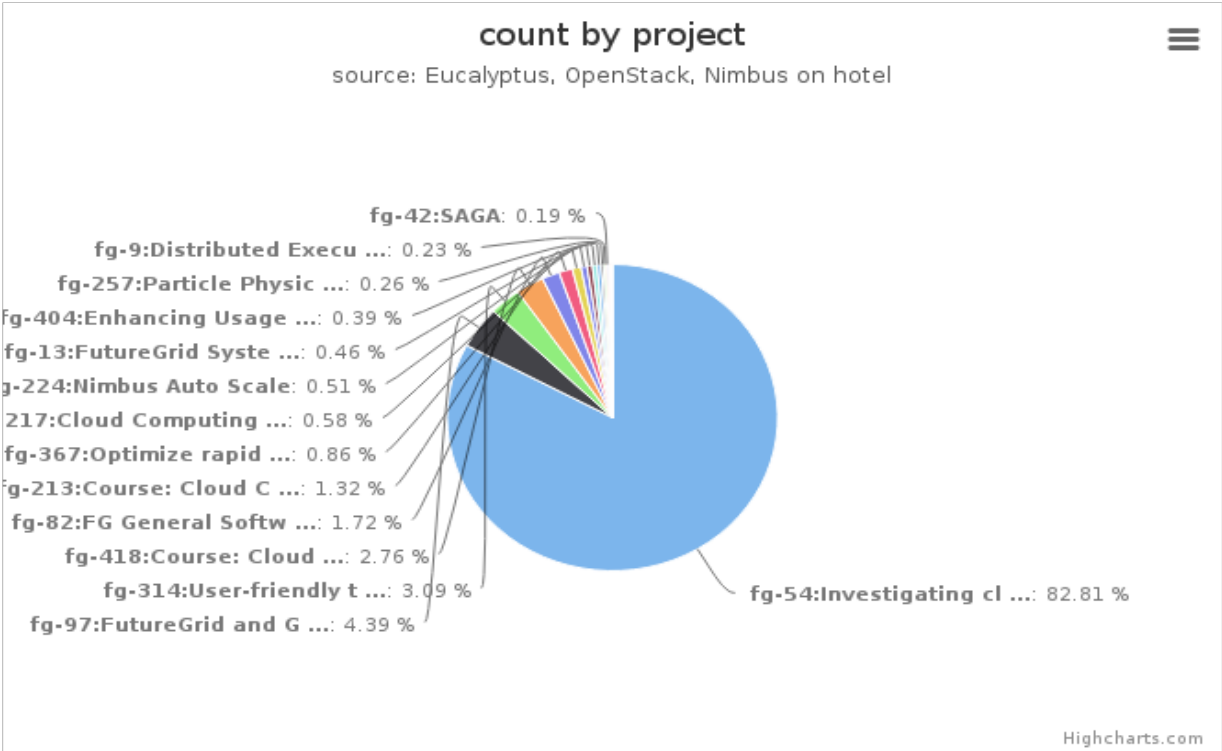


Figure 6: VMs count by project
This chart illustrates the proportion of launched VM instances by project groups. The same data in tabular form follows.

- Period: April 01 – June 30, 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	3564
fg-97:FutureGrid and Grid'5000 Collaboration	189
fg-314:User-friendly tools to play with cloud platforms	133
fg-418:Course: Cloud Computing Class - fourth edition	119
fg-82:FG General Software Development	74
fg-213:Course: Cloud Computing class - second edition	57
fg-367:Optimize rapid deployment and updating of VM images at the remote compute cluster	37
fg-217:Cloud Computing In Education	25
fg-224:Nimbus Auto Scale	22
fg-13:FutureGrid Systems Development and Prototyping	20
fg-404:Enhancing Usage of cloud Infrastructure	17
fg-257:Particle Physics Data analysis cluster for ATLAS LHC experiment	11
fg-9:Distributed Execution of Kepler Scientific Workflow on Future Grid	10
fg-42:SAGA	8
fg-362:Course: Cloud Computing and Storage (UF)	7
fg-150:SC11: Using and Building Infrastructure Clouds for Science	3
fg-341:Course: Parallel Computing	3
fg-394:Hydroinformatics on the Cloud	3
fg-344:Exploring map/reduce frameworks for users of traditional HPC	1
fg-443:Virtual Machine Live Migration for Disaster Recovery in WANs	1

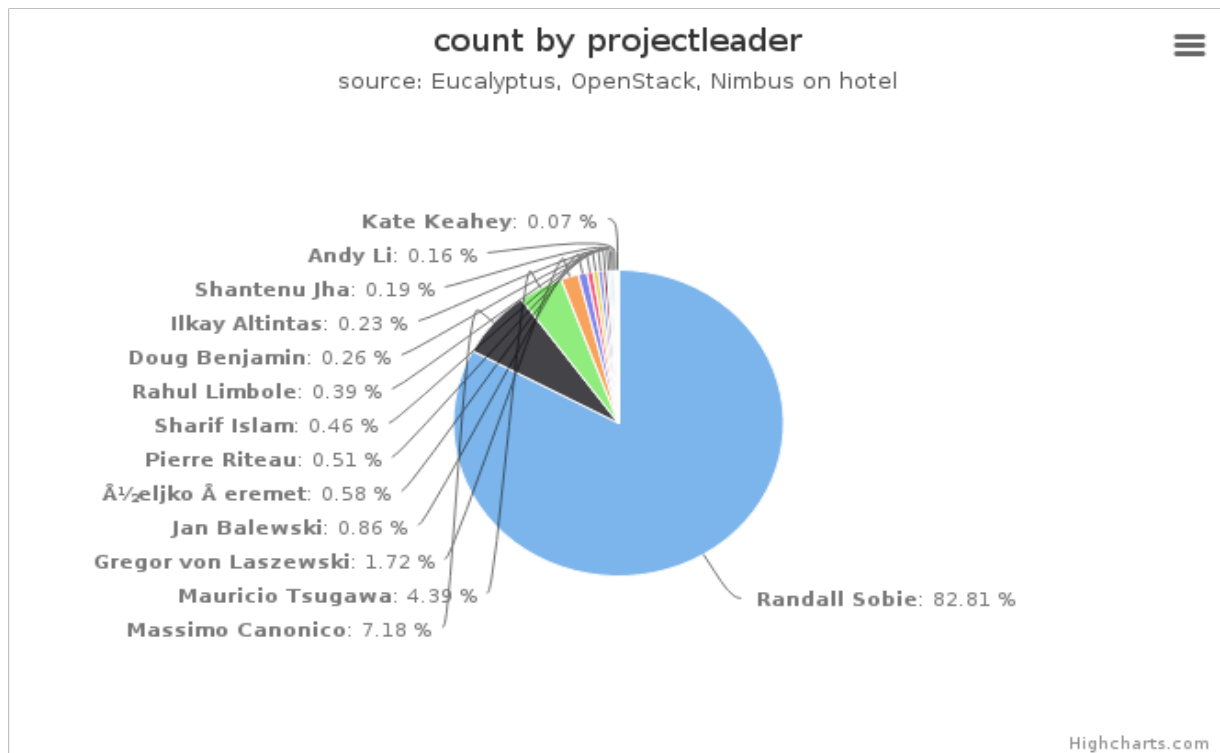


Figure 7: VMs count by project leader

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus
- Hostname: hotel

Table 4.2: VMs count by project leader

Projectleader	Value
Randall Sobie	3564
Massimo Canonico	309
Mauricio Tsugawa	189
Gregor von Laszewski	74
Jan Balewski	37
Željko Šeremet	25
Pierre Riteau	22
Sharif Islam	20
Rahul Limbole	17
Doug Benjamin	11
Ilkay Altintas	10
Shantenu Jha	8
Andy Li	7
John Bresnahan	3
Wilson Rivera	3
Kate Keahey	3
Tae Seung Kang	1
Glenn K. Lockwood	1

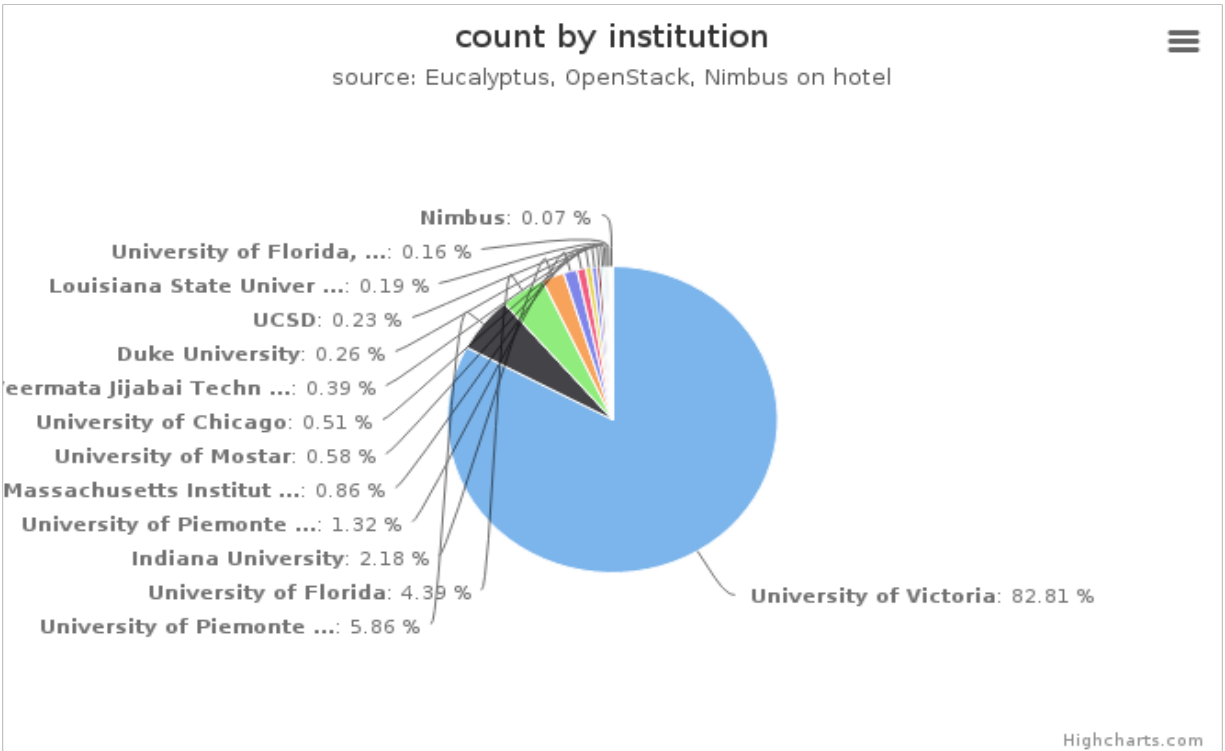


Figure 8: VMs count by institution

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus
- Hostname: hotel

Table 4.3: VMs count by institution

Institution	Value
University of Victoria	3564
University of Piemonte Orientale, Computer Science Department	252
University of Florida	189
Indiana University	94
University of Piemonte Orientale	57
Massachusetts Institute of Technology, Laboratory for Nuclear Sc	37
University of Mostar	25
University of Chicago	22
Veermata Jijabai Technological Institute Mumbai, Computer Scienc	17
Duke University	11
UCSD	10
Louisiana State University	8
University of Florida, Department of Electrical and Computer Eng	7
University of Chicago, Computation Institute	3
University of Puerto Rico, Electrical and Computer Engineering D	3
Nimbus	3
University of Florida, Advanced Computing and Information System	1
University of California San Diego, San Diego Supercomputer Cent	1

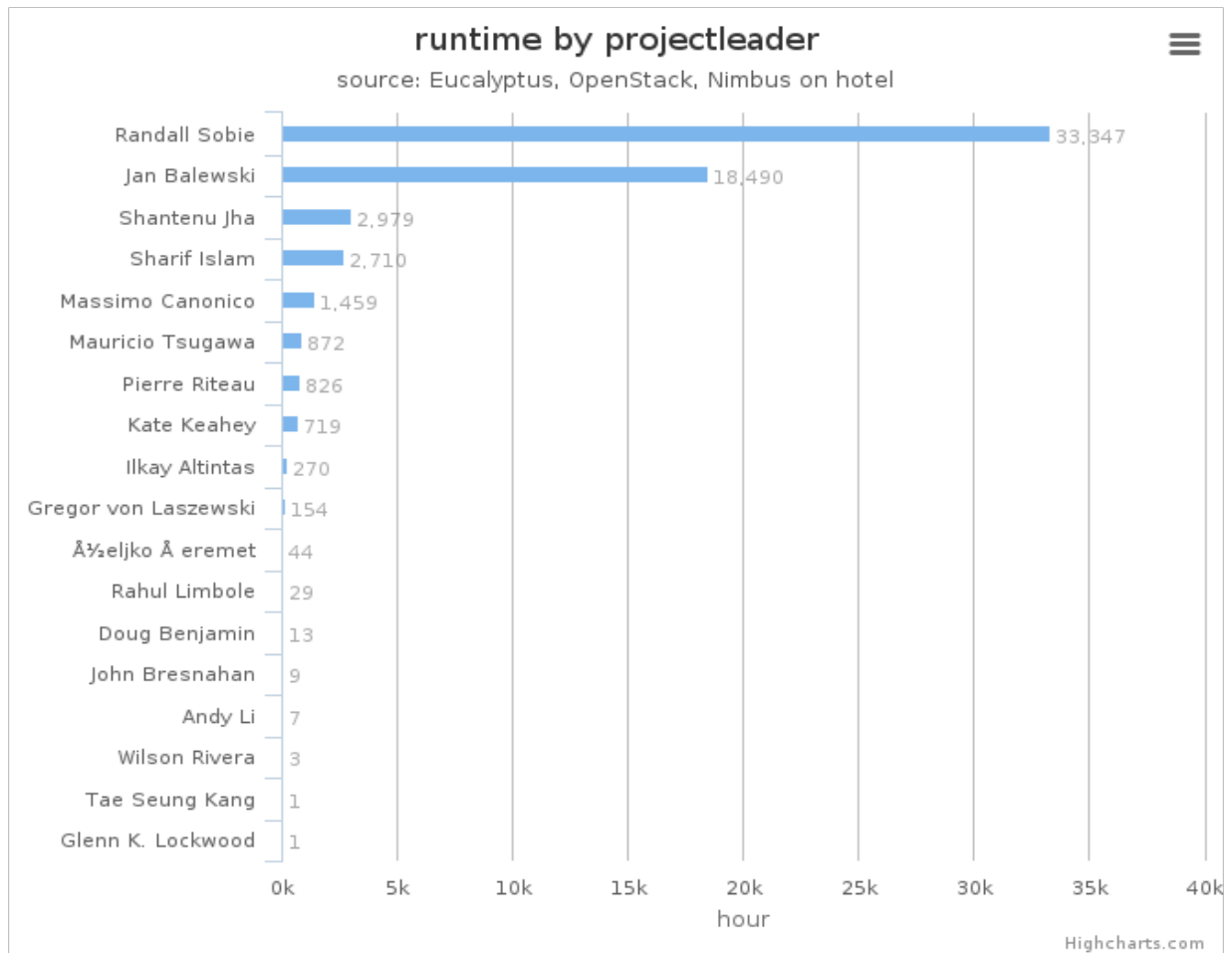


Figure 9: Wall time (hours) by project leader

This chart illustrates proportionate total run times by project leader.

- Period: April 01 – June 30, 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.

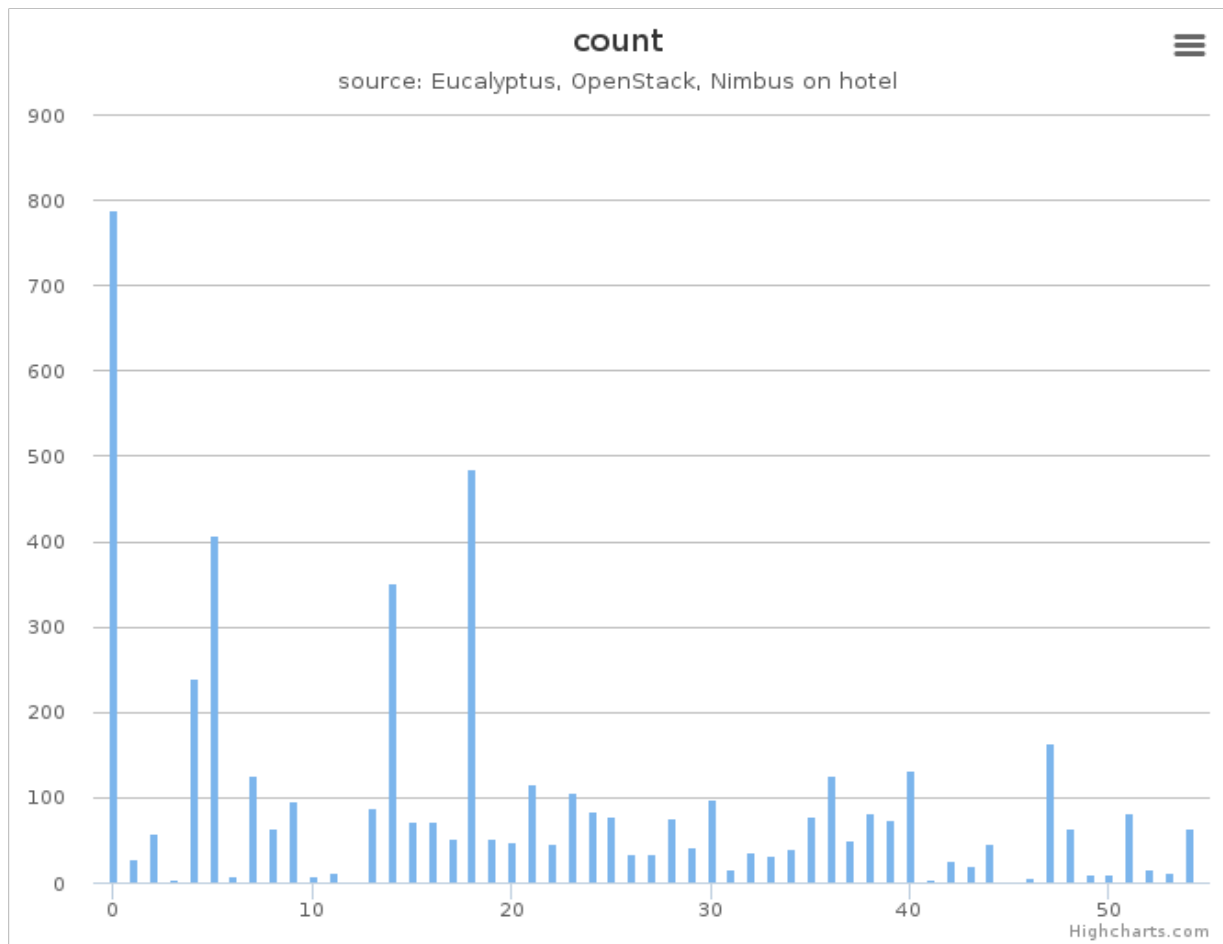


Figure 10: VMs count by systems (compute nodes) in Cluster (hotel)

This column chart represents VMs count among systems.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus
- Hostname: hotel

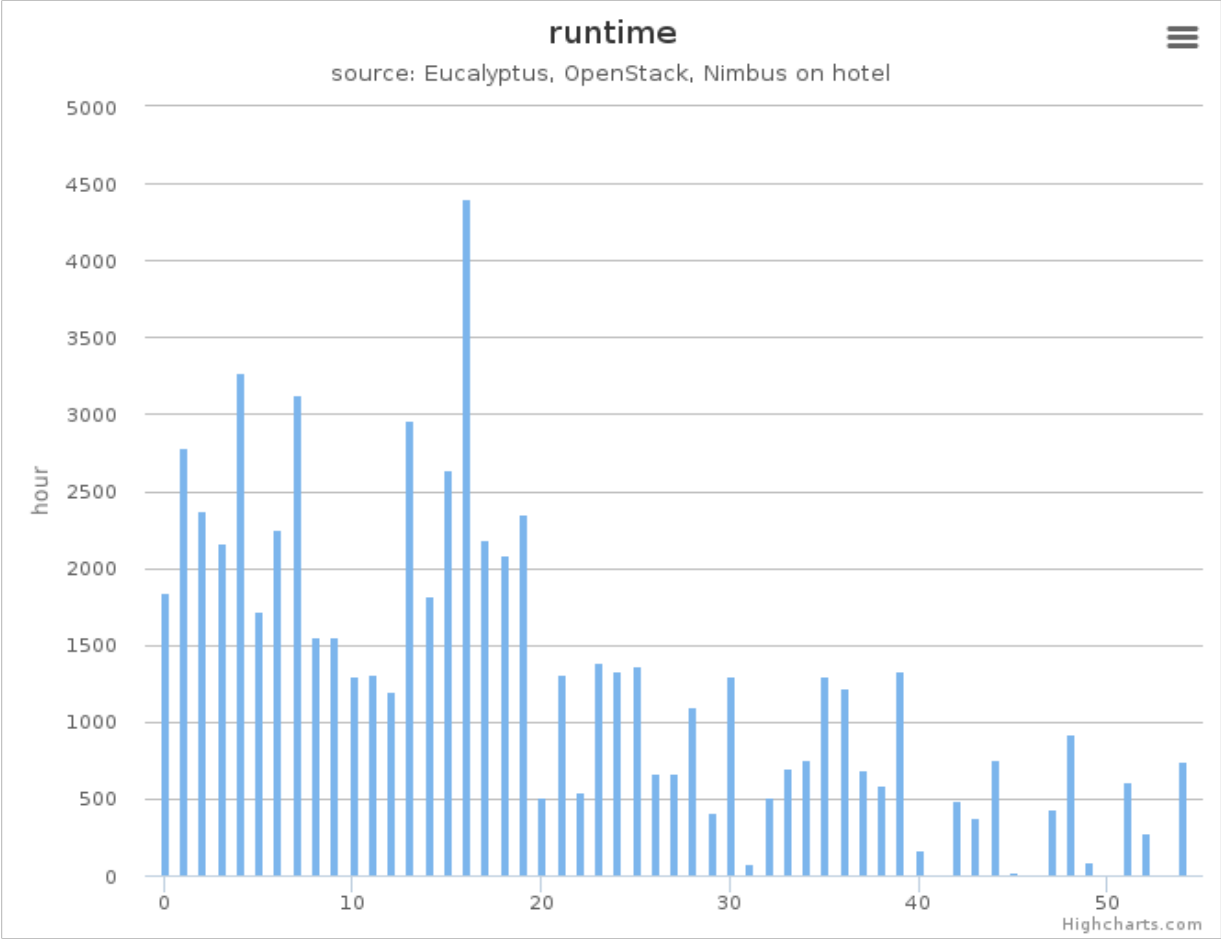


Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (hotel)
This column chart represents wall time among systems.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus
- Hostname: hotel

USAGE REPORT ALAMO

- Period: April 01 – June 30, 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)

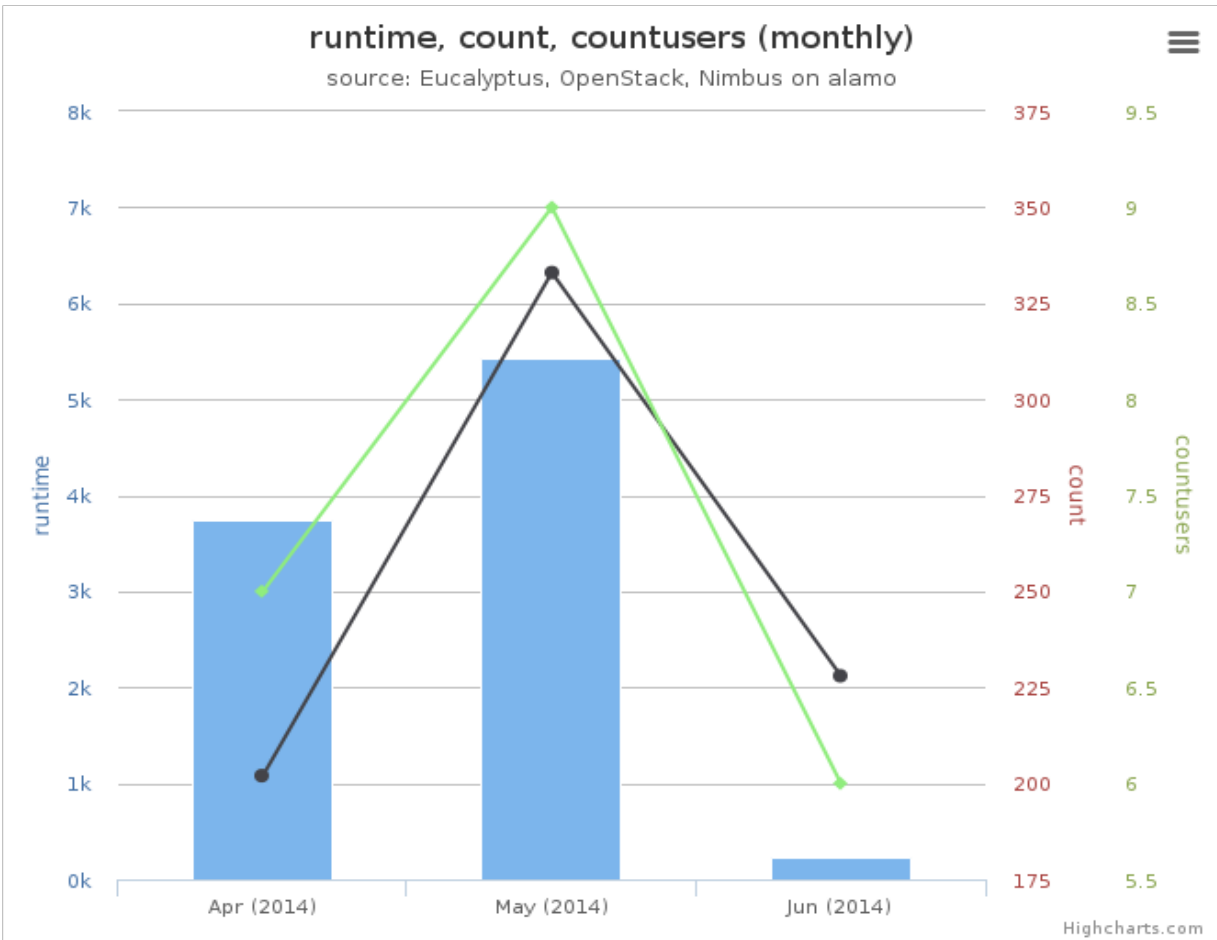


Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)

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

- Period: April 01 – June 30, 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)

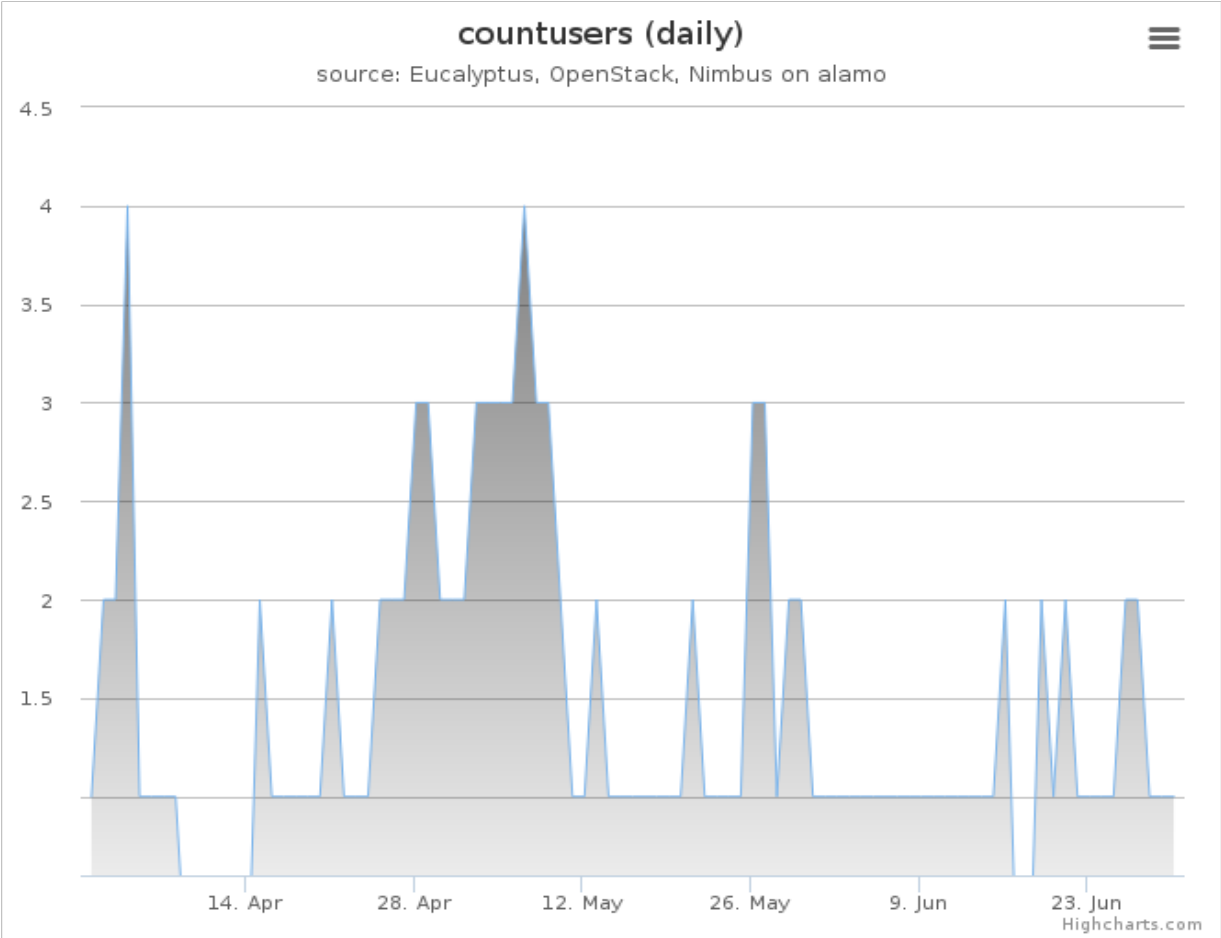


Figure 2: Users count
This time series chart represents daily active user count for cloud services and shows historical changes during the period.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

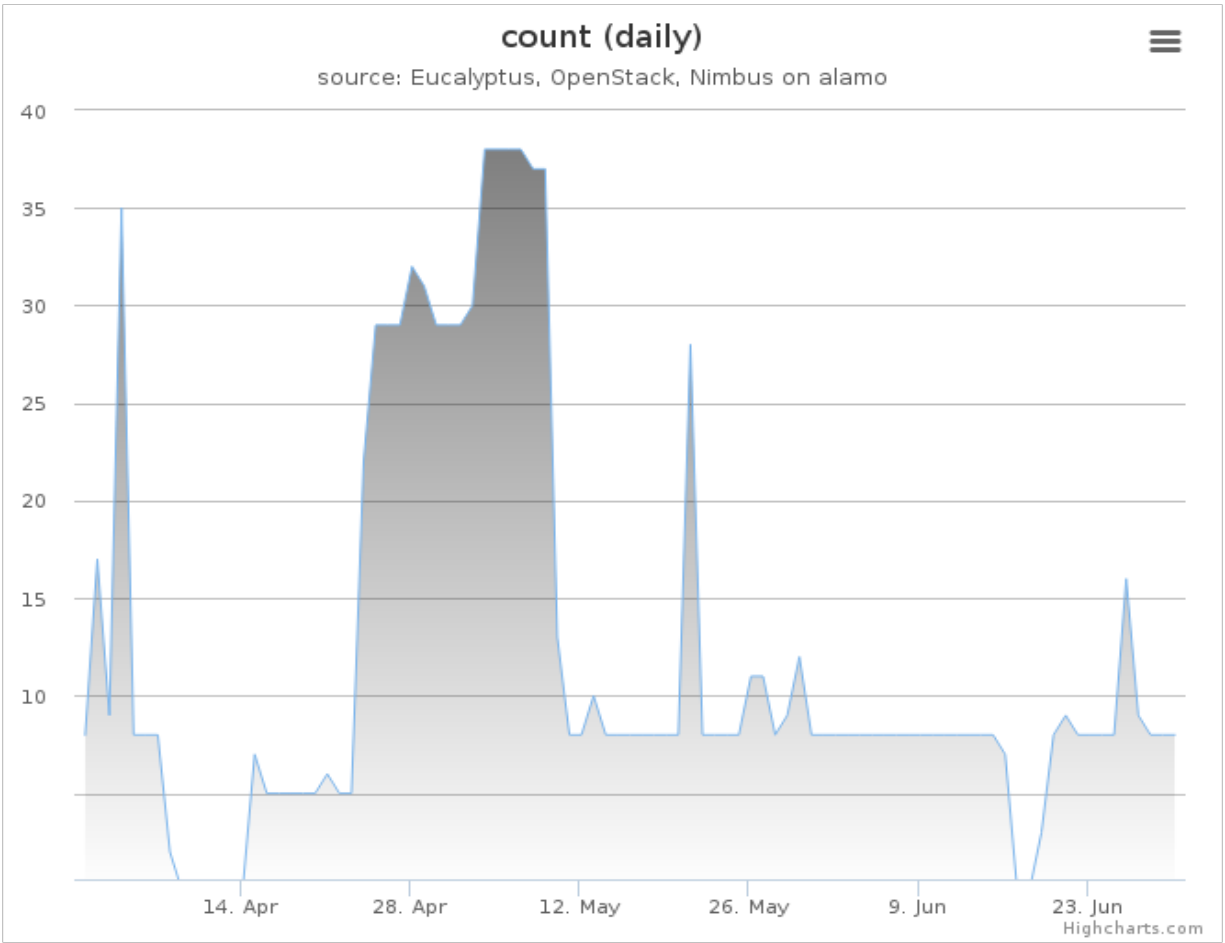


Figure 3: VMs count

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

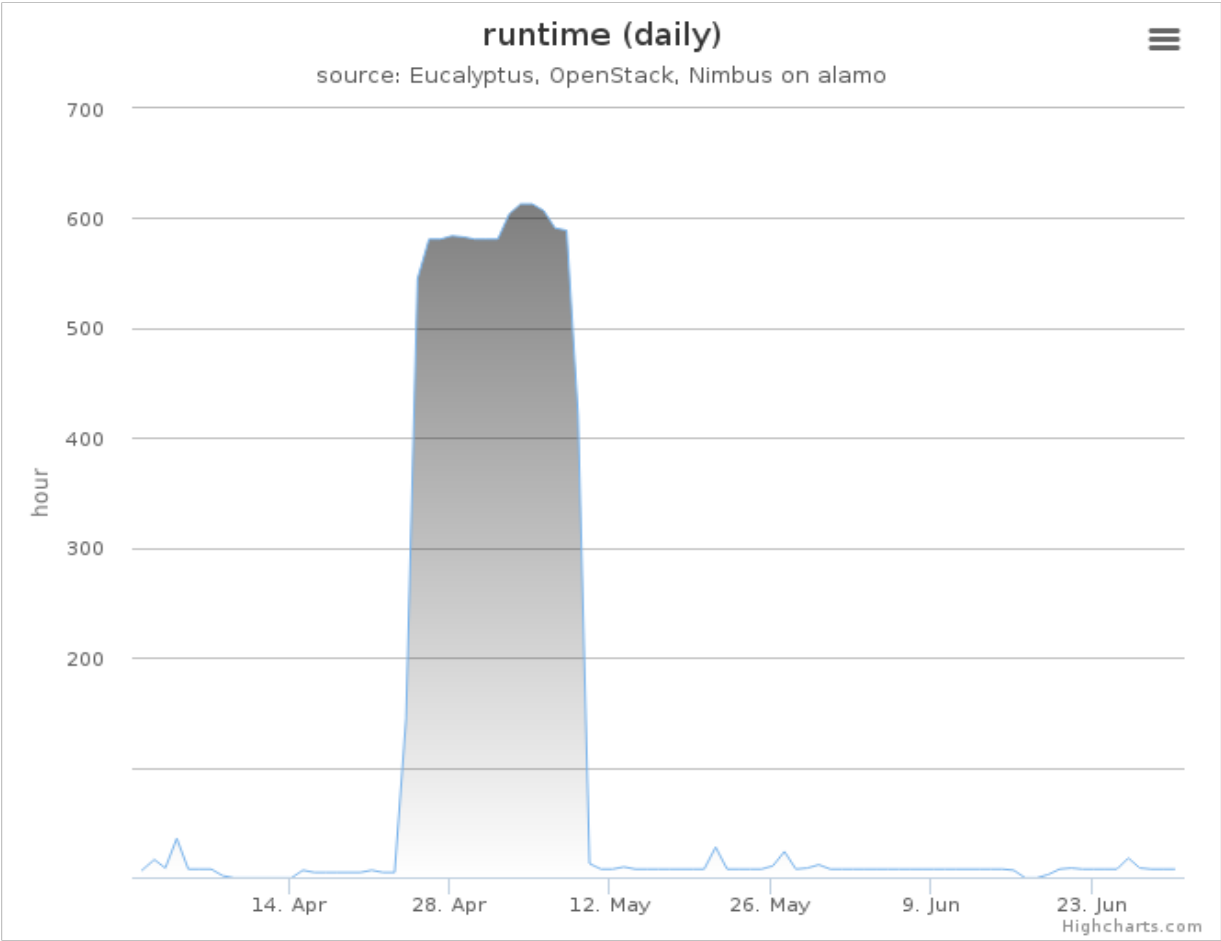


Figure 4: Wall time (hours)
This time series chart represents daily wall time (hours) for cloud services and shows historical changes during the period.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

5.2 Distribution

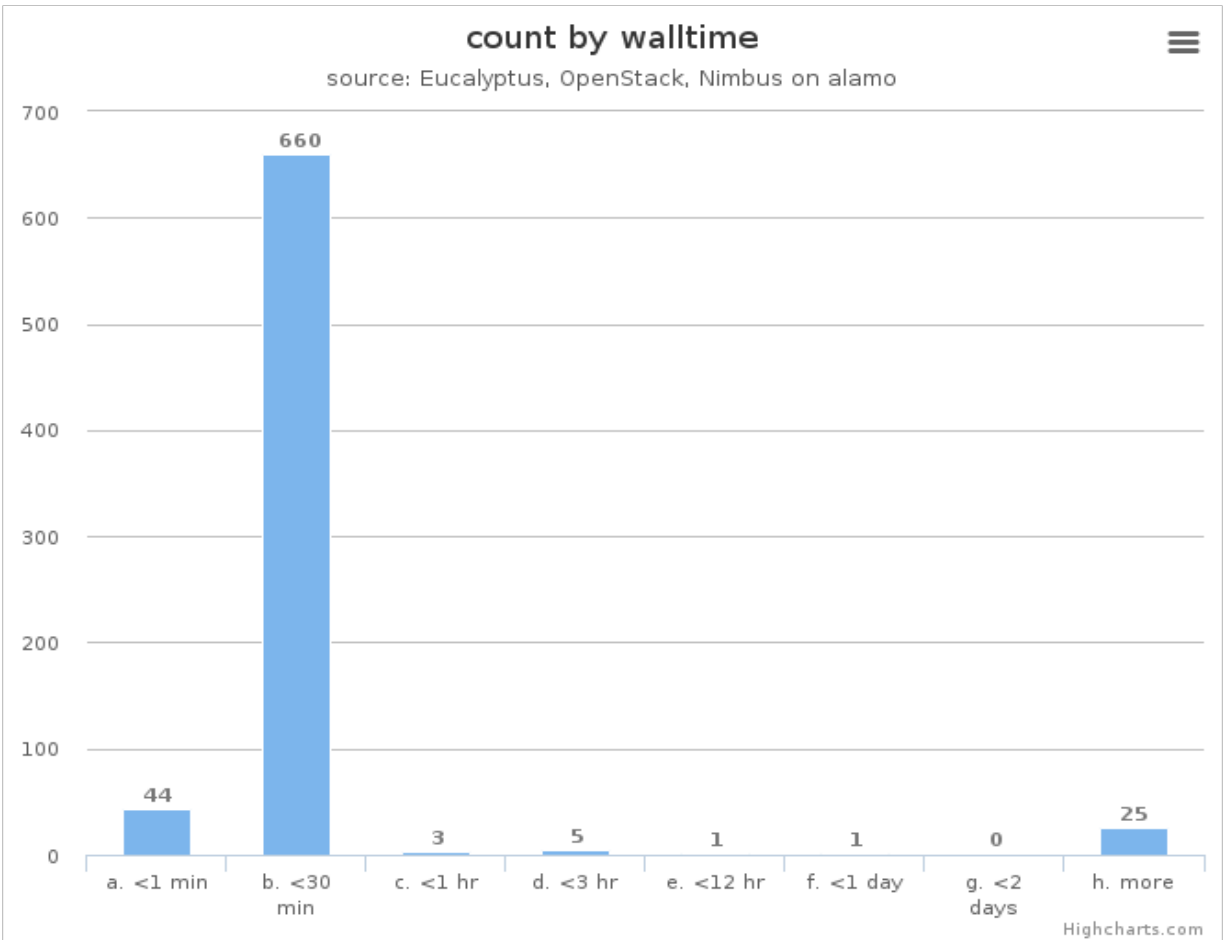


Figure 5: VM count by wall time

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

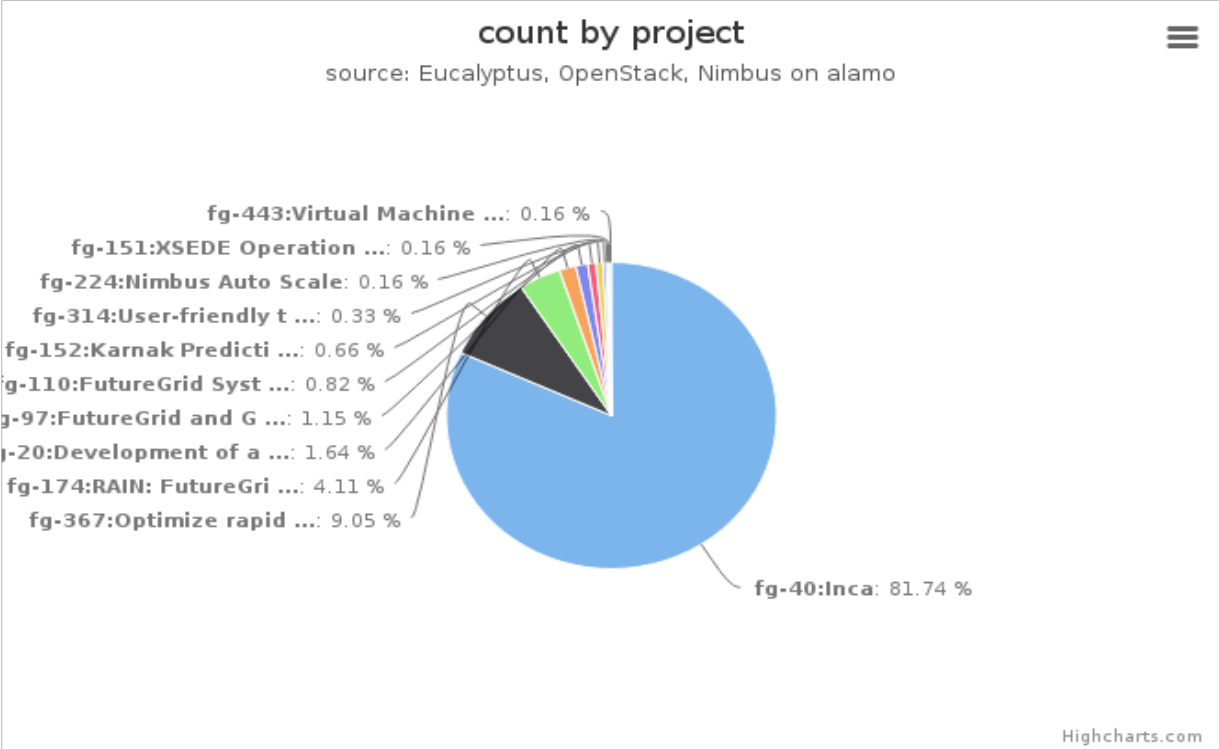


Figure 6: VMs count by project
This chart illustrates the proportion of launched VM instances by project groups. The same data in tabular form follows.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

Table 5.1: VMs count by project

Project	Value
fg-40:Inca	497
fg-367:Optimize rapid deployment and updating of VM images at the remote compute cluster	55
fg-174:RAIN: FutureGrid Dynamic provisioning Framework	25
fg-20:Development of an information service for FutureGrid	10
fg-97:FutureGrid and Grid'5000 Collaboration	7
fg-110:FutureGrid Systems Development	5
fg-152:Karnak Prediction Service	4
fg-314:User-friendly tools to play with cloud platforms	2
fg-224:Nimbus Auto Scale	1
fg-151:XSEDE Operations Group	1
fg-443:Virtual Machine Live Migration for Disaster Recovery in WANs	1

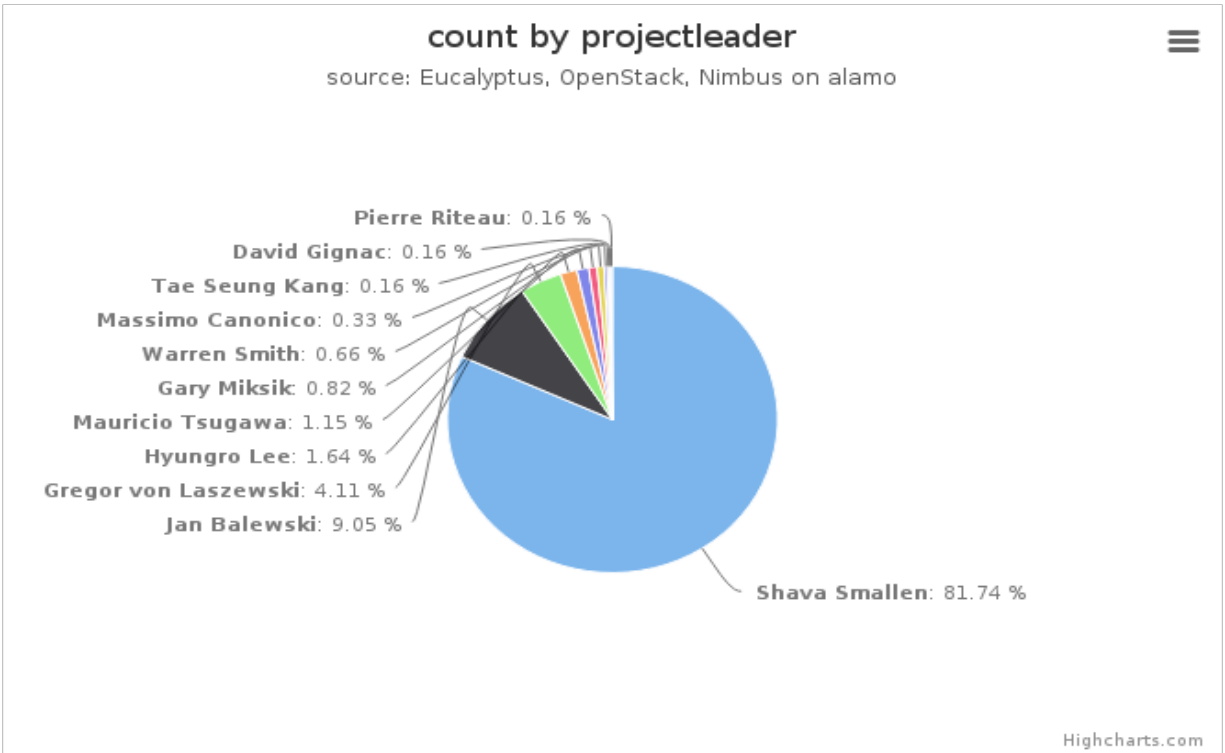


Figure 7: VMs count by project leader

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

Table 5.2: VMs count by project leader

Projectleader	Value
Shava Smallen	497
Jan Balewski	55
Gregor von Laszewski	25
Hyungro Lee	10
Mauricio Tsugawa	7
Gary Miksik	5
Warren Smith	4
Massimo Canonico	2
Tae Seung Kang	1
David Gignac	1
Pierre Riteau	1

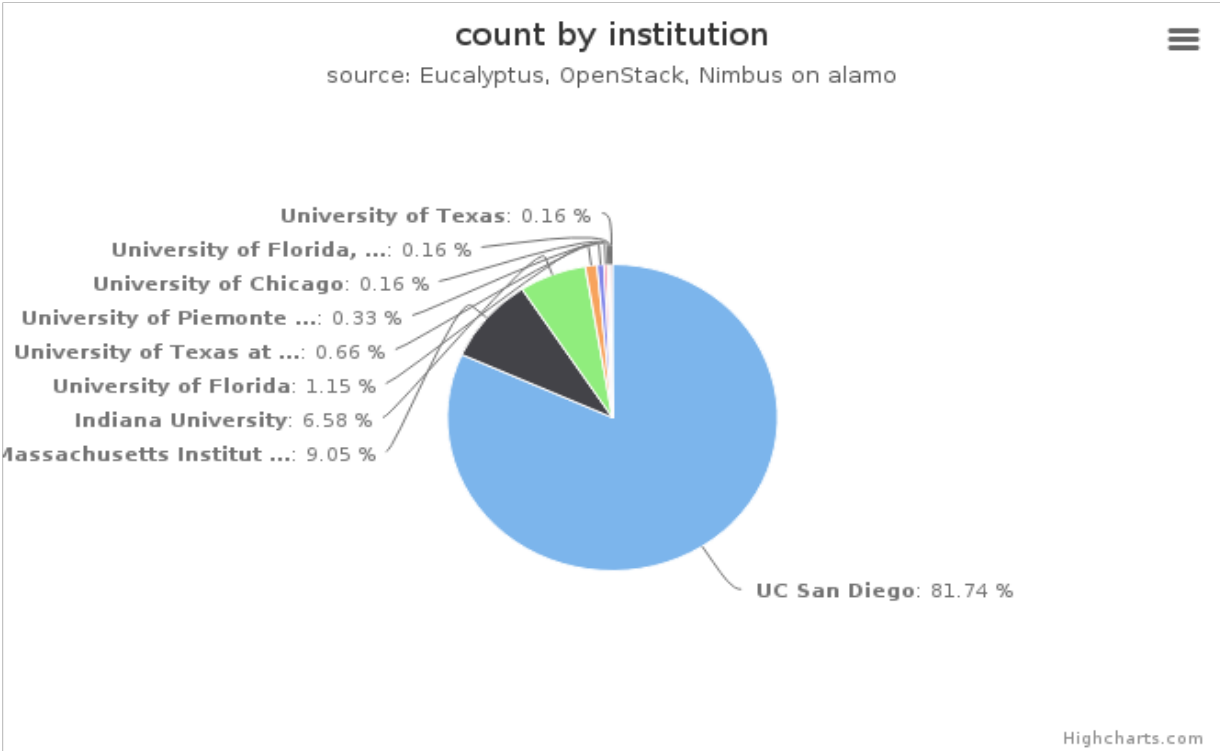


Figure 8: VMs count by institution
This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

Table 5.3: VMs count by institution

Institution	Value
UC San Diego	497
Massachusetts Institute of Technology, Laboratory for Nuclear Sc	55
Indiana University	40
University of Florida	7
University of Texas at Austin	4
University of Piemonte Orientale, Computer Science Department	2
University of Chicago	1
University of Florida, Advanced Computing and Information System	1
University of Texas	1

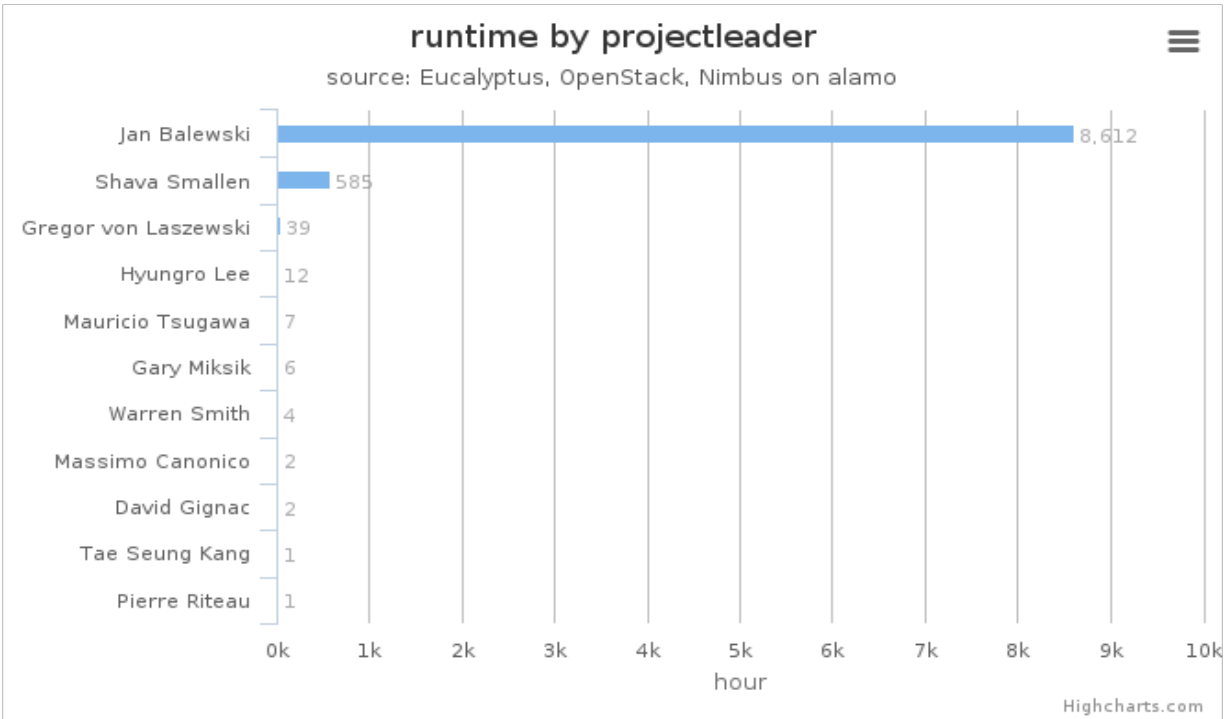


Figure 9: Wall time (hours) by project leader

This chart illustrates proportionate total run times by project leader.

- Period: April 01 – June 30, 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.

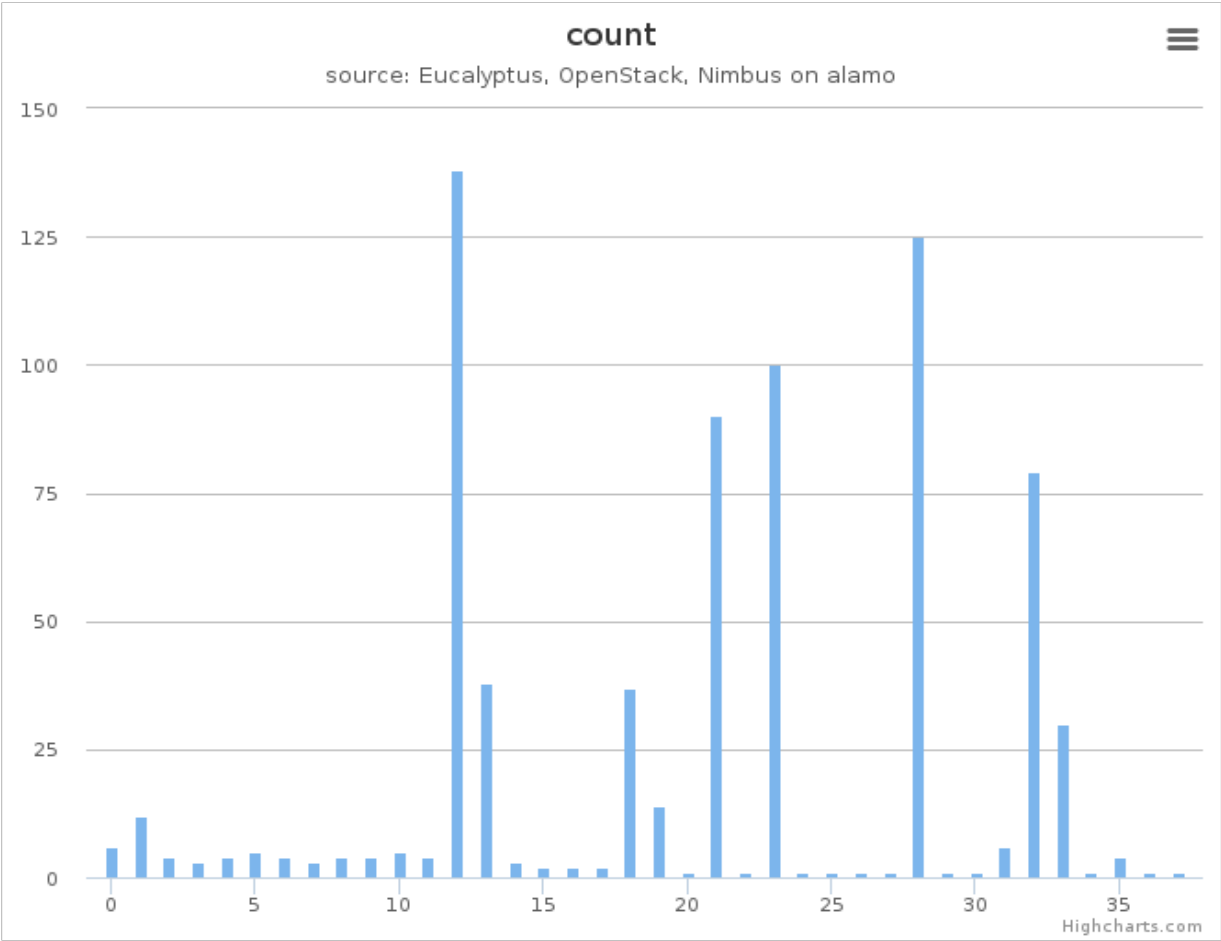


Figure 10: VMs count by systems (compute nodes) in Cluster (alamo)
This column chart represents VMs count among systems.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

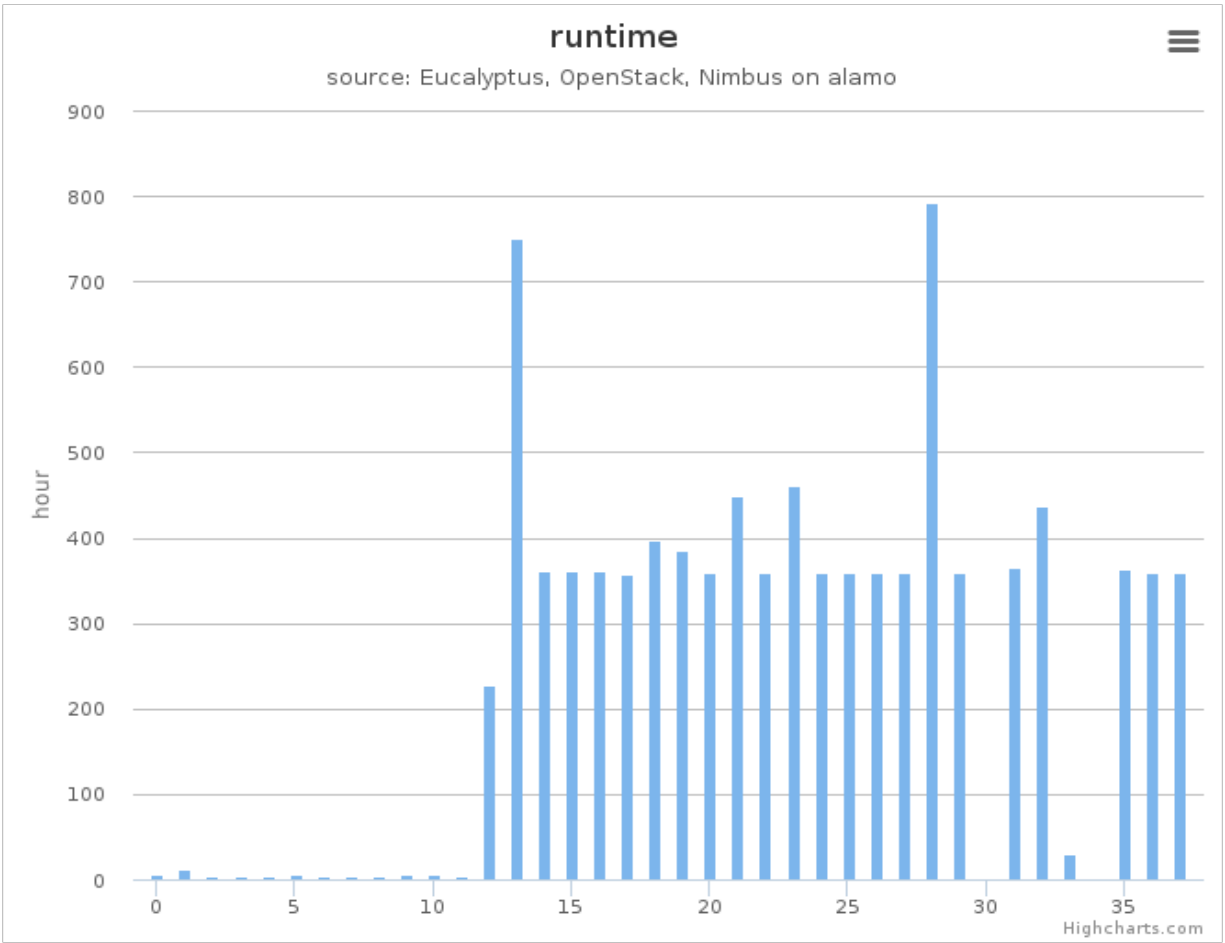


Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (alamo)
 This column chart represents wall time among systems.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

USAGE REPORT FOXTROT

- Period: April 01 – June 30, 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)

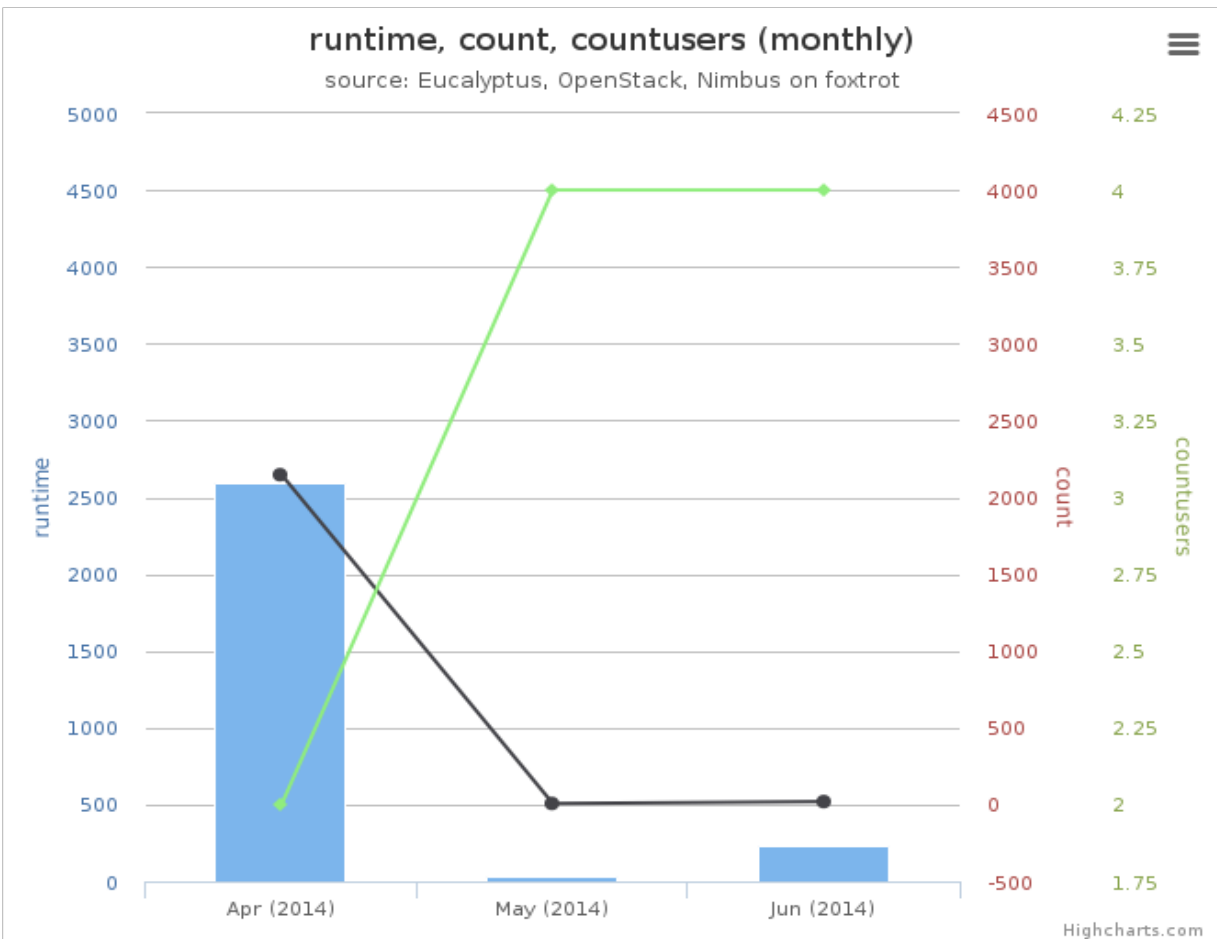


Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)

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

- Period: April 01 – June 30, 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)

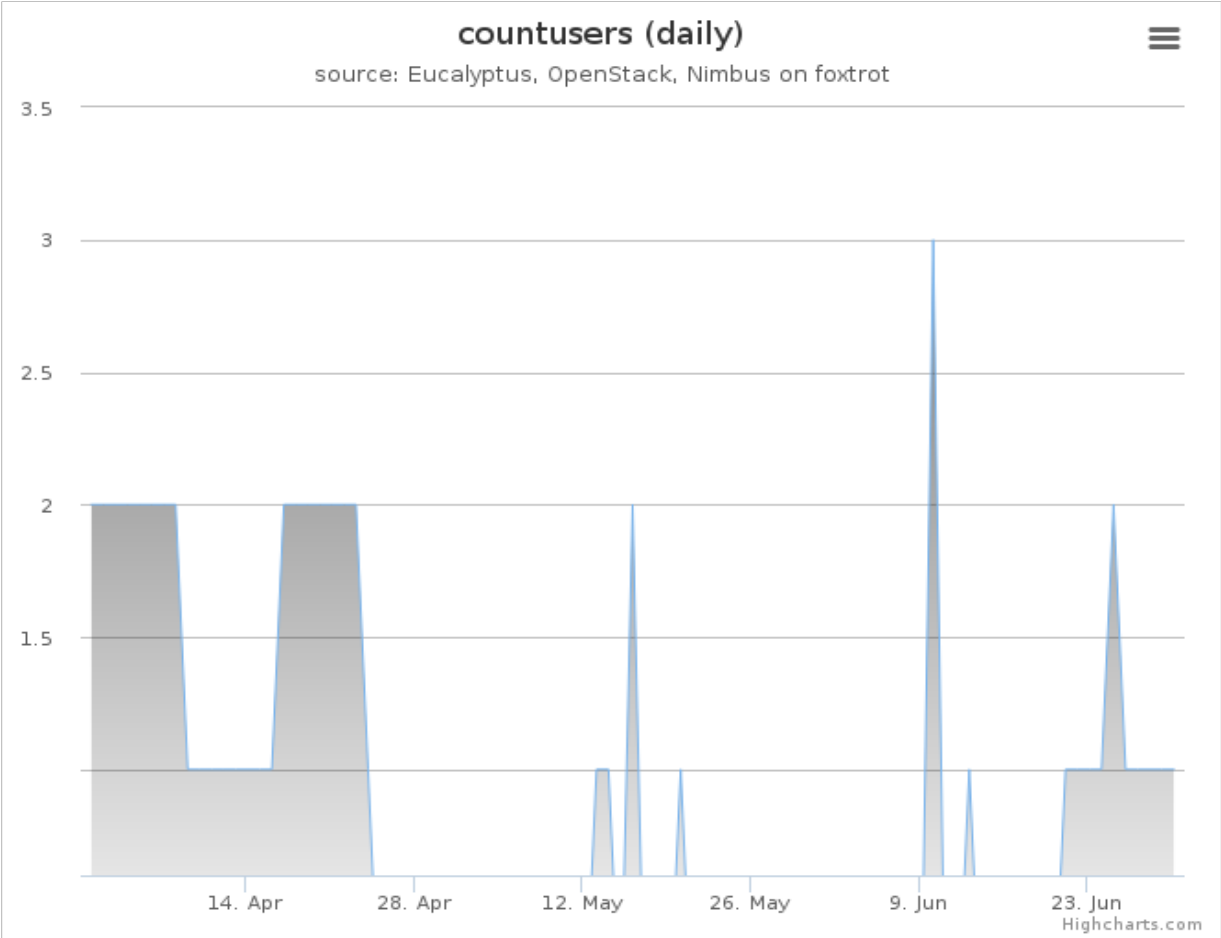


Figure 2: Users count
This time series chart represents daily active user count for cloud services and shows historical changes during the period.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus
- Hostname: foxtrot

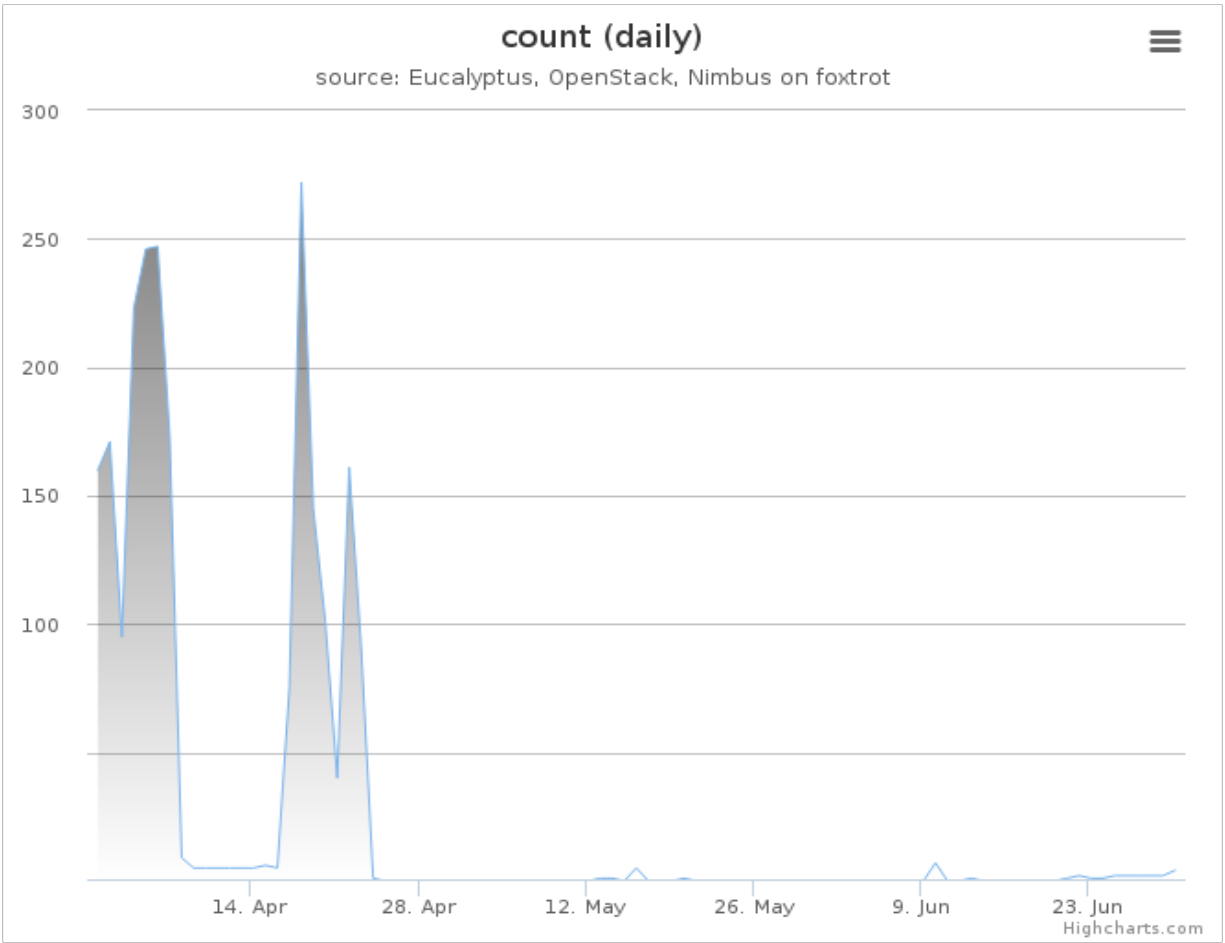


Figure 3: VMs count

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus
- Hostname: foxtrot

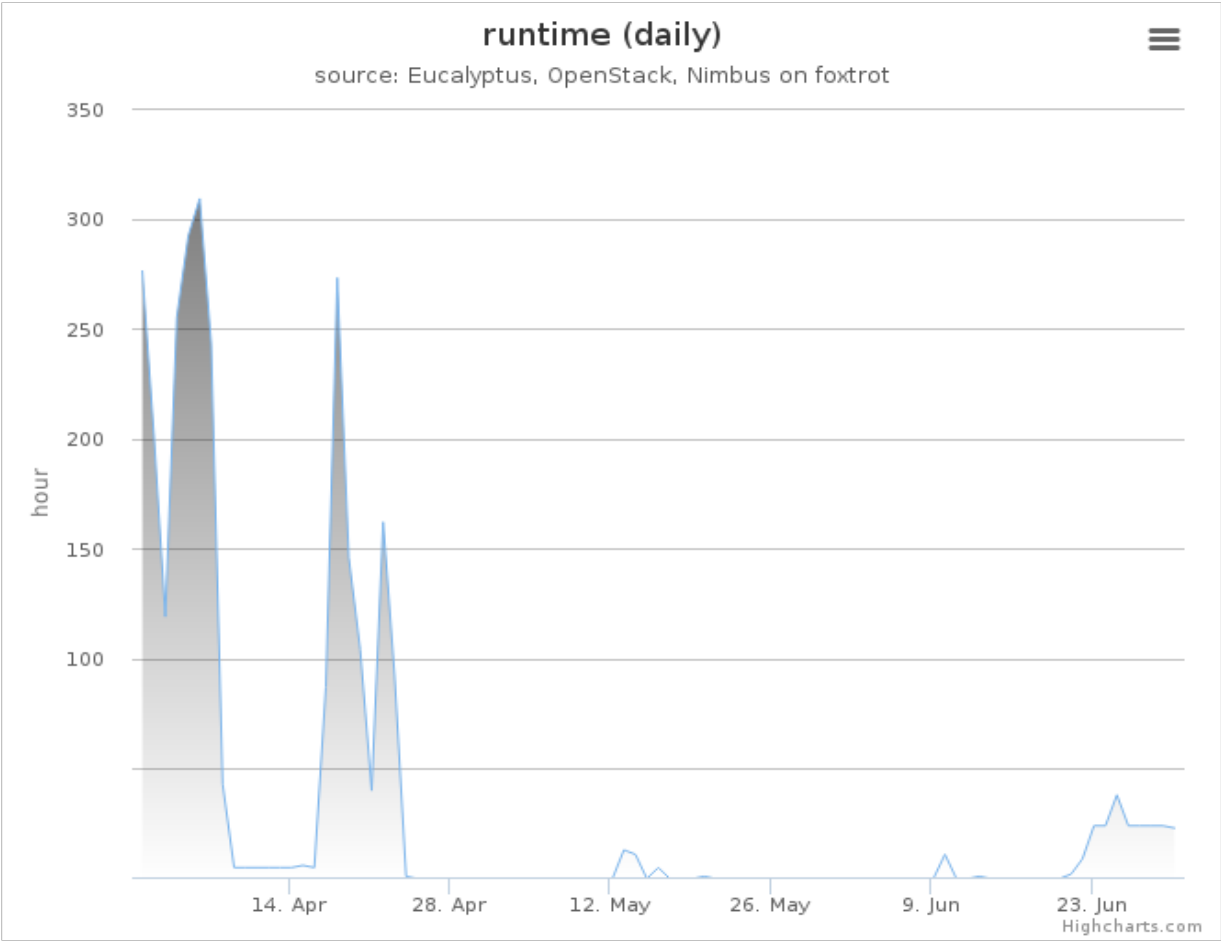


Figure 4: Wall time (hours)
This time series chart represents daily wall time (hours) for cloud services and shows historical changes during the period.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus
- Hostname: foxtrot

6.2 Distribution

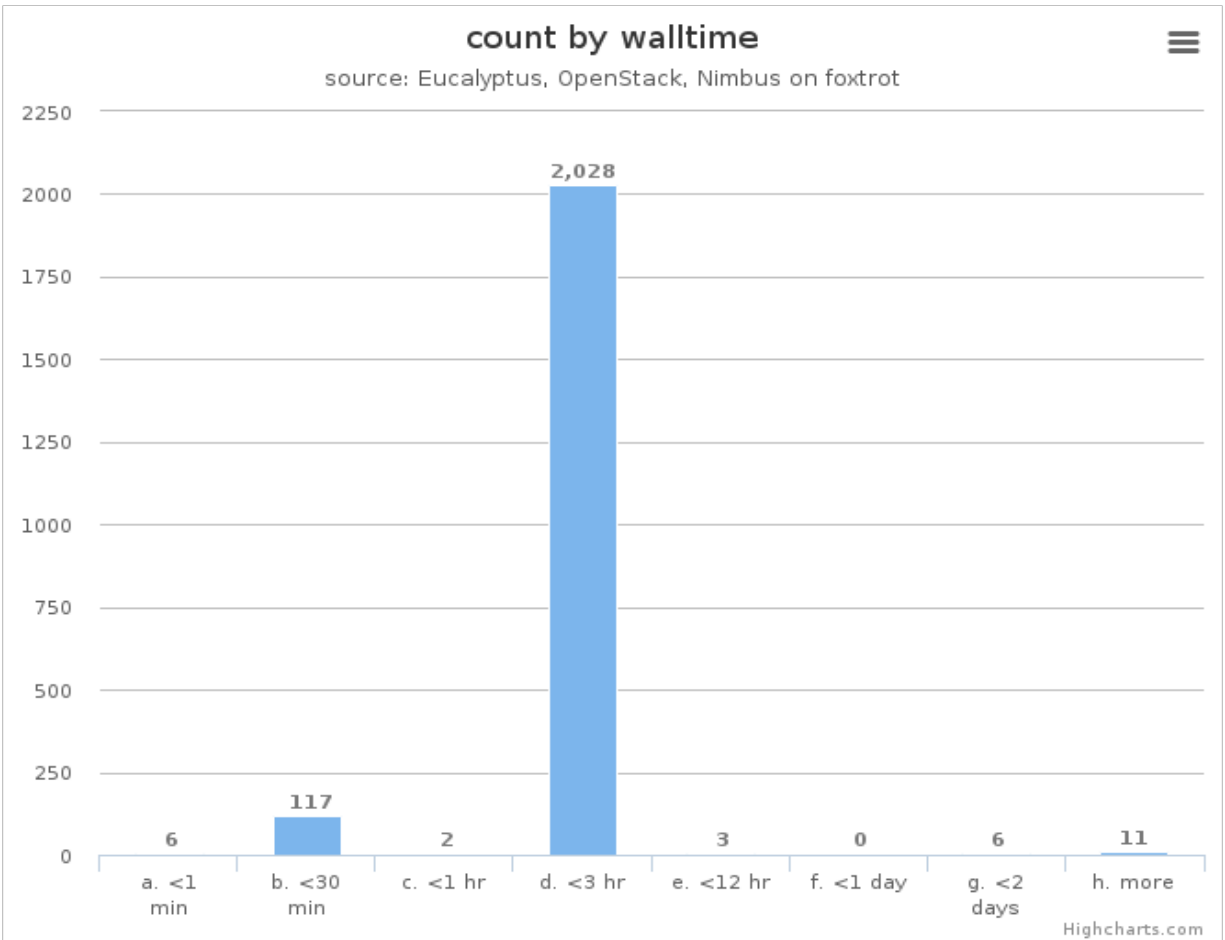


Figure 5: VM count by wall time

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus
- Hostname: foxtrot

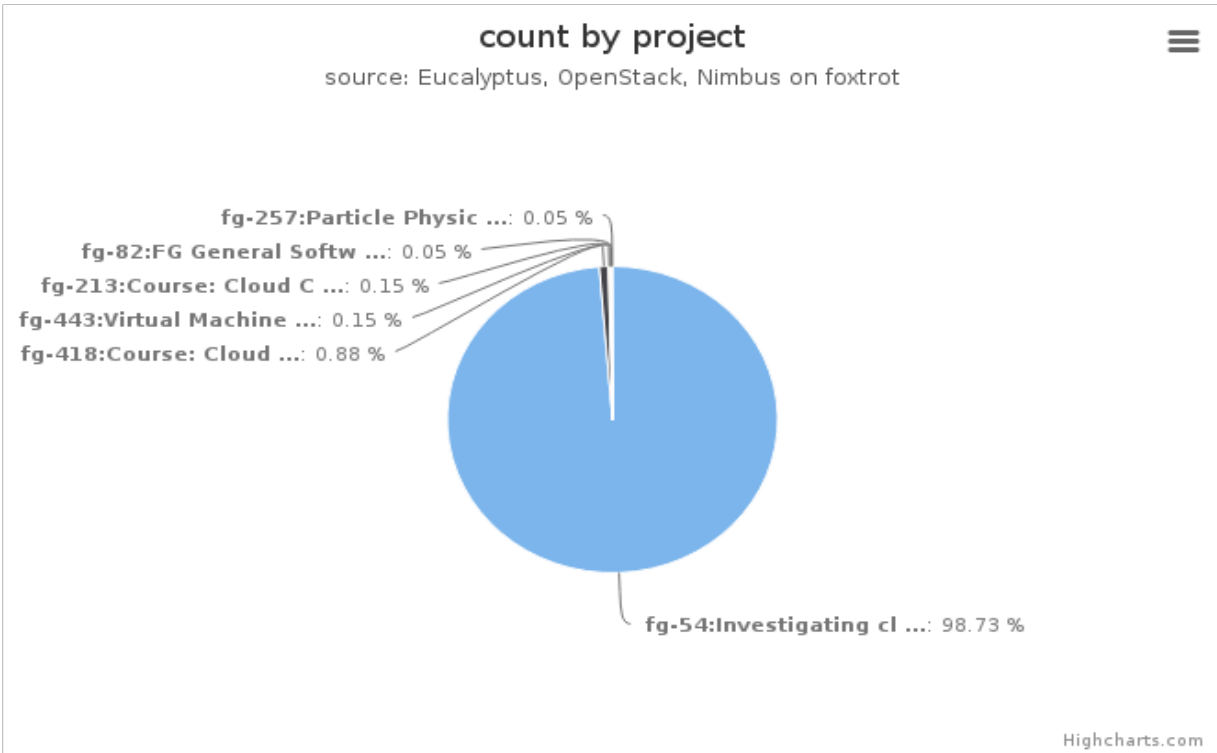


Figure 6: VMs count by project

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

- Period: April 01 – June 30, 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	2026
fg-418:Course: Cloud Computing Class - fourth edition	18
fg-443:Virtual Machine Live Migration for Disaster Recovery in WANs	3
fg-213:Course: Cloud Computing class - second edition	3
fg-82:FG General Software Development	1
fg-257:Particle Physics Data analysis cluster for ATLAS LHC experiment	1

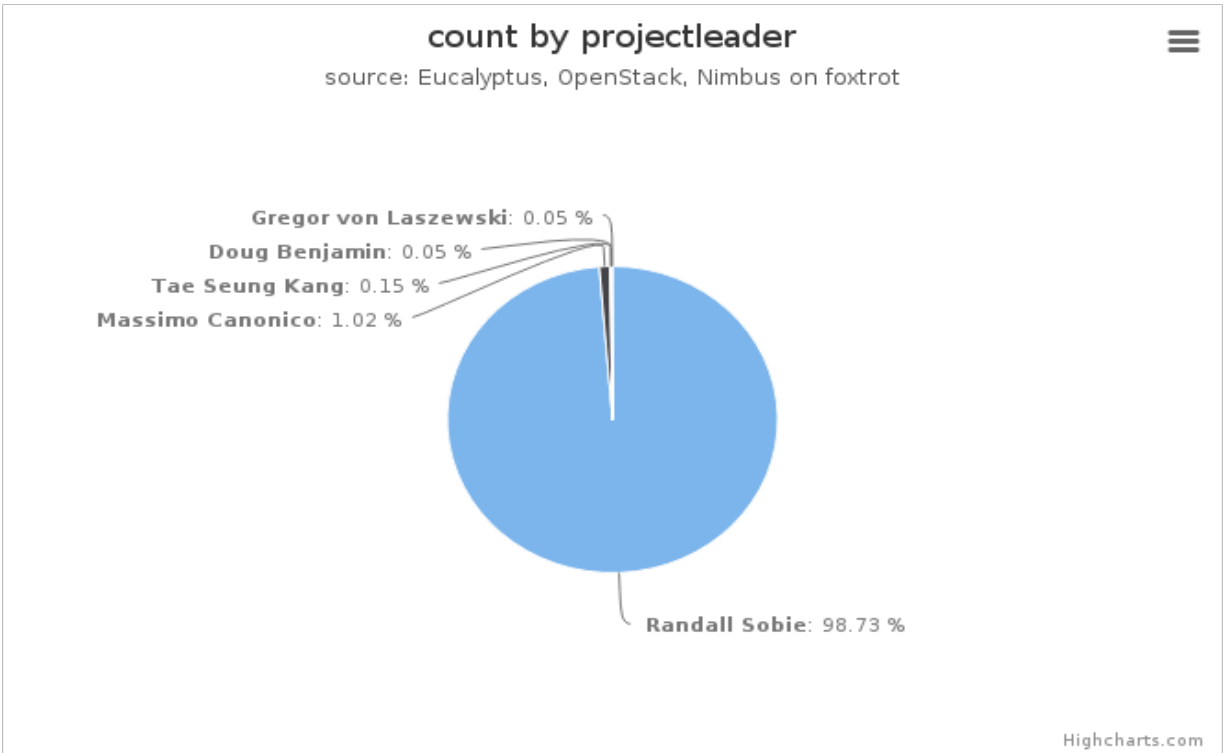


Figure 7: VMs count by project leader

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

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus
- Hostname: foxtrot

Table 6.2: VMs count by project leader

Projectleader	Value
Randall Sobie	2026
Massimo Canonico	21
Tae Seung Kang	3
Doug Benjamin	1
Gregor von Laszewski	1

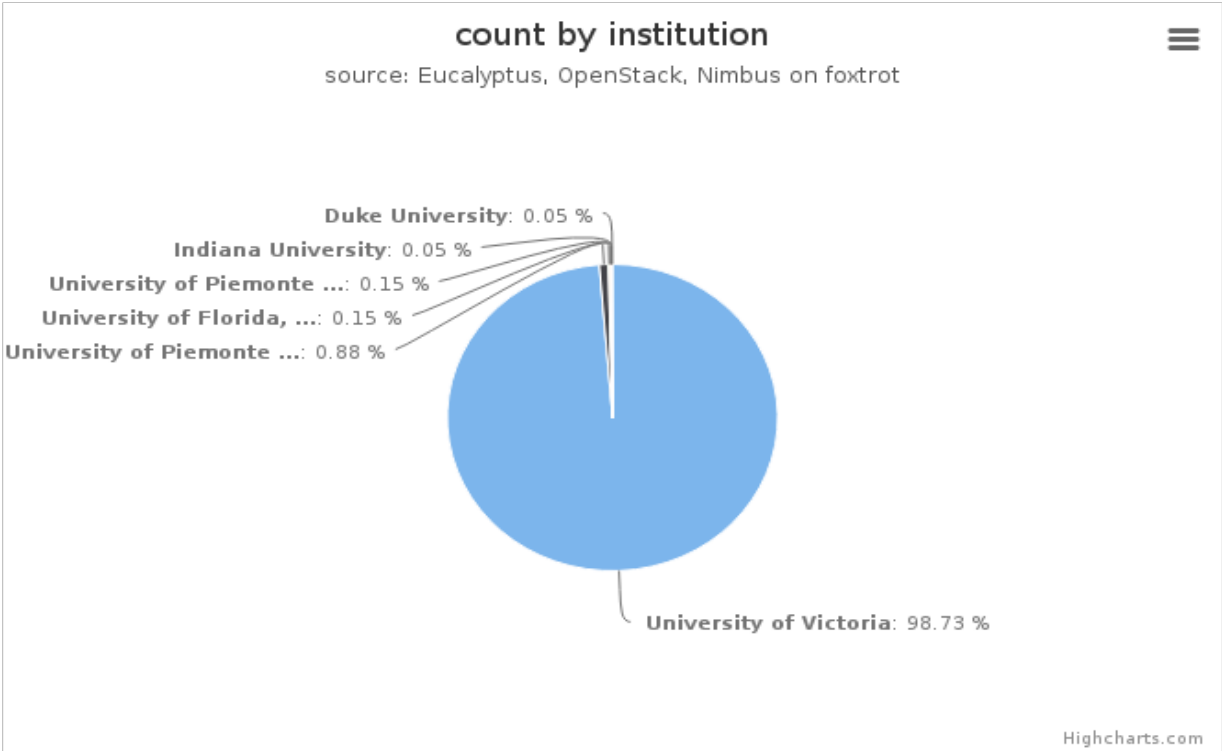


Figure 8: VMs count by institution
This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus
- Hostname: foxtrot

Table 6.3: VMs count by institution

Institution	Value
University of Victoria	2026
University of Piemonte Orientale, Computer Science Department	18
University of Florida, Advanced Computing and Information System	3
University of Piemonte Orientale	3
Indiana University	1
Duke University	1

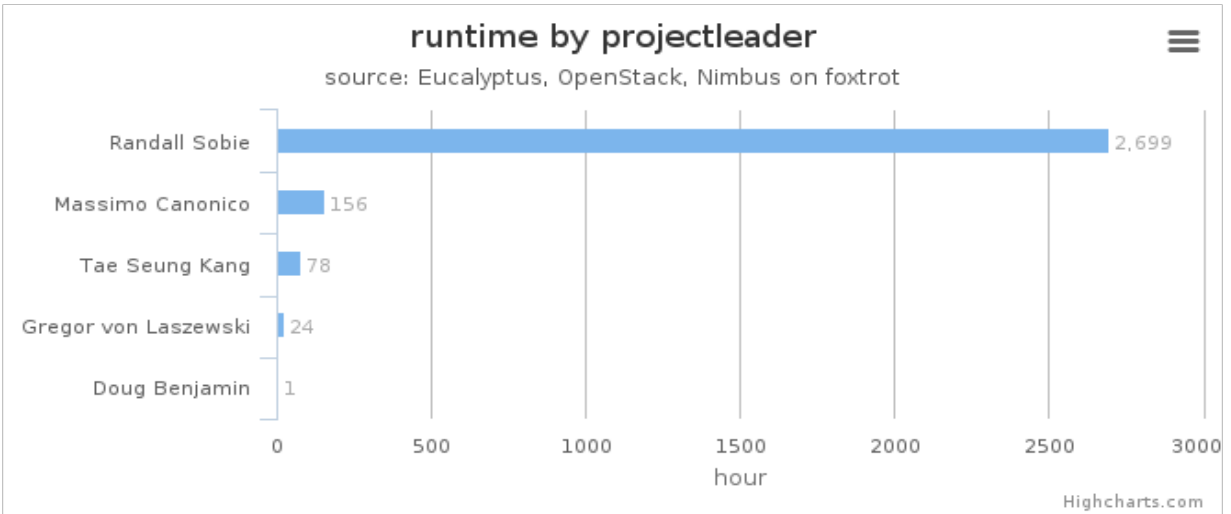


Figure 9: Wall time (hours) by project leader

This chart illustrates proportionate total run times by project leader.

- Period: April 01 – June 30, 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.

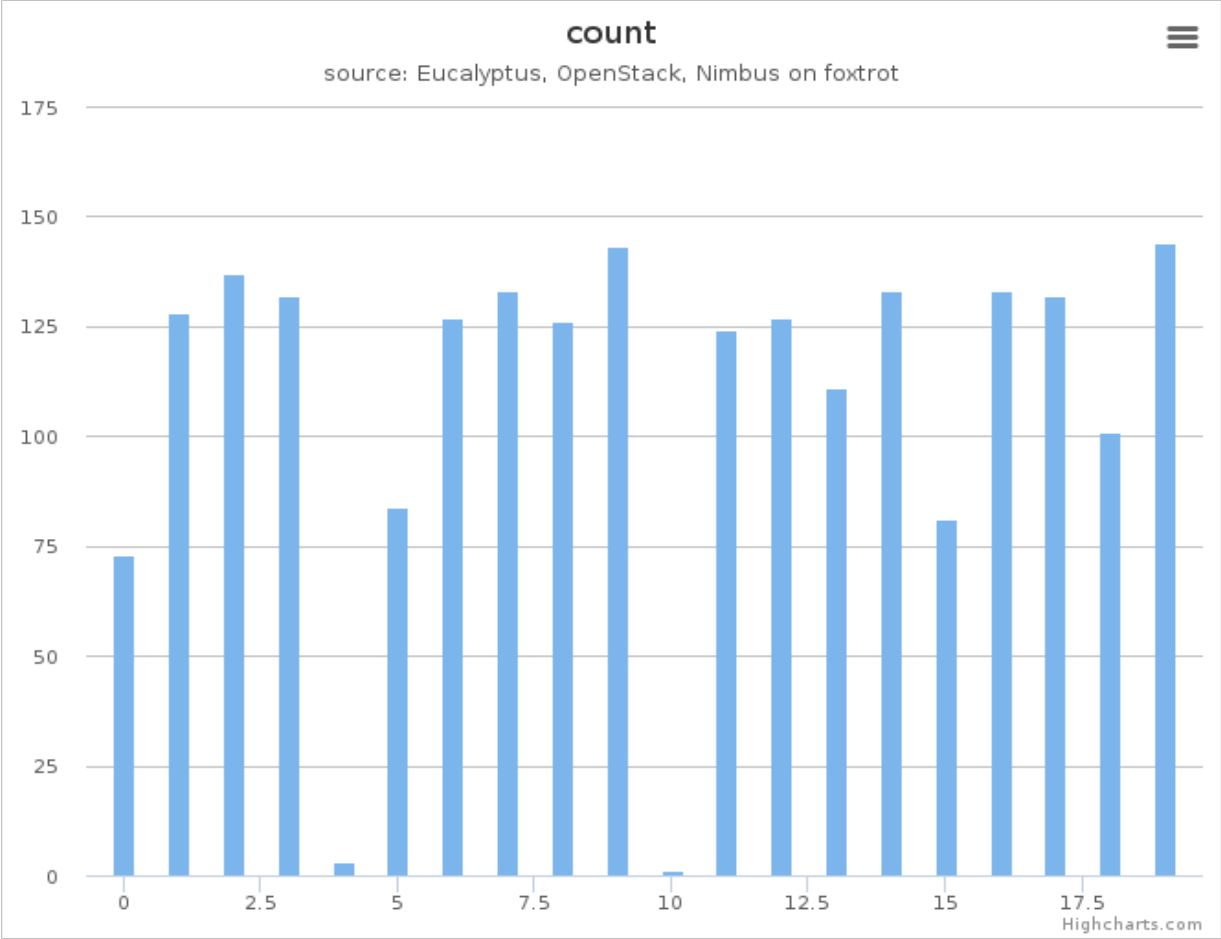


Figure 10: VMs count by systems (compute nodes) in Cluster (foxtrot)
This column chart represents VMs count among systems.

- Period: April 01 – June 30, 2014
- Cloud(IaaS): nimbus
- Hostname: foxtrot

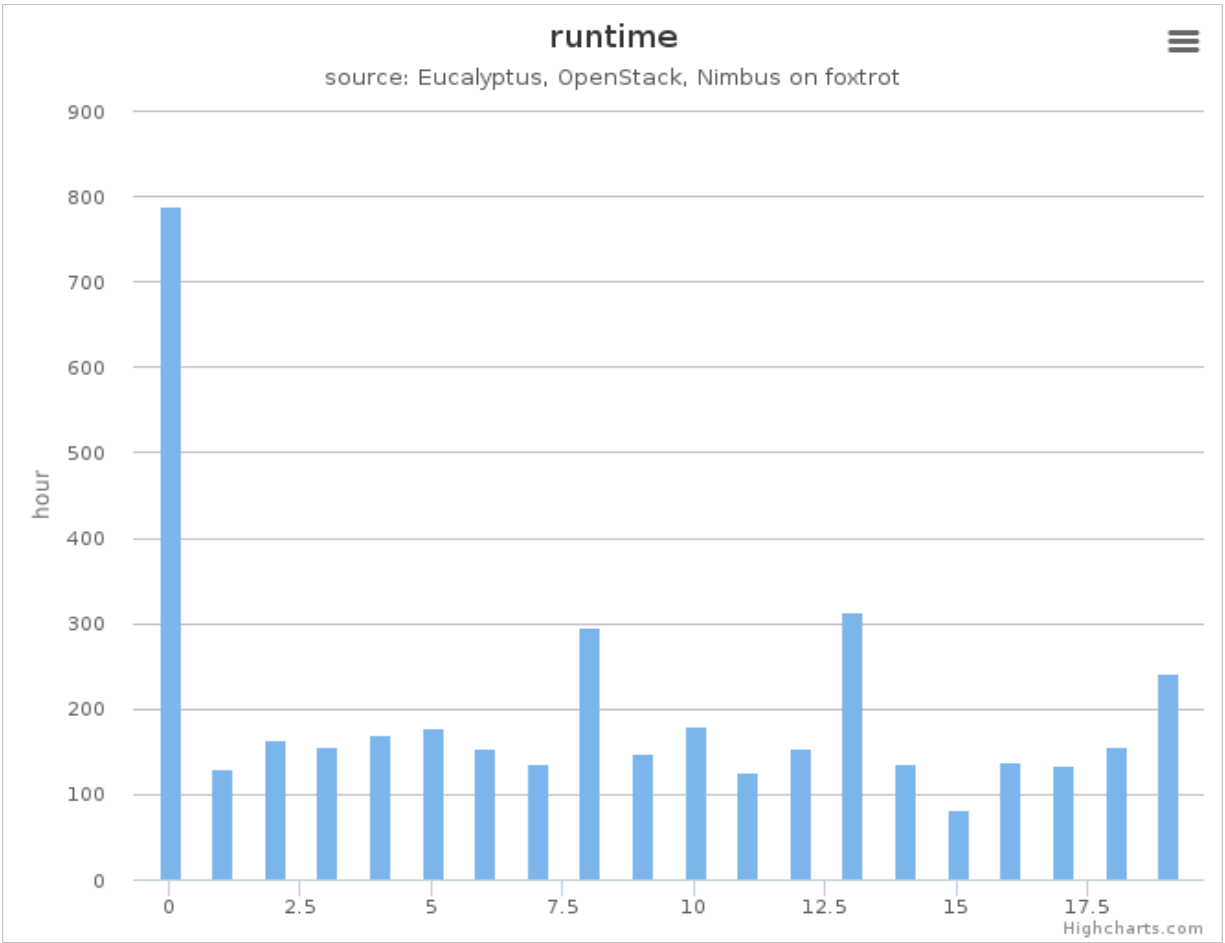


Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (foxtrot)
 This column chart represents wall time among systems.

- Period: April 01 – June 30, 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

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.