FG Resource Report

Release 0.4

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January 05, 2014

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Date Created: Sun, 05 Jan 2014

CHAPTER

ONE

SUMMARY REPORT (ALL)

- Period: April 01 – June 30, 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)

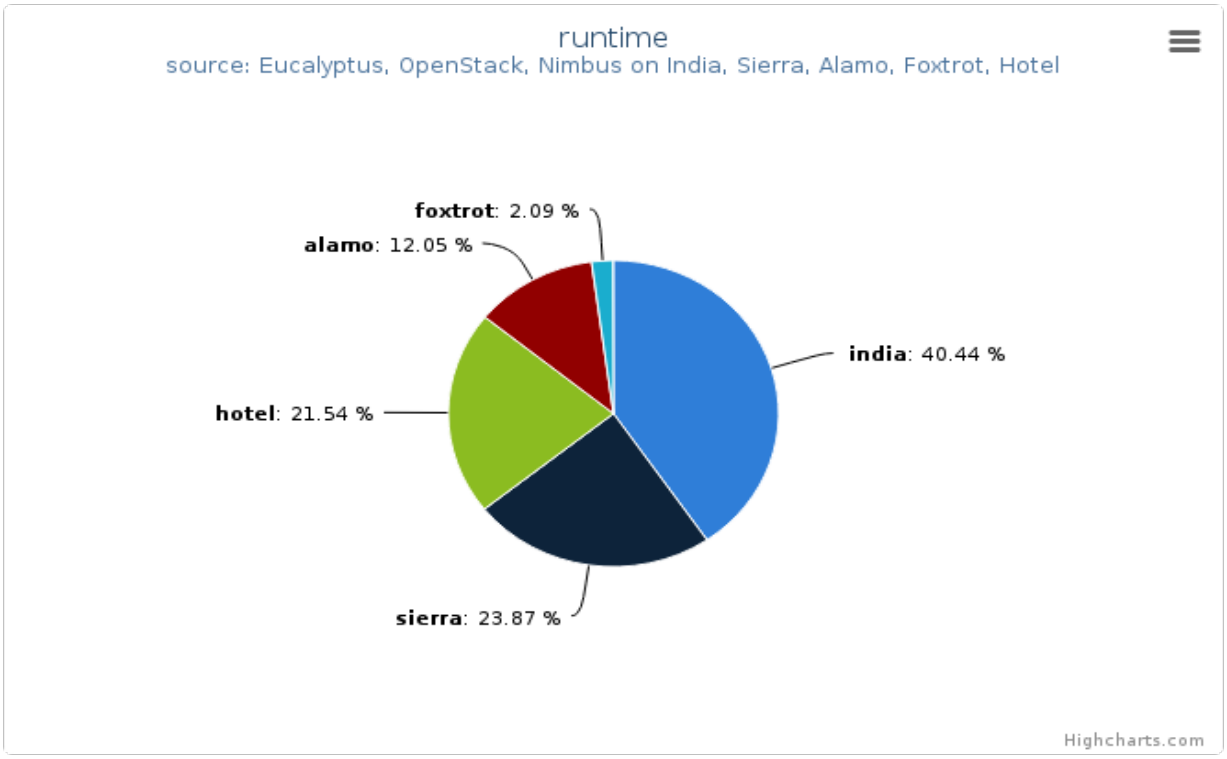

Figure 1. Wall time (hours) by Clusters
This chart represents overall usage of wall time (hours).

- Period: April 01 – June 30, 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	124148.0
sierra	73285.0
hotel	66139.0
alamo	36995.0
foxtrot	6429.0

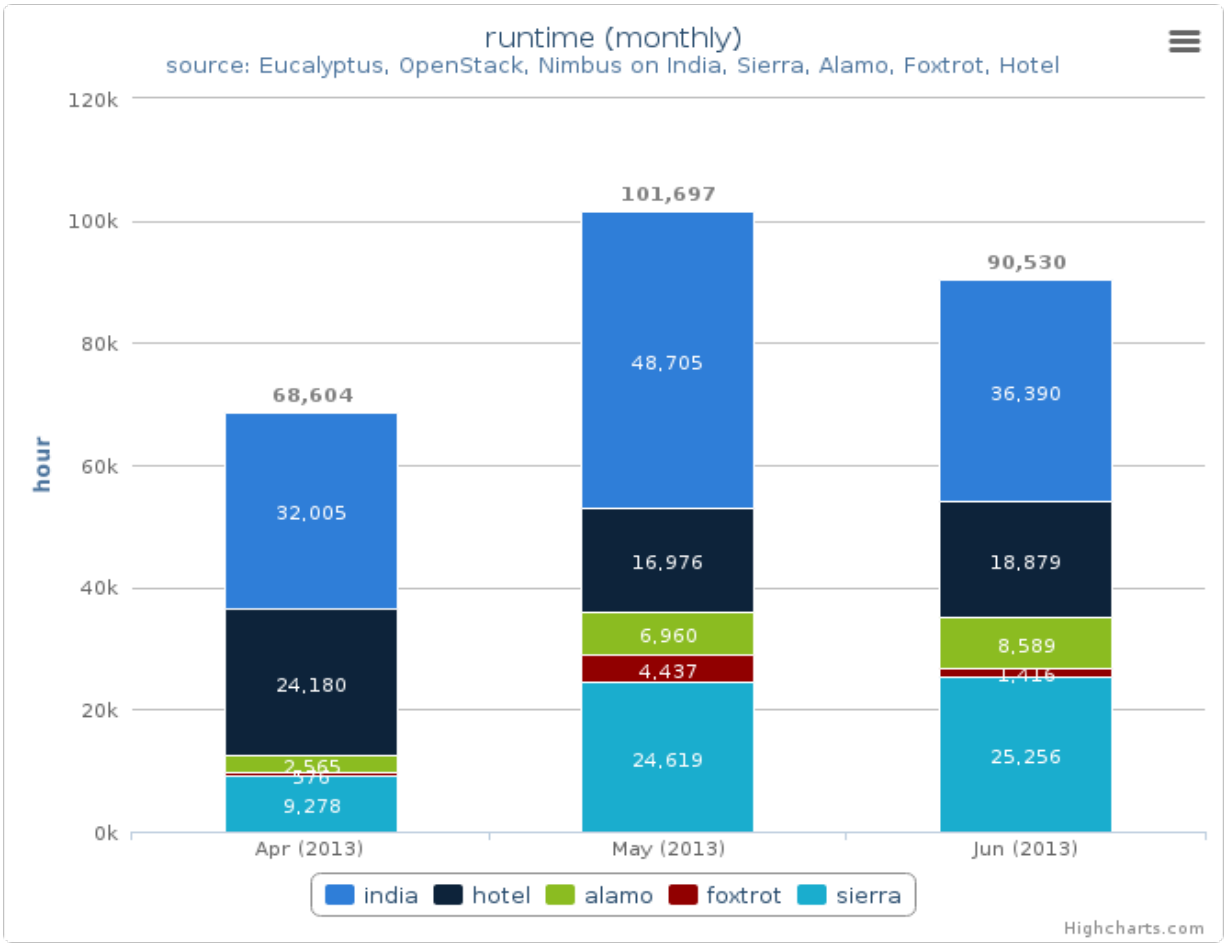

Figure 2. Wall time (hours) by Clusters (monthly)
This stacked column chart represents average monthly usage of wall time (hours).

- Period: April 01 – June 30, 2013
- **Cloud:**
  - india: Eucalyptus, Openstack
  - sierra: Eucalyptus, Nimbus
  - hotel: Nimbus
  - alamo: Nimbus
  - foxtrot: Nimbus

1.2 VM Count by Clusters (Total, monthly)

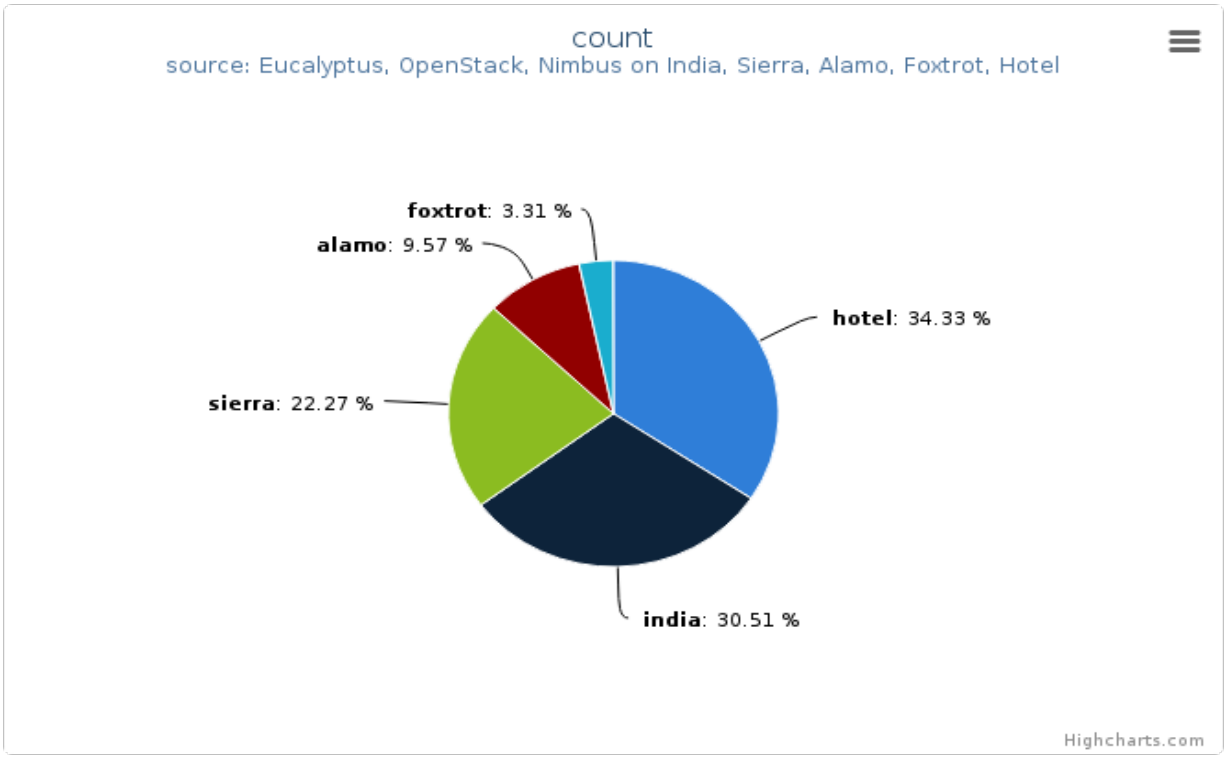

Figure 3. VMs count by Clusters
This chart represents overall VM instances count during the period.

- Period: April 01 – June 30, 2013
- **Cloud:**
  - india: Eucalyptus, Openstack
  - sierra: Eucalyptus, Nimbus
  - hotel: Nimbus
  - alamo: Nimbus
  - foxtrot: Nimbus

Table 1.2: VM instance count by Clusters

Total	Value
hotel	5533
india	4917
sierra	3589
alamo	1542
foxtrot	534

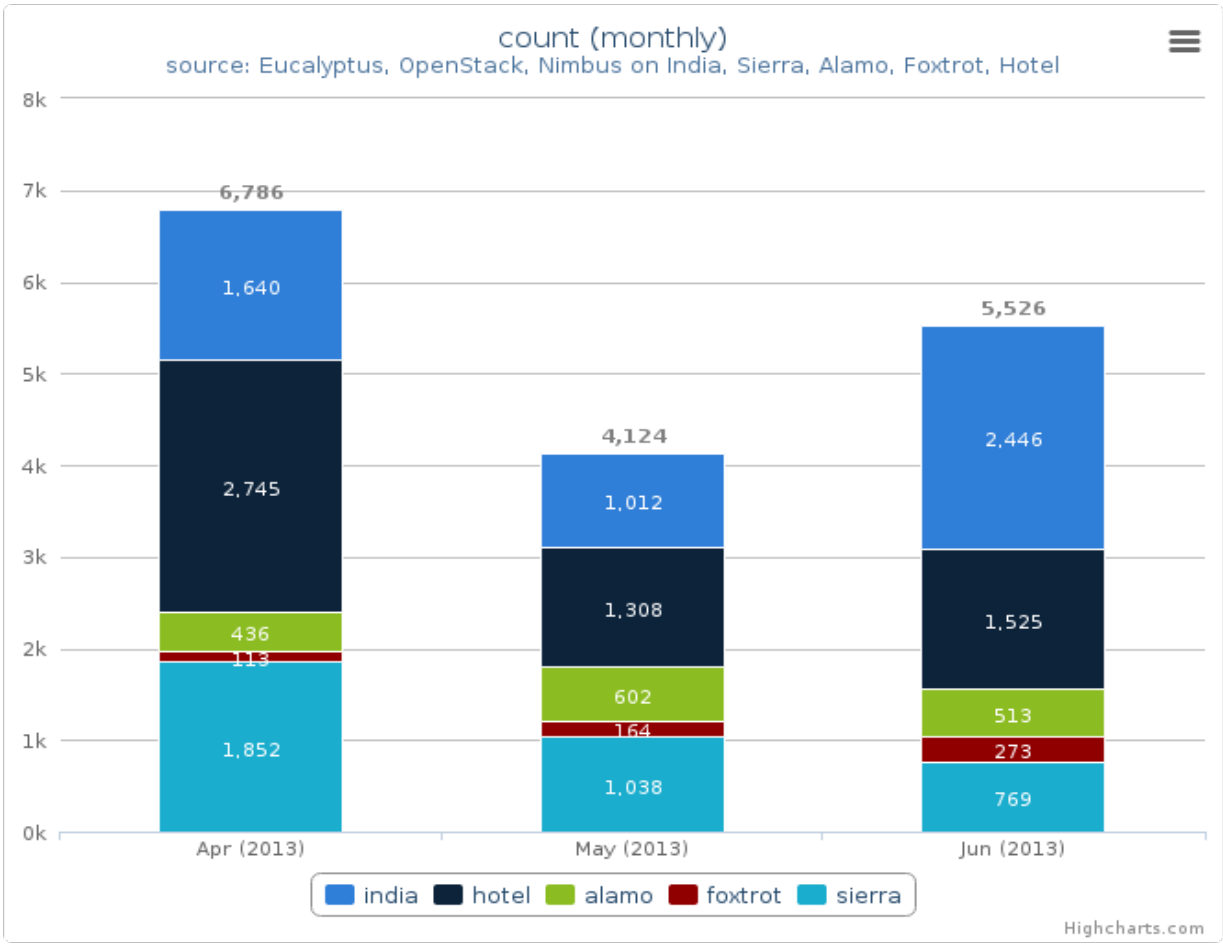

Figure 4. VMs count by Clusters (monthly)
This stacked column chart represents average VM instances count per month.

- Period: April 01 – June 30, 2013
- **Cloud:**
  - india: Eucalyptus, Openstack
  - sierra: Eucalyptus, Nimbus
  - hotel: Nimbus
  - alamo: Nimbus
  - foxtrot: Nimbus

1.3 Users Count by Clusters (Total, monthly)

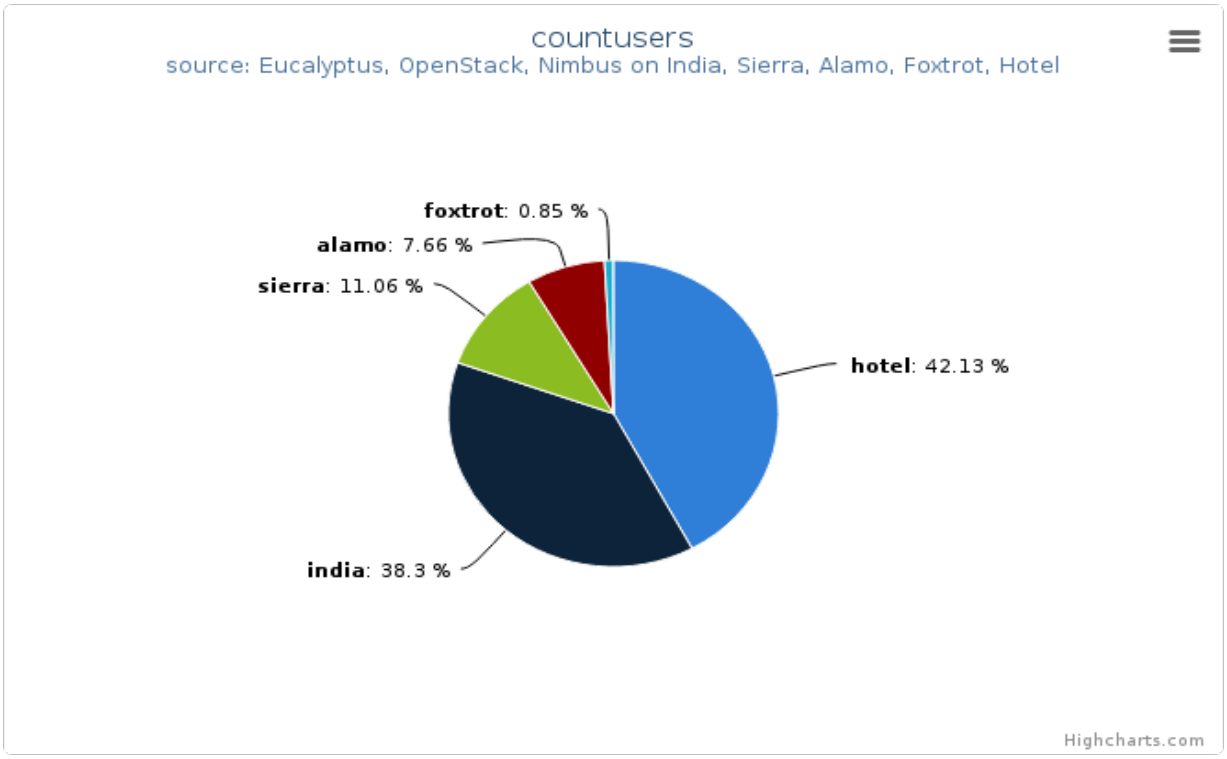

Figure 5. Unique User count by Clusters
This chart represents total number of unique active users.

- Period: April 01 – June 30, 2013
- **Cloud:**
  - india: Eucalyptus, Openstack
  - sierra: Eucalyptus, Nimbus
  - hotel: Nimbus
  - alamo: Nimbus
  - foxtrot: Nimbus

Table 1.3: Unique User count by Clusters

Total	Value
hotel	99
india	90
sierra	26
alamo	18
foxtrot	2

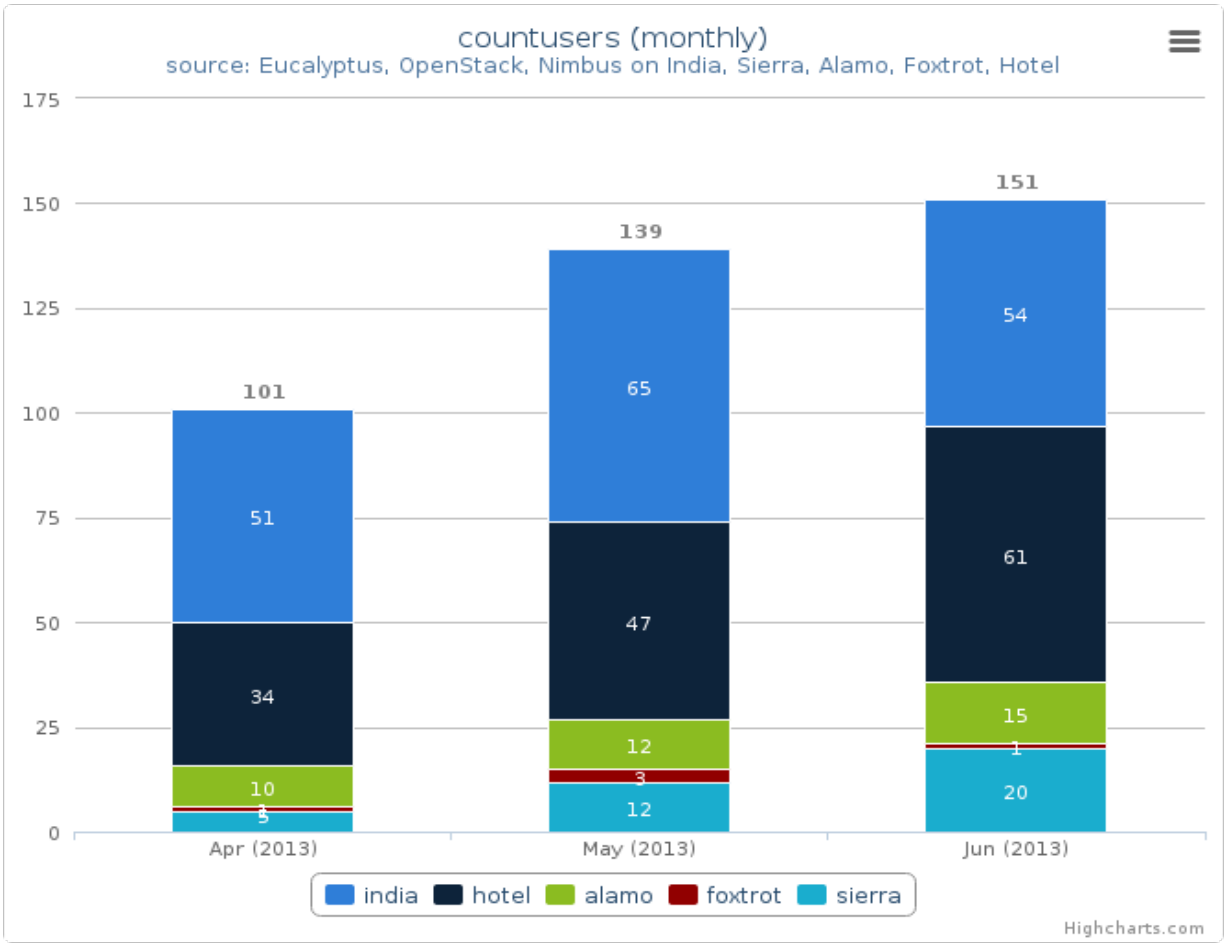

Figure 6. Users count by Clusters (Monthly)
This stacked column chart represents average count of active users per month.

- Period: April 01 – June 30, 2013
- **Cloud:**
  - india: Eucalyptus, Openstack
  - sierra: Eucalyptus, Nimbus
  - hotel: Nimbus
  - alamo: Nimbus
  - foxtrot: Nimbus

CHAPTER

TWO

USAGE REPORT SIERRA

- Period: April 01 – June 30, 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

2.1 Histogram

2.1.1 Summary (Monthly)

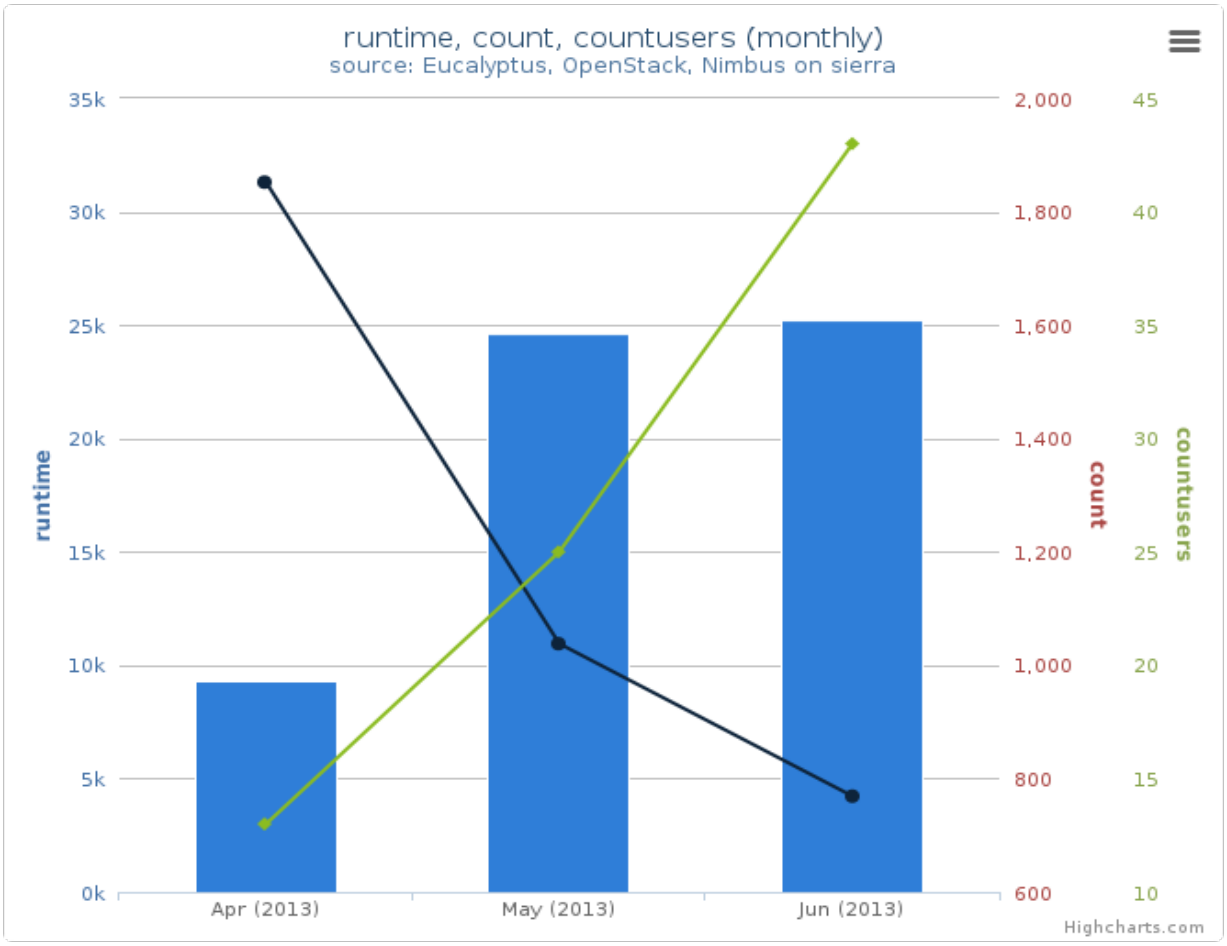

Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)
This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: April 01 – June 30, 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

2.1.2 Summary (Daily)

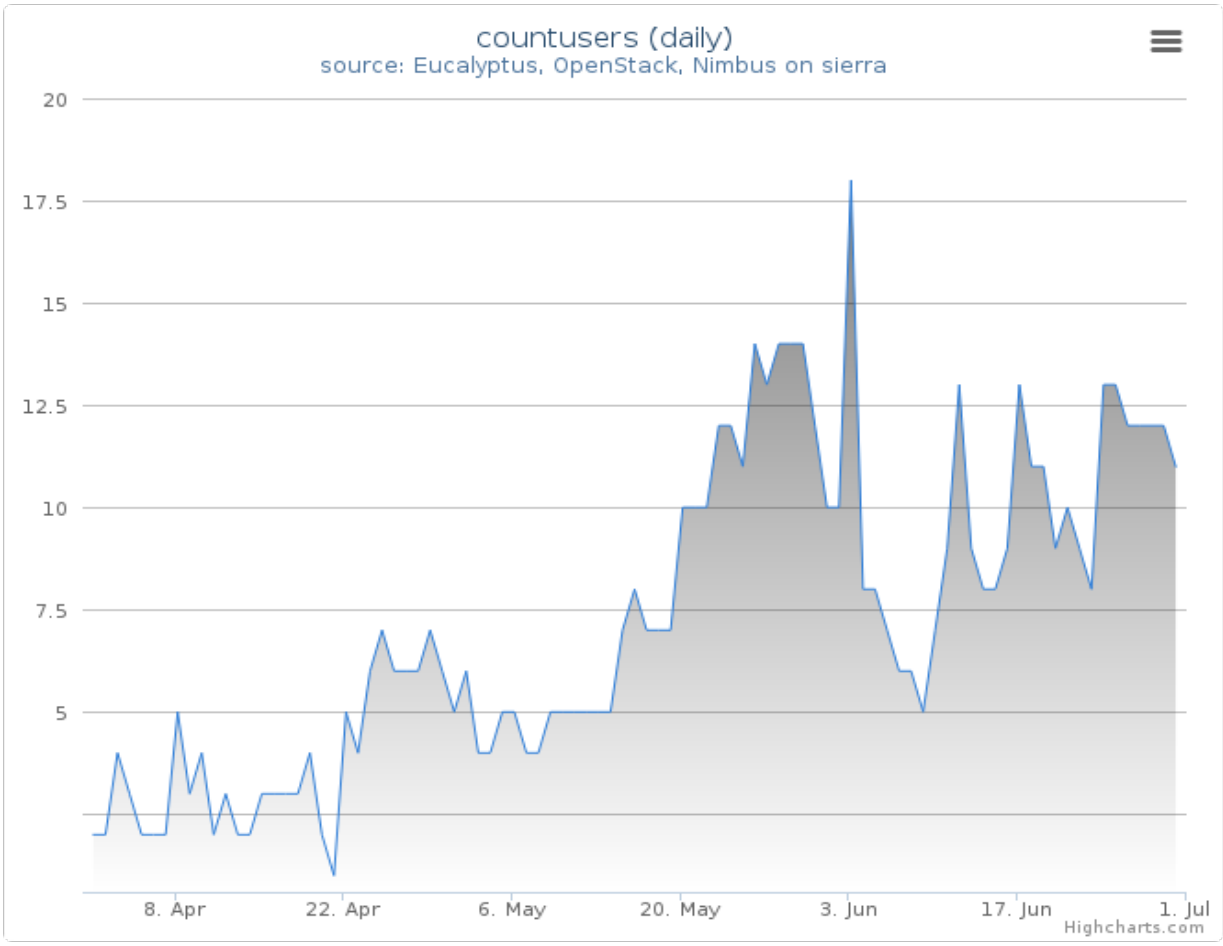

Figure 2: Users count

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

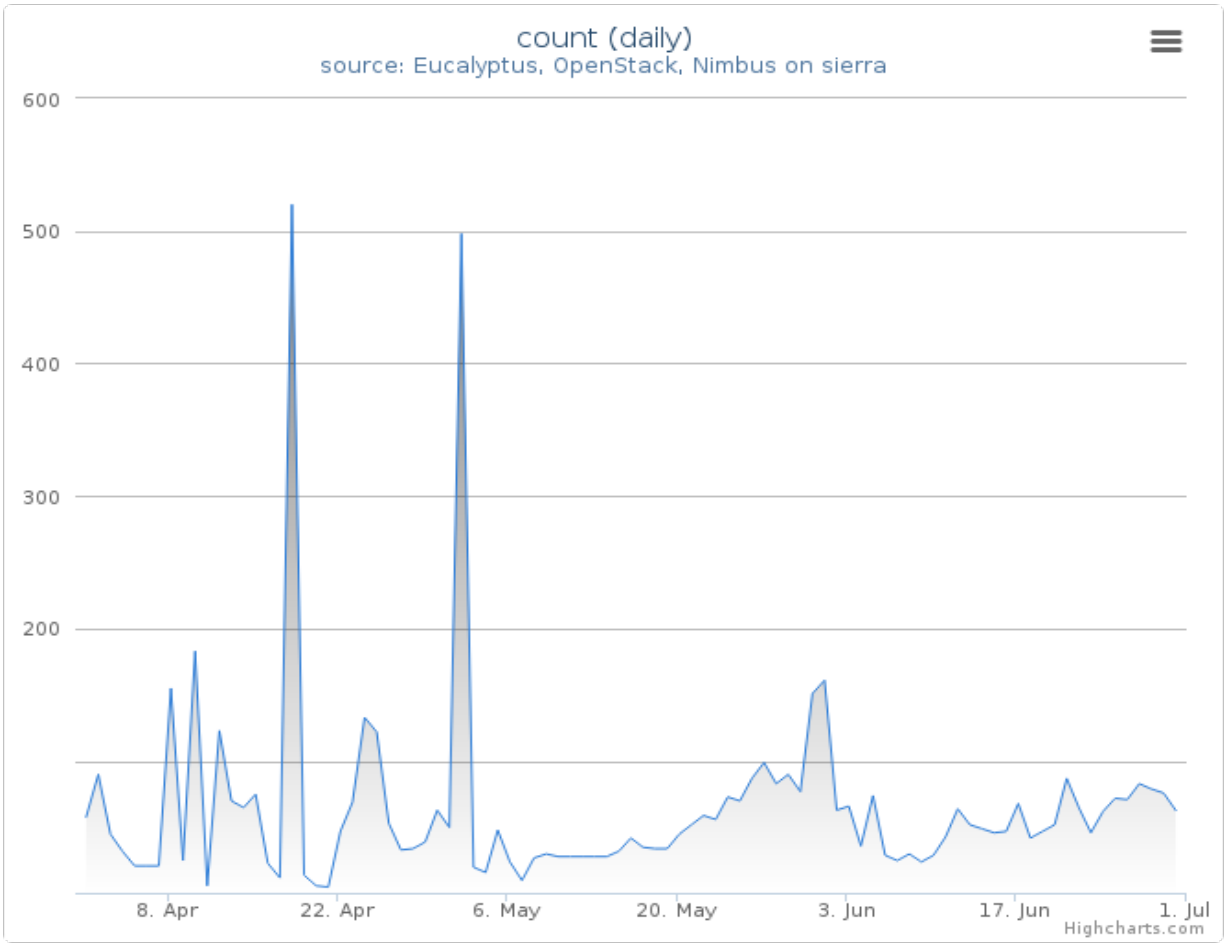

Figure 3: VMs count

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

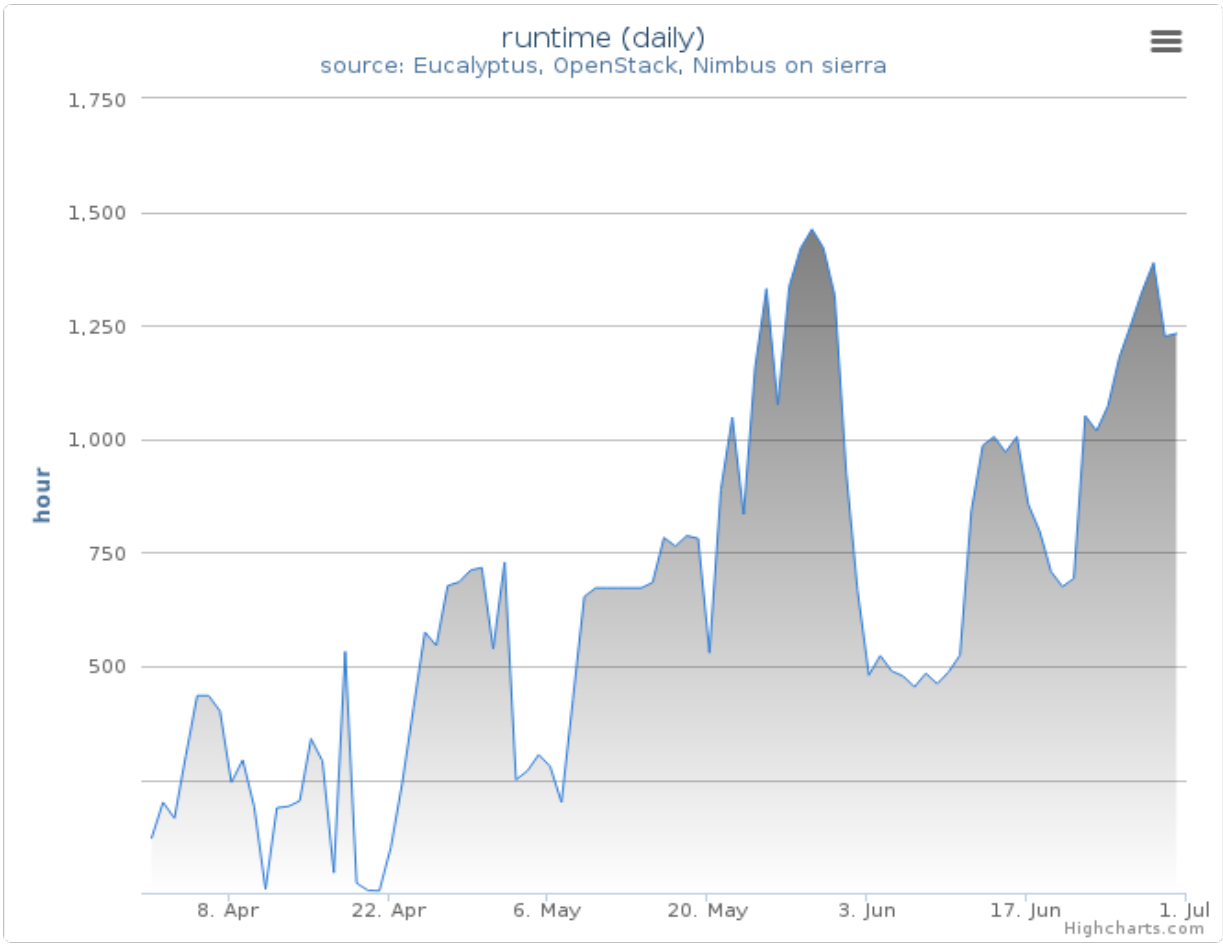

Figure 4: Wall time (hours)

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

2.2 Distribution

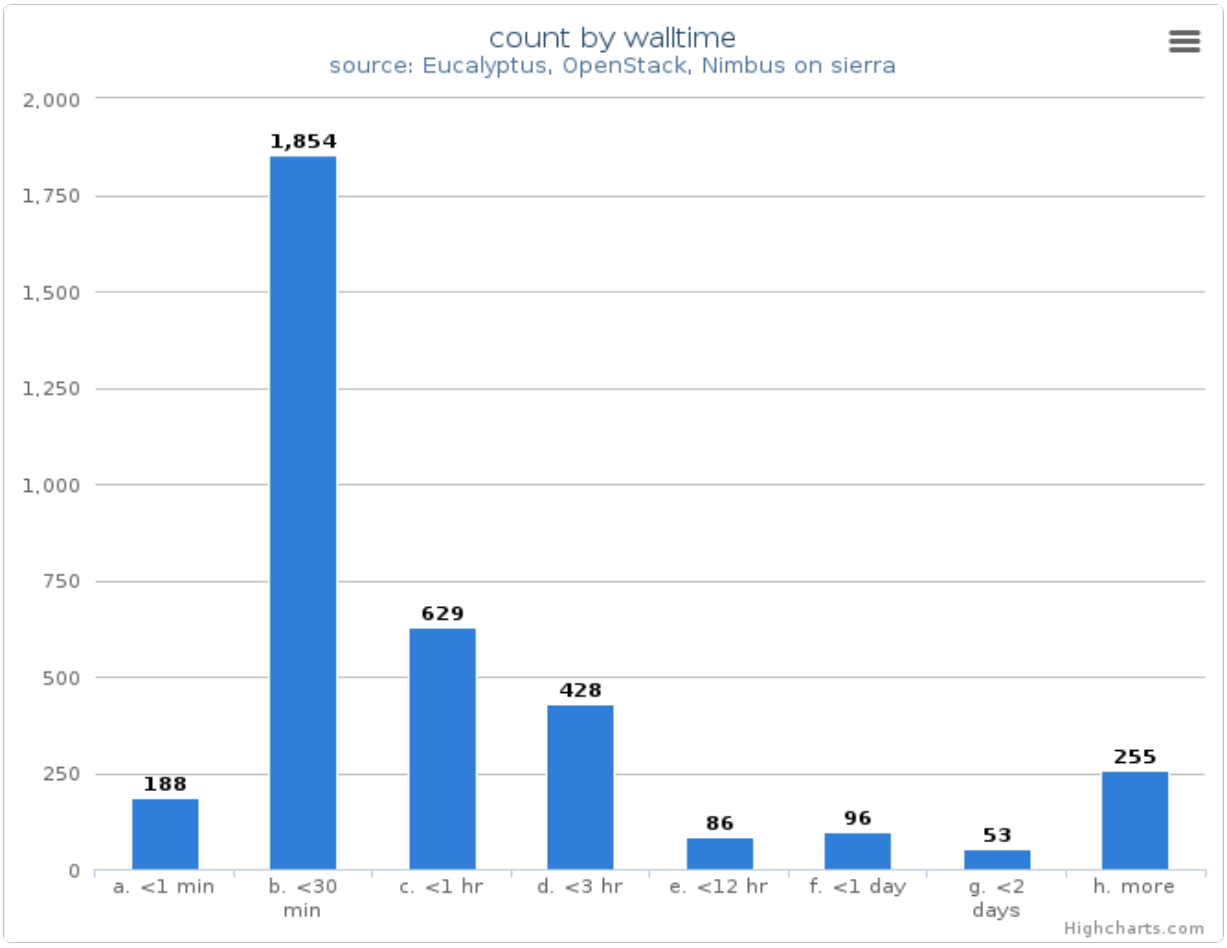

Figure 5: VM count by wall time
This chart illustrates usage patterns of VM instances in terms of running wall time.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

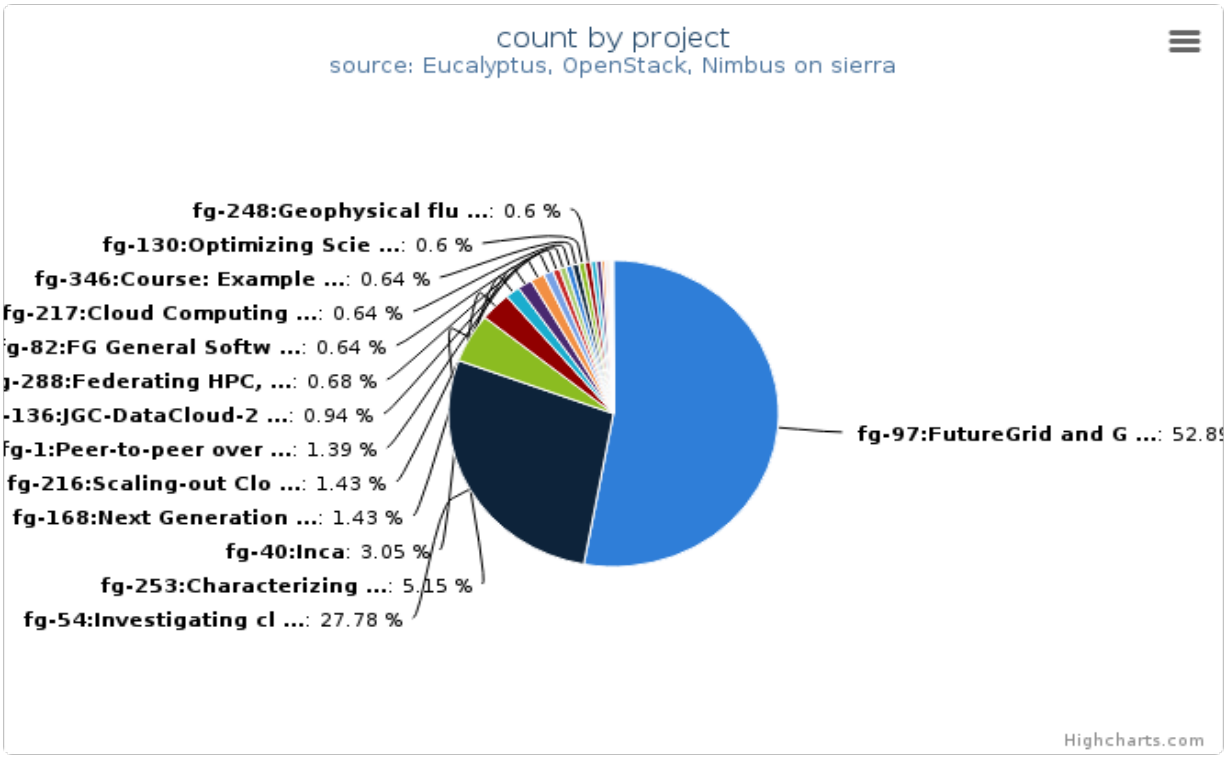

Figure 6: VMs count by project
This chart illustrates the proportion of launched VM instances by project groups. The same data in tabular form follows.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

Table 2.1: VMs count by project

Project	Value
fg-97:FutureGrid and Grid'5000 Collaboration	1407
fg-54:Investigating cloud computing as a solution for analyzing particle physics data	739
fg-253:Characterizing Performance of Infrastructure Clouds	137
fg-40:Inca	81
fg-168:Next Generation Sequencing in the Cloud	38
fg-216:Scaling-out CloudBLAST: Deploying Elastic MapReduce across Geographically Distributed Virtulized Resources for BLAST	38
fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters	37
fg-136:JGC-DataCloud-2012 paper experiments	25
fg-288:Federating HPC, Cyberinfrastructure and Clouds using CometCloud	18
fg-82:FG General Software Development	17
fg-217:Cloud Computing In Education	17
fg-346:Course: Example Course On Advanced Cloud Computing	17
fg-130:Optimizing Scientific Workflows on Clouds	16
fg-248:Geophysical fluid dynamics education and research	16
fg-264:Course: 1st Workshop on bioKepler Tools and Its Applications	14
fg-251:Course: Fall 2012 B534 Distributed Systems Graduate Course	14
fg-273:Digital Provenance Research	9
Others	5
fg-316:Course: Cloud Computing Class - third edition	5
fg-215:FuturGrid Directory Entry	4
fg-334:Tutorial on Cloud Computing and Software-defined Networking	1
fg-176:Cloud Interoperability Testbed	1
fg-314:User-friendly tools to play with cloud platforms	1
fg-244:Course: Data Center Scale Computing	1
fg-241:Course: Science Cloud Summer School 2012	1
fg-150:SC11: Using and Building Infrastructure Clouds for Science	1

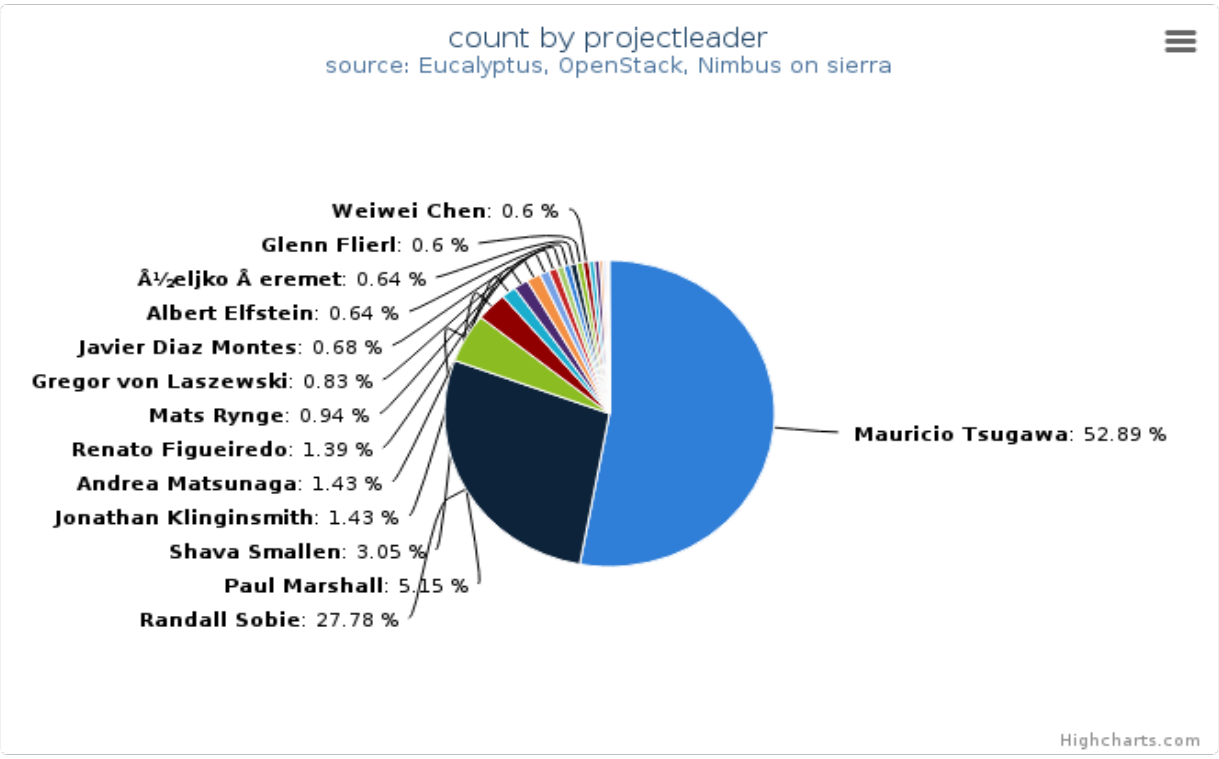

Figure 7: VMs count by project leader

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, 2013
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

Table 2.2: VMs count by project leader

Projectleader	Value
Mauricio Tsugawa	1407
Randall Sobie	739
Paul Marshall	137
Shava Smallen	81
Jonathan Klinginsmith	38
Andrea Matsunaga	38
Renato Figueiredo	37
Mats Rynge	25
Gregor von Laszewski	22
Javier Diaz Montes	18
Albert Elfstein	17
Željko Šeremet	17
Glenn Flierl	16
Weiwei Chen	16
Ilkay Altintas	14
Judy Qiu	14
Mohammed Rangwala	9
Massimo Canonico	6
Others	5
Dirk Grunwald	1
Jose Fortes	1
Alan Sill	1
John Bresnahan	1

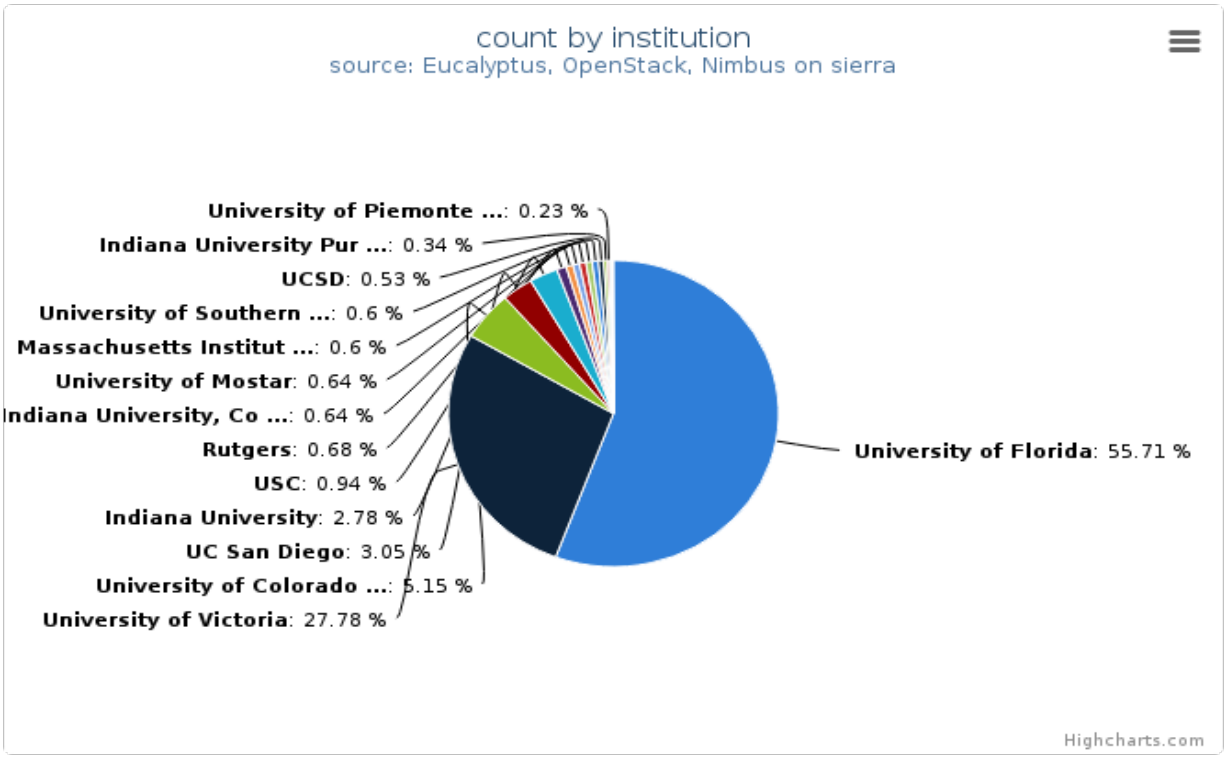

Figure 8: VMs count by institution
This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

Table 2.3: VMs count by institution

Institution	Value
University of Florida	1482
University of Victoria	739
University of Colorado at Boulder	137
UC San Diego	81
Indiana University	74
USC	25
Rutgers	18
Indiana University, Computer Science Department	17
University of Mostar	17
Massachusetts Institute of Technology	16
University of Southern California	16
UCSD	14
Indiana University Purdue University Indianapolis	9
University of Piemonte Orientale, Computer Science Department	6
Others	5
University of Florida, Advanced Computing and Information System	1
Univ. of Colorado	1
Nimbus	1
Texas Tech University	1

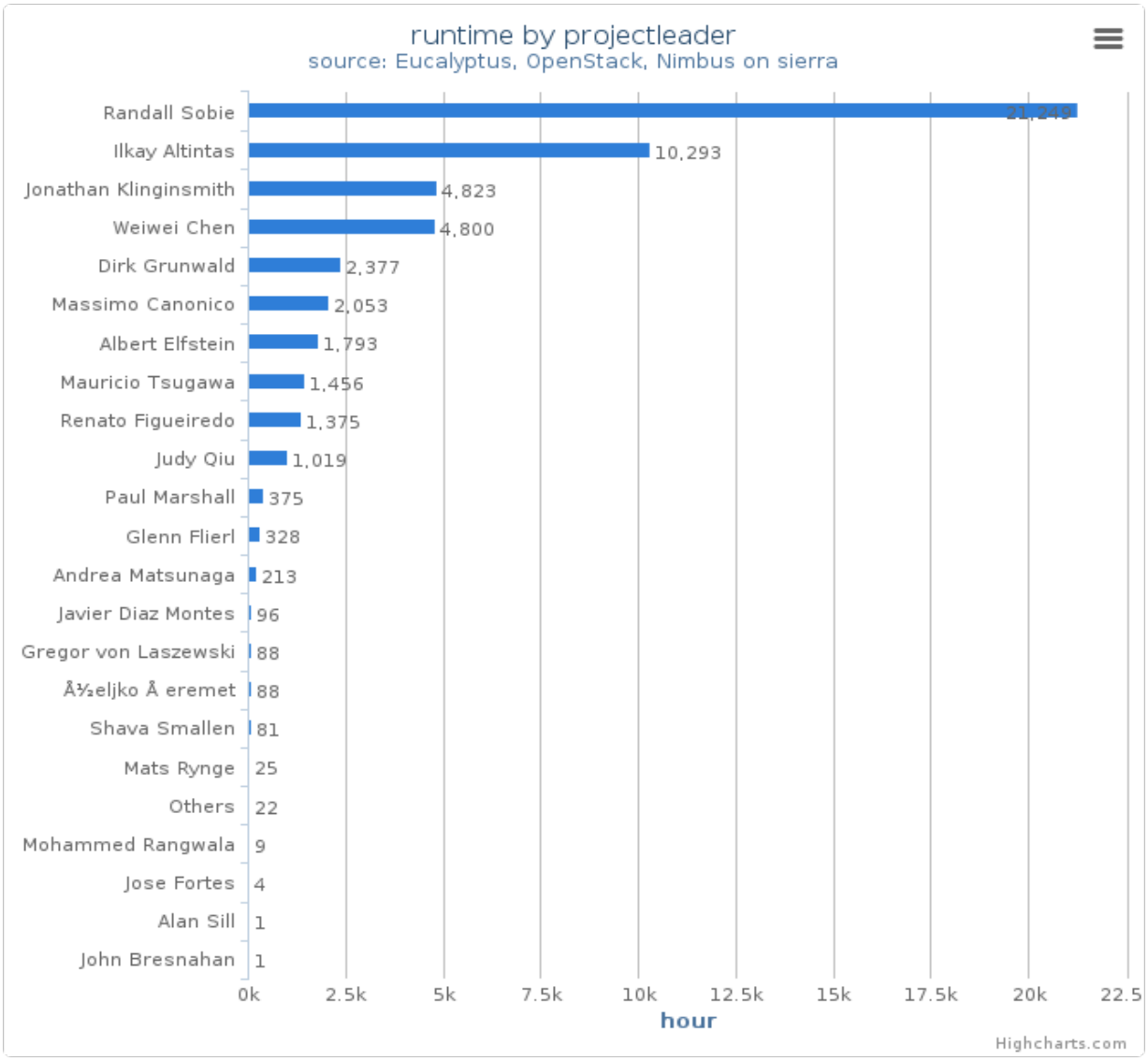

Figure 9: Wall time (hours) by project leader
This chart illustrates proportionate total run times by project leader.

- Period: April 01 – June 30, 2013
- 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.

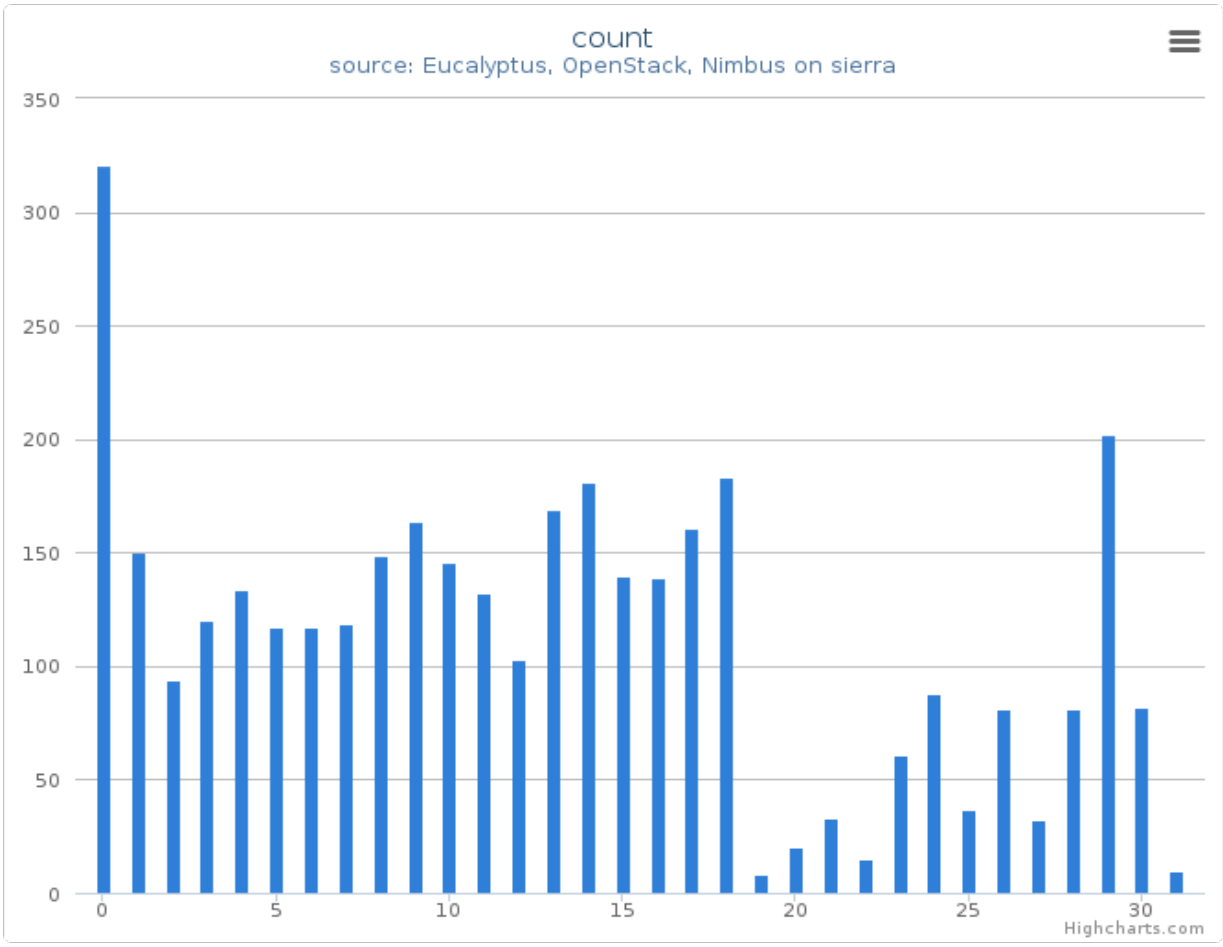

Figure 10: VMs count by systems (compute nodes) in Cluster (sierra)
This column chart represents VMs count among systems.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

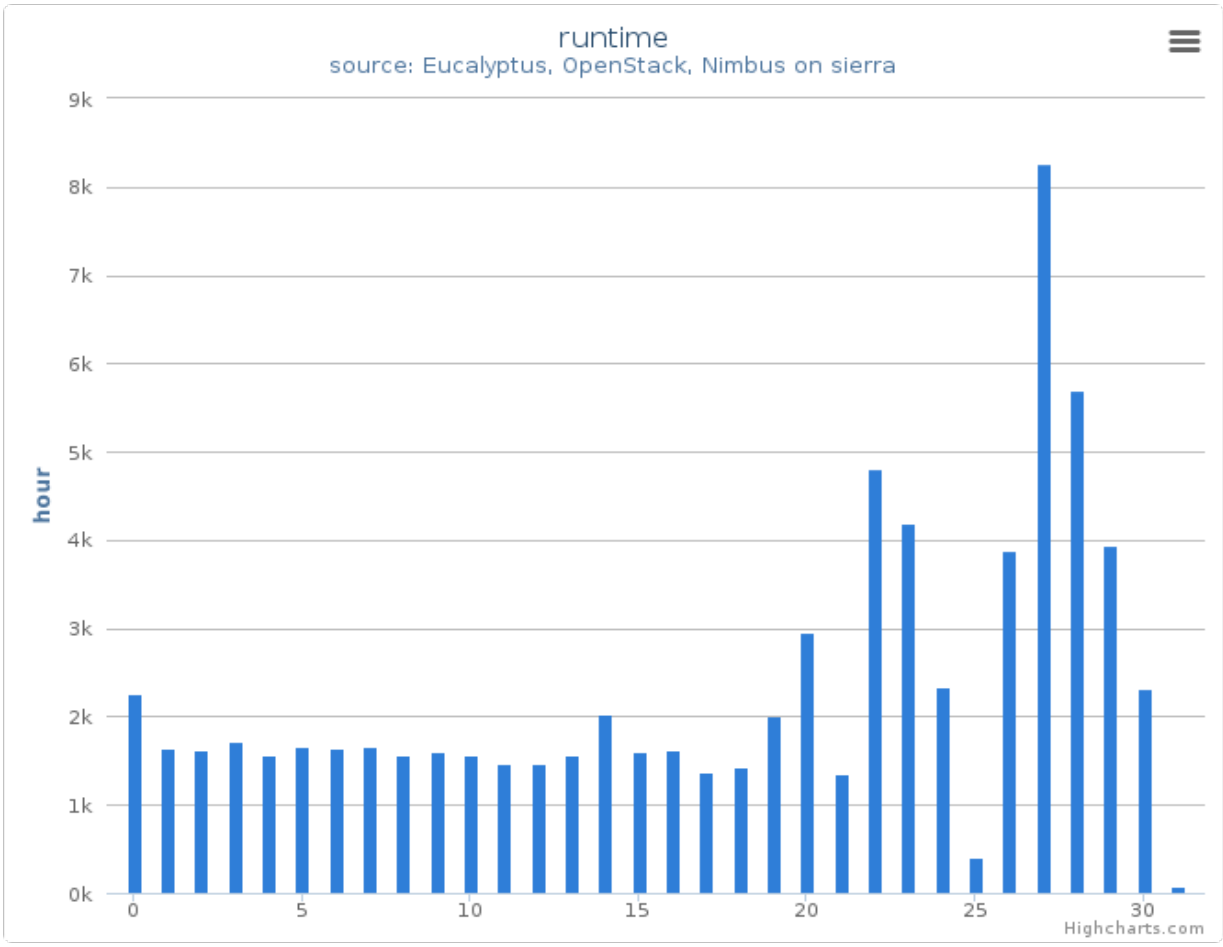

Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (sierra)
This column chart represents wall time among systems.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra

CHAPTER

THREE

USAGE REPORT INDIA

- Period: April 01 – June 30, 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

3.1 Histogram

3.1.1 Summary (Monthly)

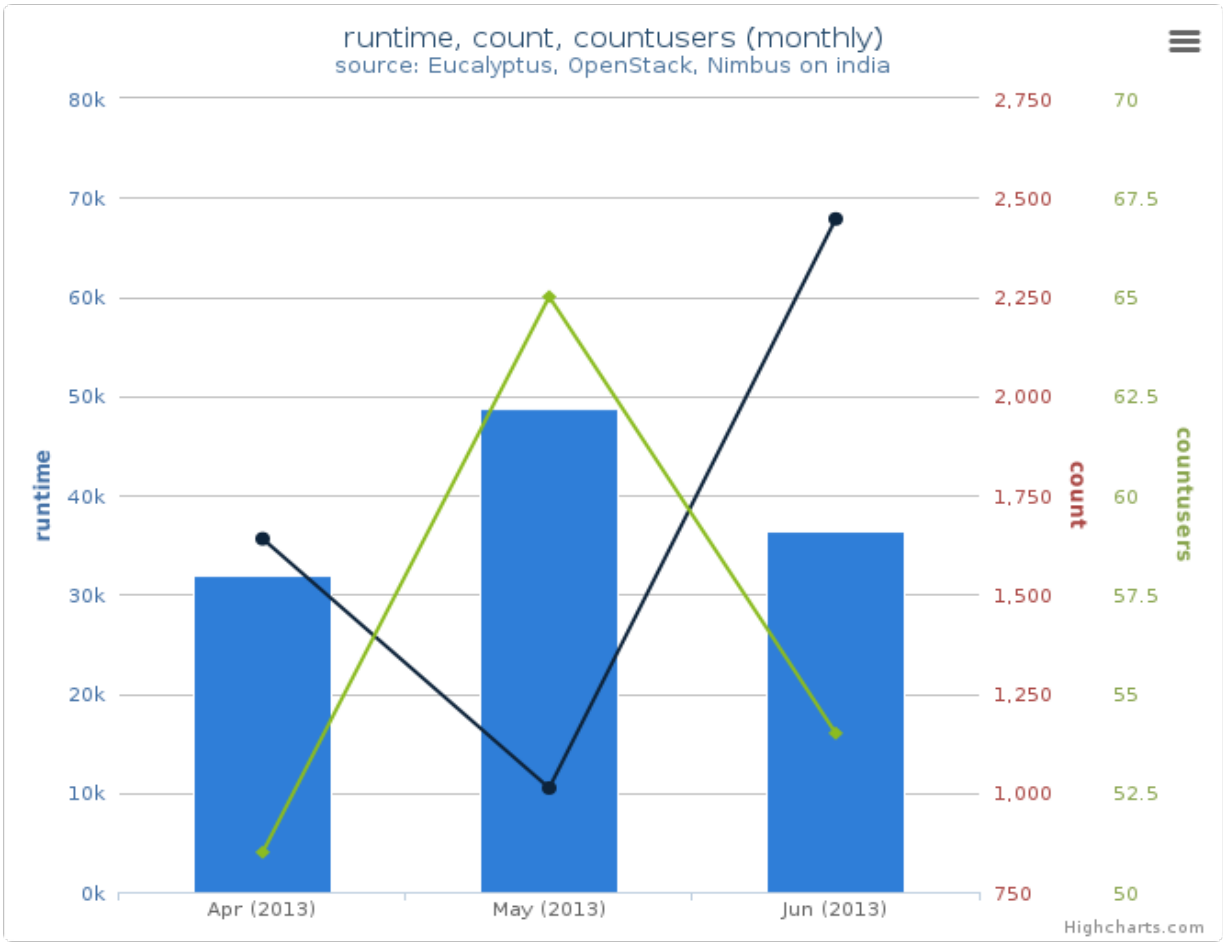

Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)
This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: April 01 – June 30, 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

3.1.2 Summary (Daily)

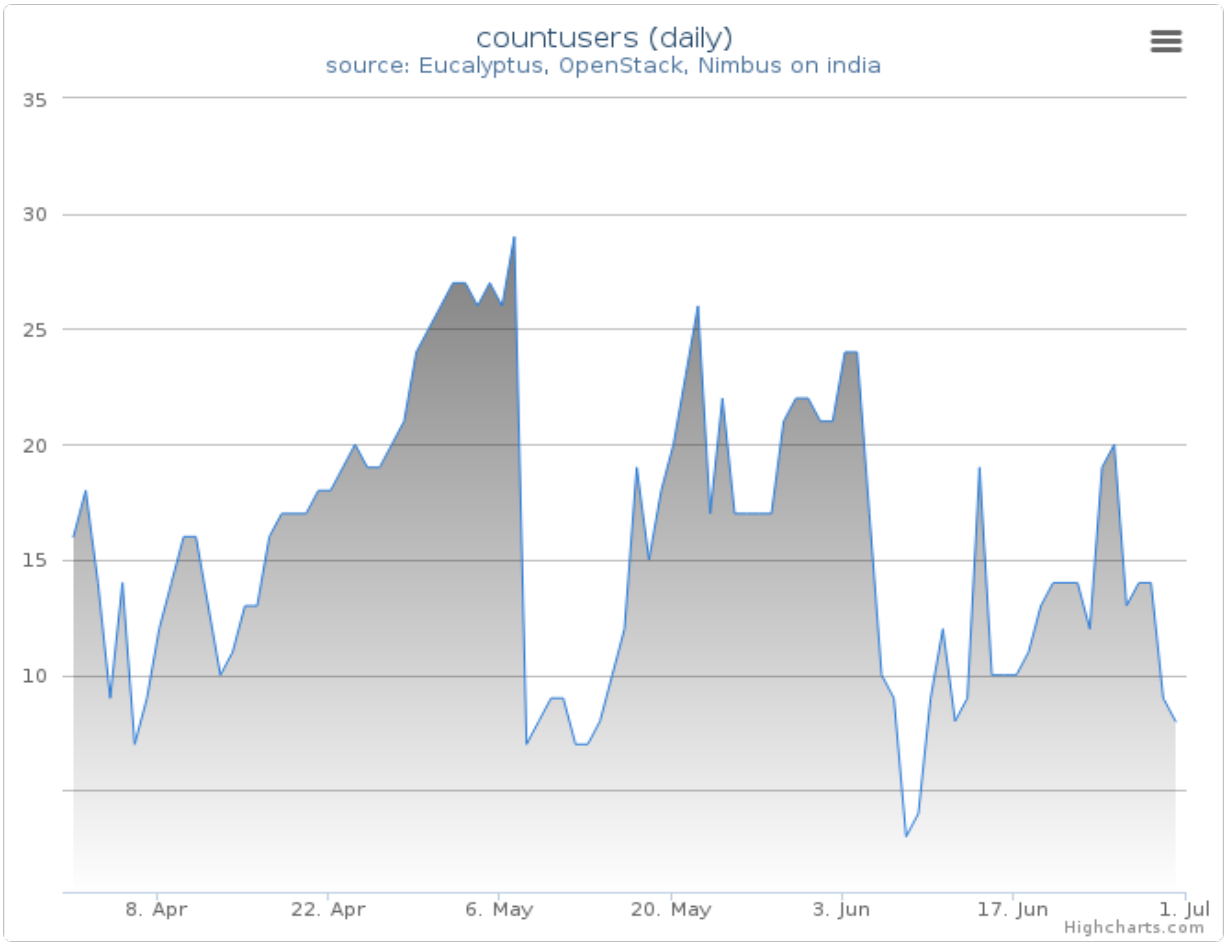

Figure 2: Users count

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

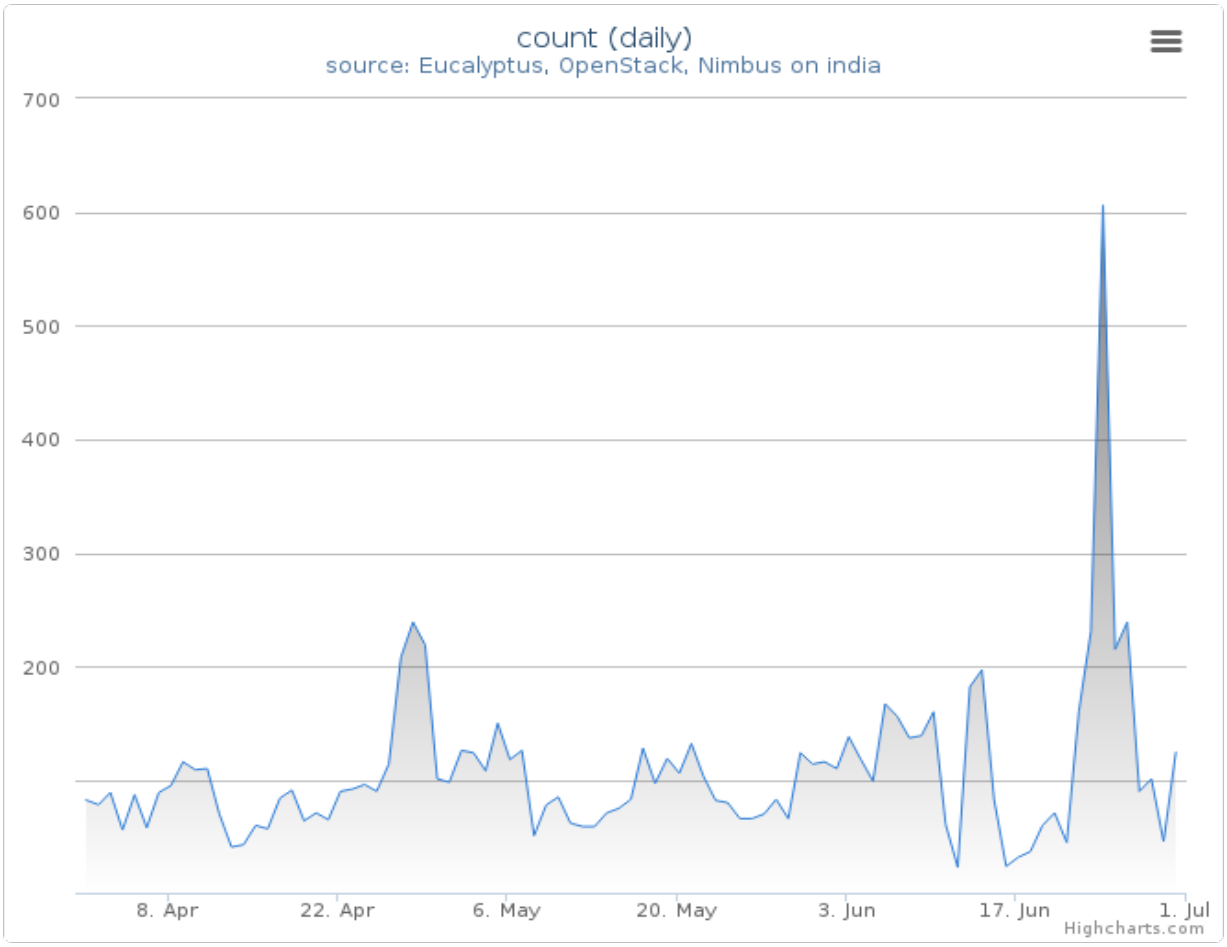

Figure 3: VMs count

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

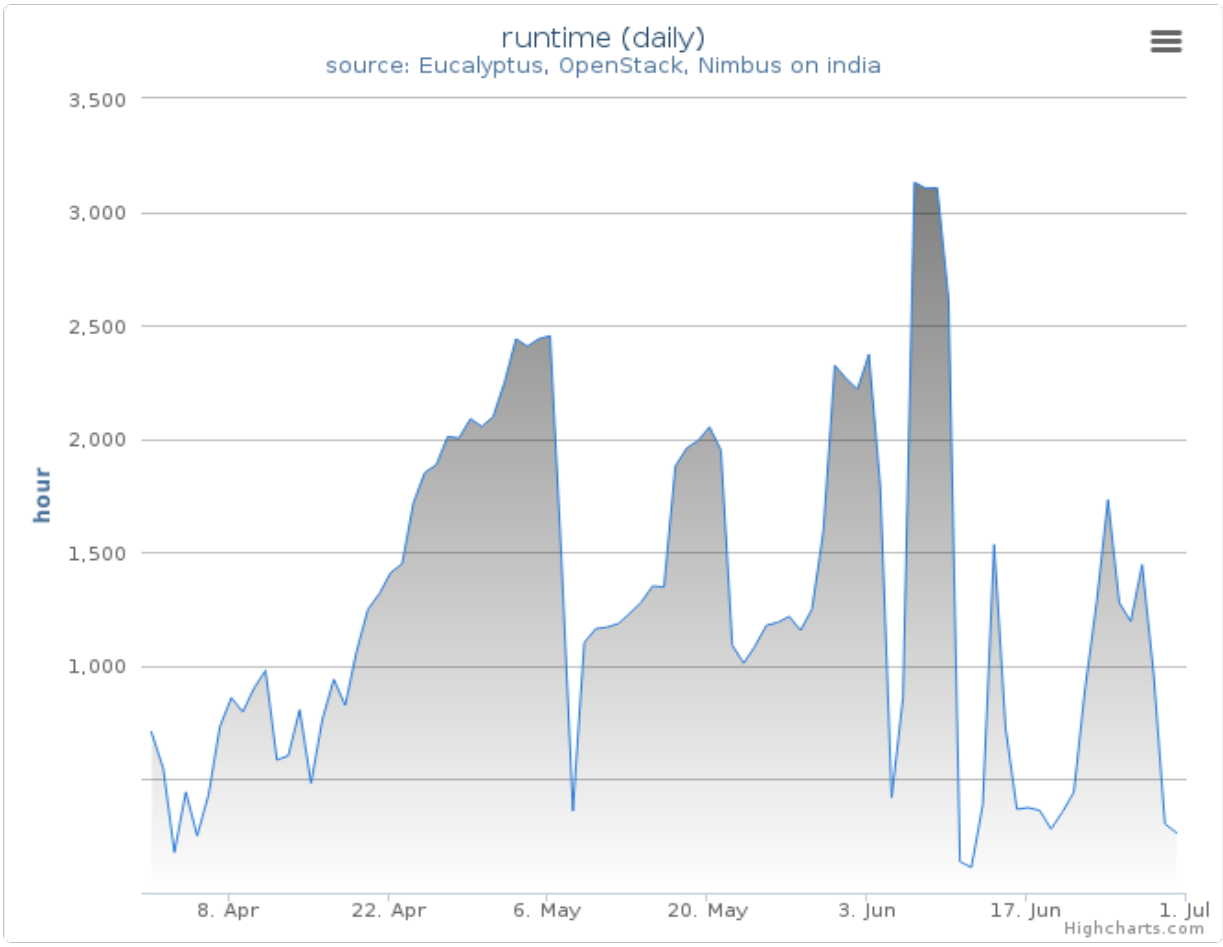

Figure 4: Wall time (hours)

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

3.2 Distribution

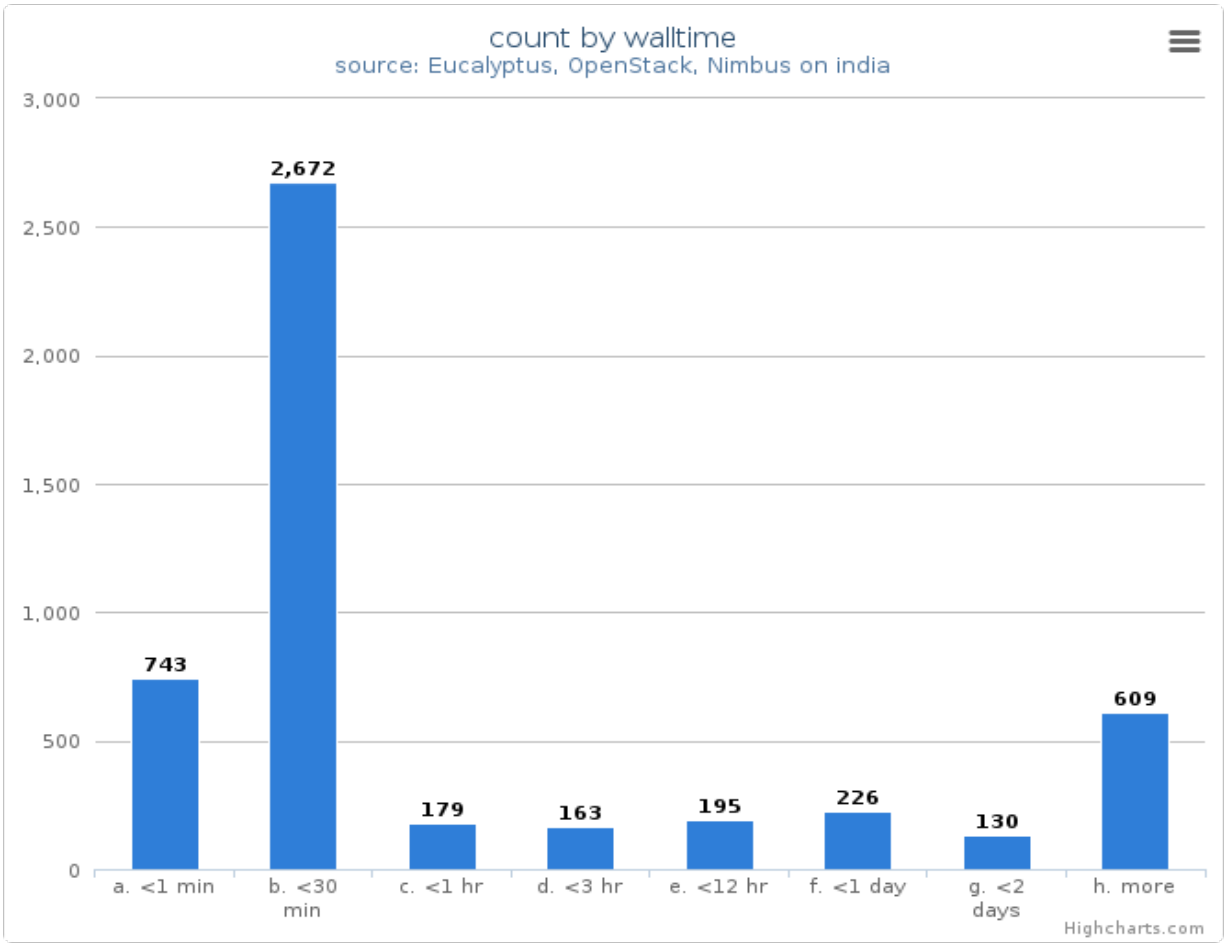

Figure 5: VM count by wall time
This chart illustrates usage patterns of VM instances in terms of running wall time.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

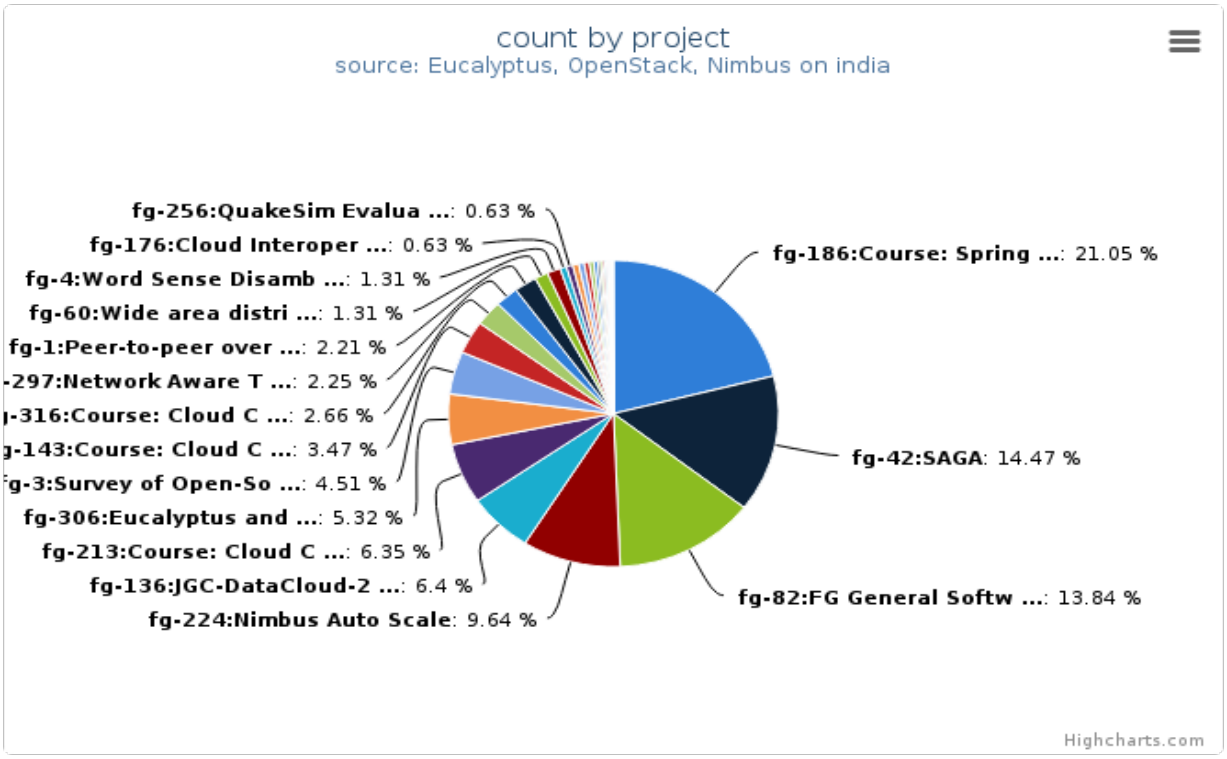

Figure 6: VMs count by project

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

Table 3.1: VMs count by project

Project	Value
fg-186:Course: Spring 2012 B534 Distributed systems Graduate Course	467
fg-42:SAGA	321
fg-82:FG General Software Development	307
fg-224:Nimbus Auto Scale	214
fg-136:JGC-DataCloud-2012 paper experiments	142
fg-213:Course: Cloud Computing class - second edition	141
fg-306:Eucalyptus and Openstack	118
fg-3:Survey of Open-Source Cloud Infrastructure using FutureGrid Testbed	100
fg-143:Course: Cloud Computing for Data Intensive Science Class	77
fg-316:Course: Cloud Computing Class - third edition	59
fg-297:Network Aware Task Scheduling in Hadoop	50

Continued on next page

Table 3.1 – continued from previous page

Project	Value
fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters	49
fg-60:Wide area distributed file system for MapReduce applications on FutureGrid platform	29
fg-4:Word Sense Disambiguation for Web 2.0 Data	29
fg-176:Cloud Interoperability Testbed	14
fg-256:QuakeSim Evaluation of FutureGrid for Cloud Computing	14
fg-201:ExTENCI Testing, Validation, and Performance	13
fg-251:Course: Fall 2012 B534 Distributed Systems Graduate Course	12
fg-257:Particle Physics Data analysis cluster for ATLAS LHC experiment	11
fg-253:Characterizing Performance of Infrastructure Clouds	10
fg-294:Predicting economic activities using social media	8
fg-179:GPCloud: Cloud-based Automatic Repair of Real-World Software Bugs	6
fg-9:Distributed Execution of Kepler Scientific Workflow on Future Grid	5
fg-233:CINET - A Cyber-Infrastructure for Network Science	5
fg-180:STAMPEDE	4
fg-97:FutureGrid and Grid‘5000 Collaboration	3
fg-20:Development of an information service for FutureGrid	2
fg-249:Large Scale Computing Infrastructure 2012 Master class	2
fg-168:Next Generation Sequencing in the Cloud	1
fg-293:Future Testbeds	1
fg-243:Applied Cyberinfrastructure concepts	1
fg-239:Community Comparison of Cloud frameworks	1
fg-189:Pegasus development and improvement platform	1
fg-244:Course: Data Center Scale Computing	1
fg-122:Course: Cloud computing class	1

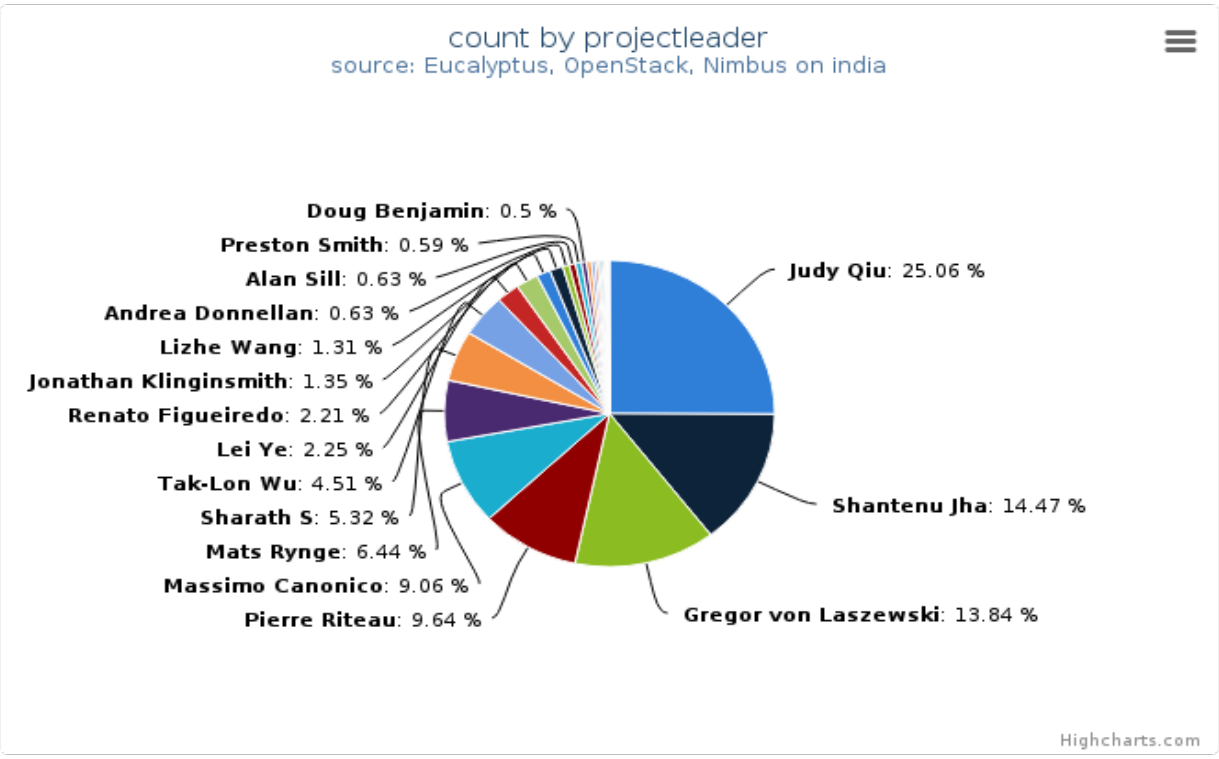

Figure 7: VMs count by project leader
This chart also illustrates the proportion of launched VM instances by project Leader. The same data in tabular form follows.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

Table 3.2: VMs count by project leader

Projectleader	Value
Judy Qiu	556
Shantenu Jha	321
Gregor von Laszewski	307
Pierre Riteau	214
Massimo Canonico	201
Mats Rynge	143
Sharath S	118
Tak-Lon Wu	100
Lei Ye	50
Renato Figueiredo	49
Jonathan Klinginsmith	30
Lizhe Wang	29
Andrea Donnellan	14
Alan Sill	14
Preston Smith	13
Doug Benjamin	11
Paul Marshall	10
Shuyuan Deng	8
Claire Le Goues	6
Ilkay Altintas	5
Keith Bisset	5
Dan Gunter	4
Mauricio Tsugawa	3
Sergio Maffioletti	2
Hyungro Lee	2
Robert Ricci	1
Nirav Merchant	1
Yong Zhao	1
Dirk Grunwald	1

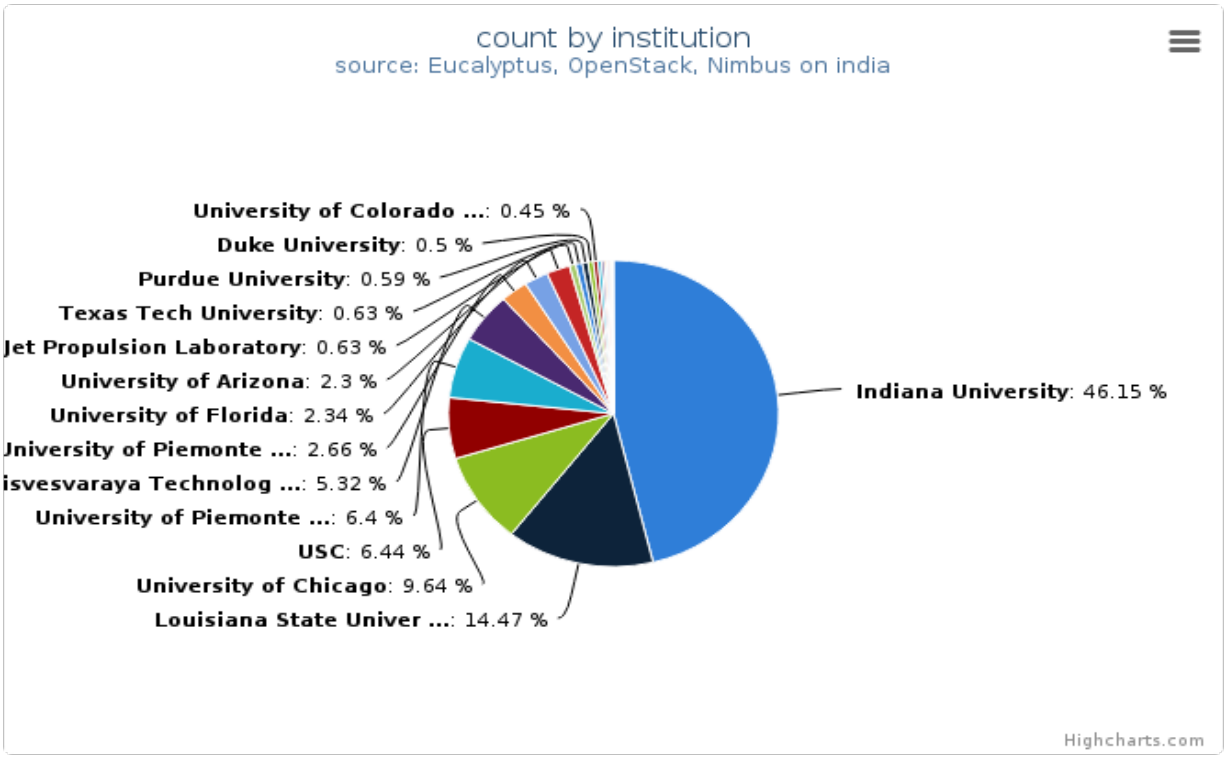

Figure 8: VMs count by institution
This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

Table 3.3: VMs count by institution

Institution	Value
Indiana University	1024
Louisiana State University	321
University of Chicago	214
USC	143
University of Piemonte Orientale	142
Visvesvaraya Technological University, Computer science organiza	118
University of Piemonte Orientale, Computer Science Department	59
University of Florida	52
University of Arizona	51
Jet Propulsion Laboratory	14
Texas Tech University	14
Purdue University	13
Duke University	11
University of Colorado at Boulder	10
University of Wisconsin -Milwaukee	8
University of Virginia	6
Virginia Tech	5
UCSD	5
LBNL	4
University of Zurich	2
Univ. of Colorado	1
University of Electronic Science and Technology	1
University of Utah	1

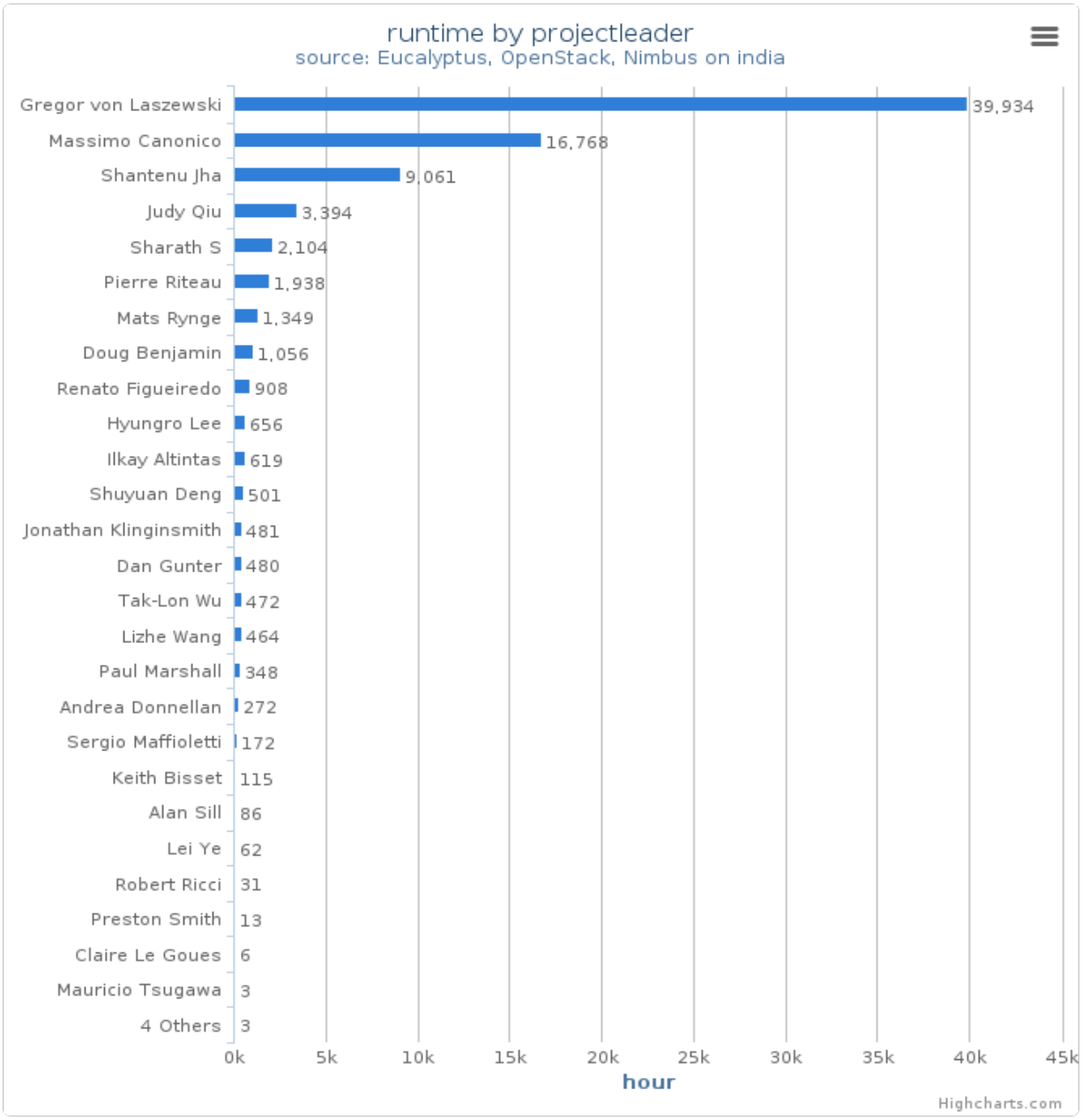

Figure 9: Wall time (hours) by project leader
This chart illustrates proportionate total run times by project leader.

- Period: April 01 – June 30, 2013
- 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.

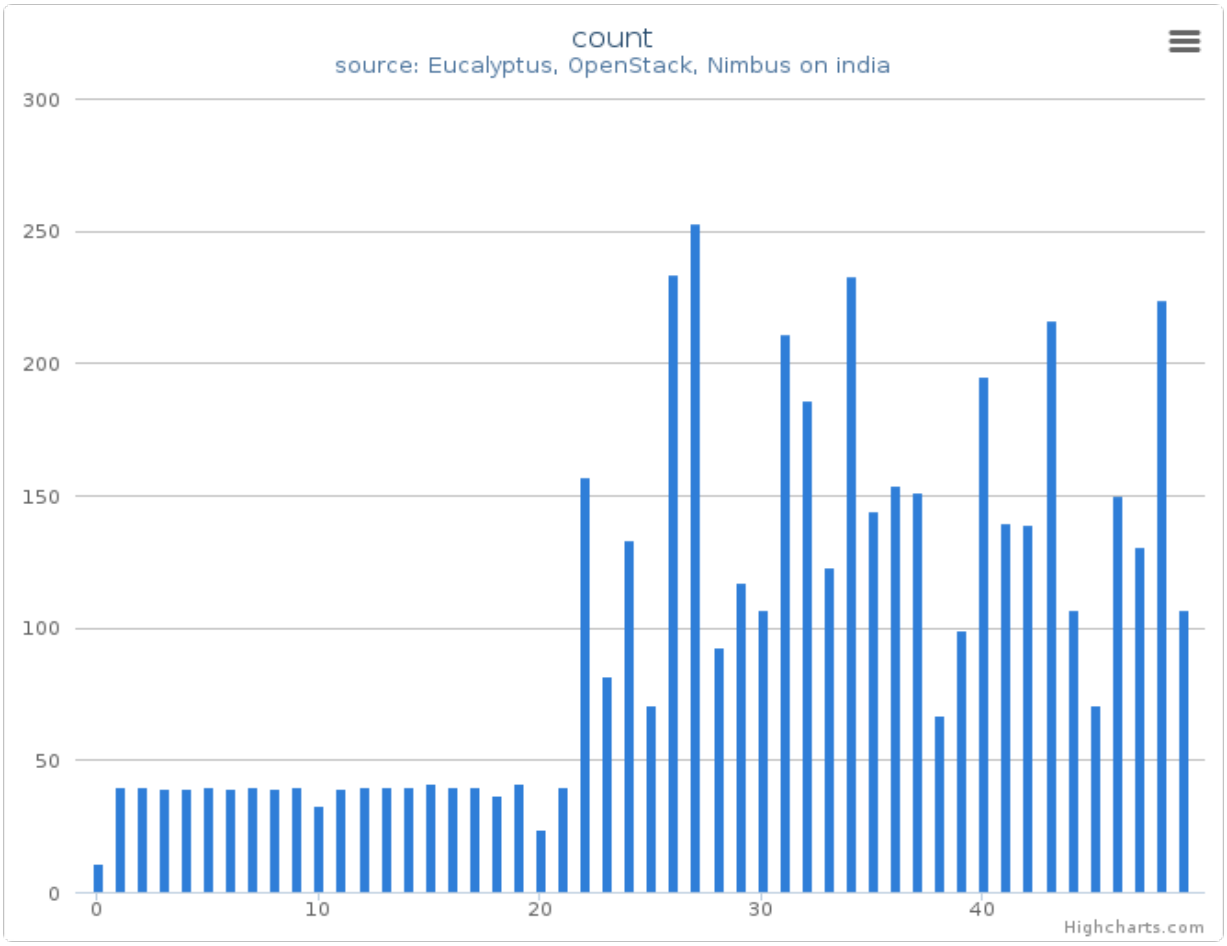

Figure 10: VMs count by systems (compute nodes) in Cluster (india)
This column chart represents VMs count among systems.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

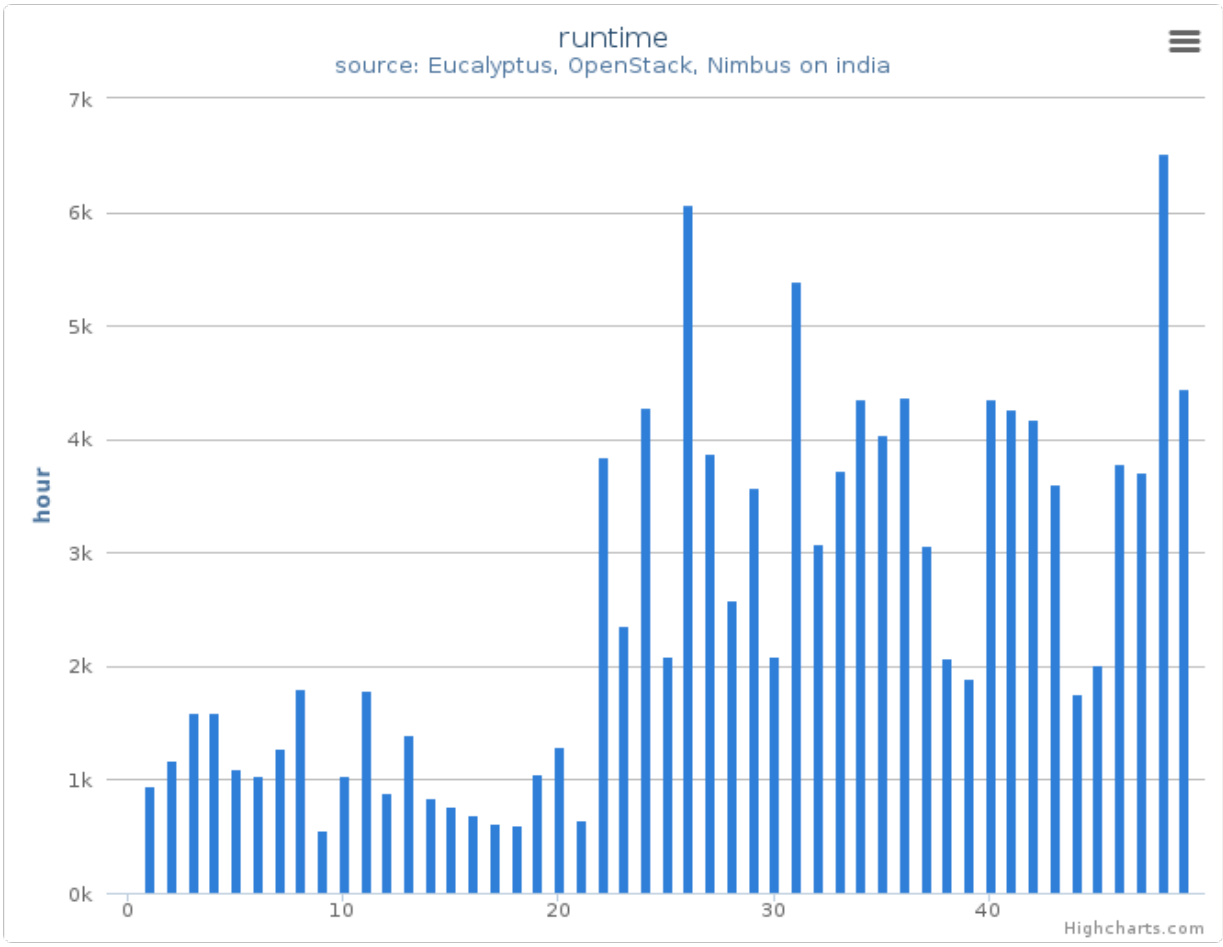

Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (india)
This column chart represents wall time among systems.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

CHAPTER

FOUR

USAGE REPORT HOTEL

- Period: April 01 – June 30, 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

4.1 Histogram

4.1.1 Summary (Monthly)

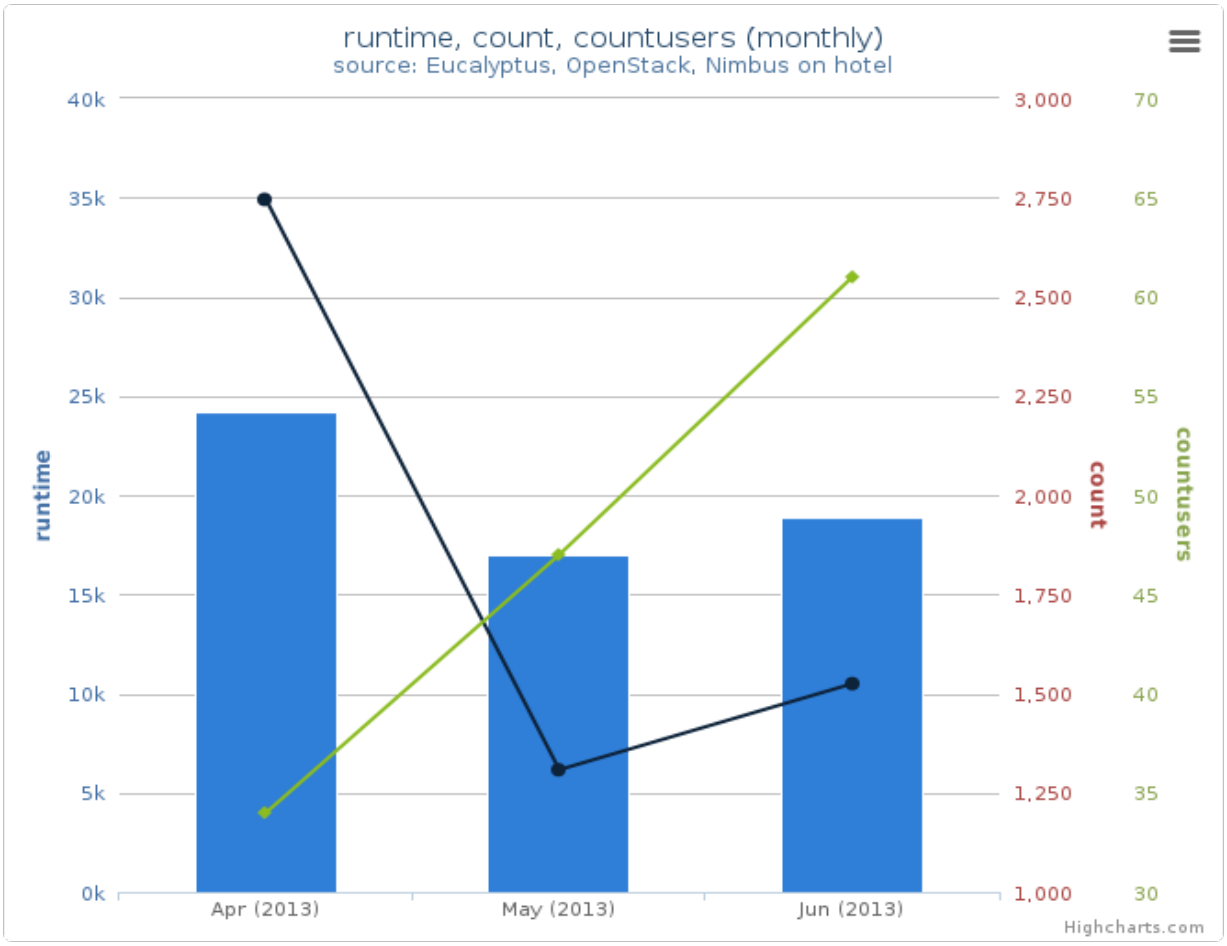

Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)
This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: April 01 – June 30, 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

4.1.2 Summary (Daily)

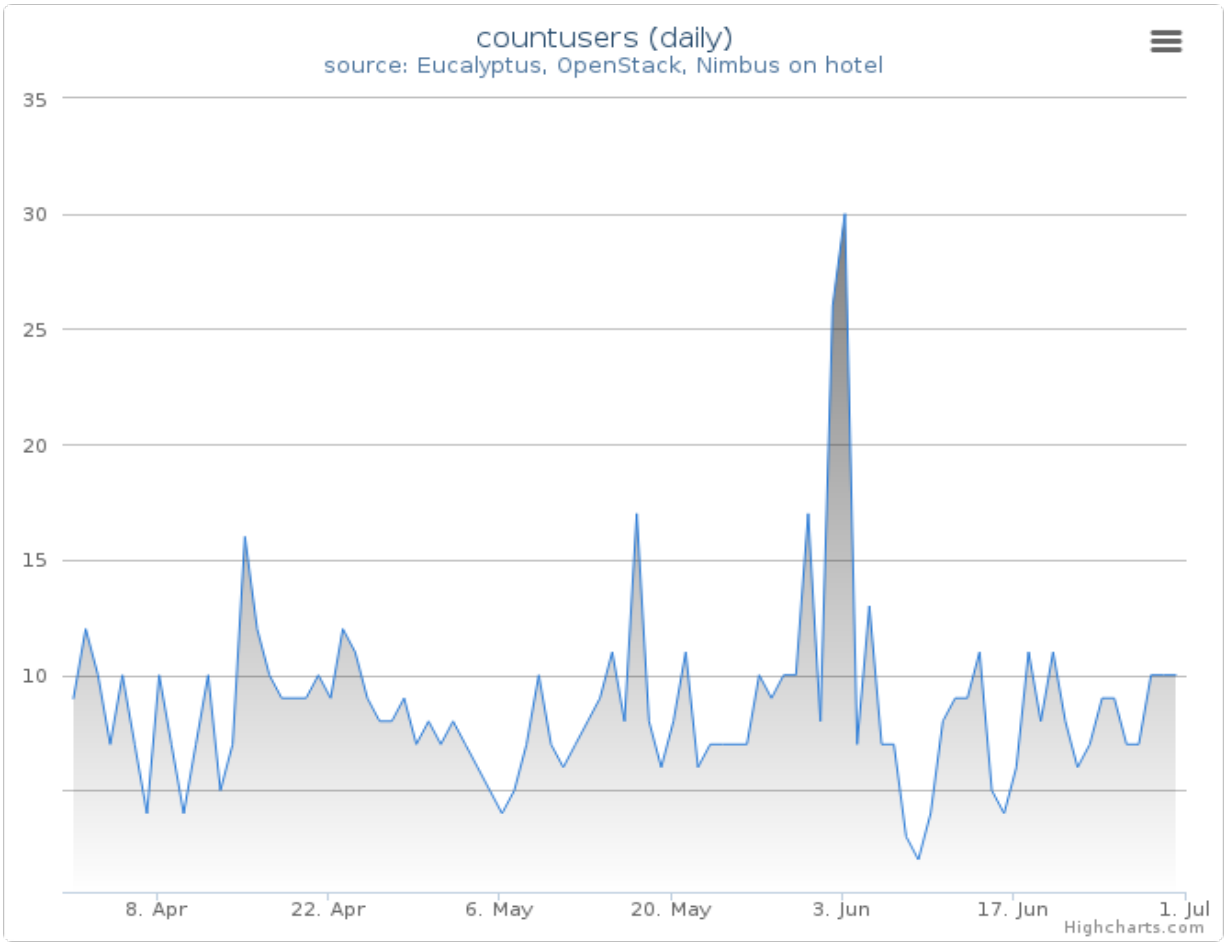

Figure 2: Users count

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus
- Hostname: hotel

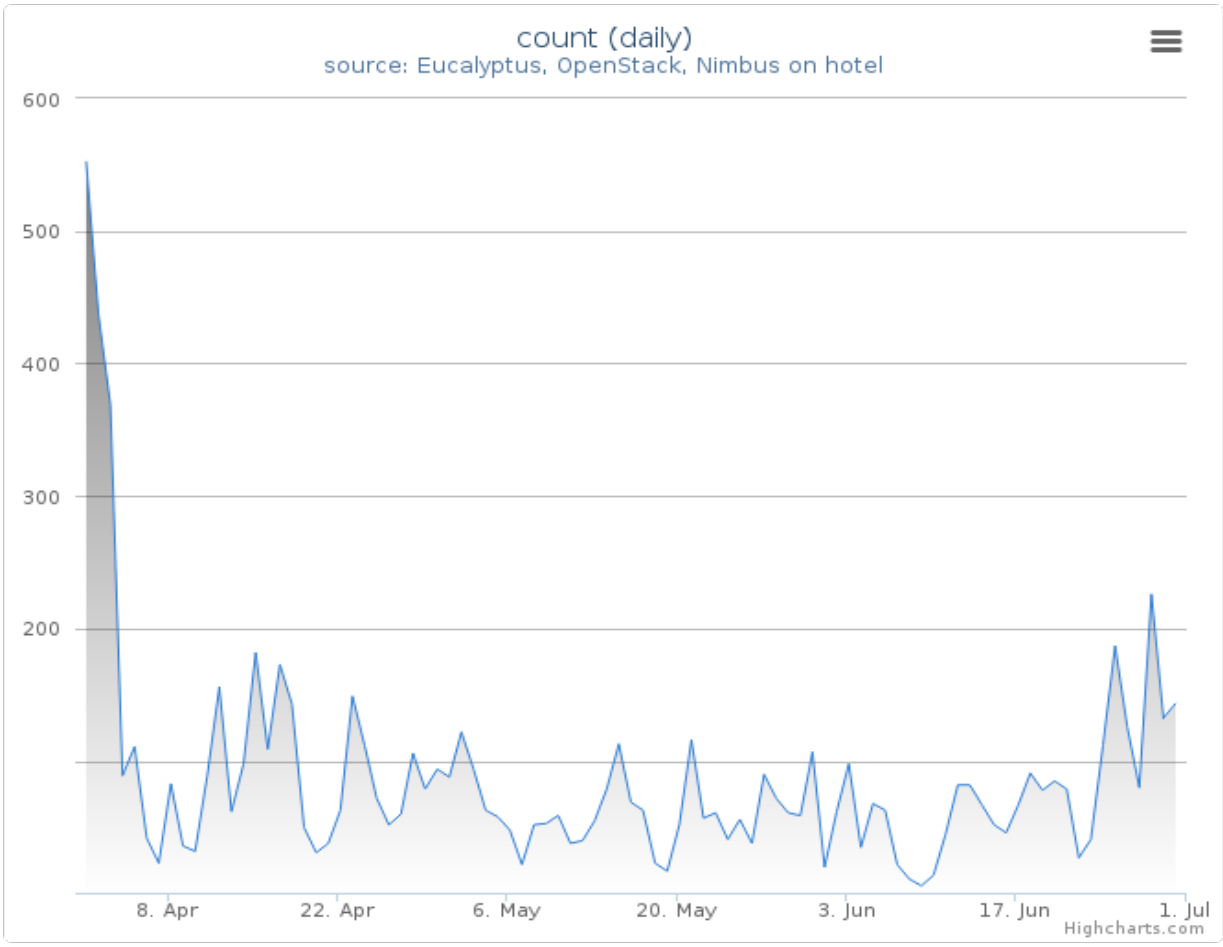

Figure 3: VMs count

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus
- Hostname: hotel

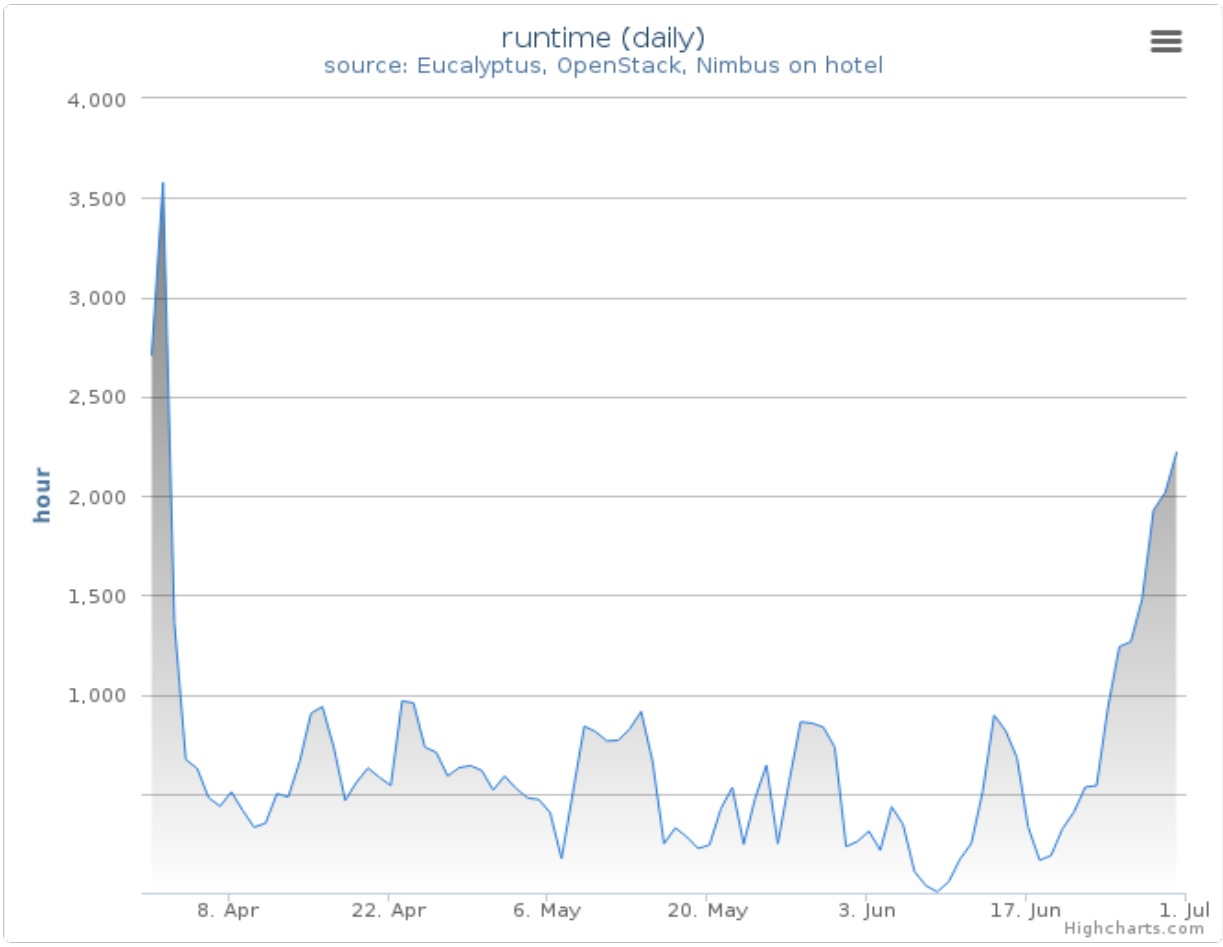

Figure 4: Wall time (hours)

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus
- Hostname: hotel

4.2 Distribution

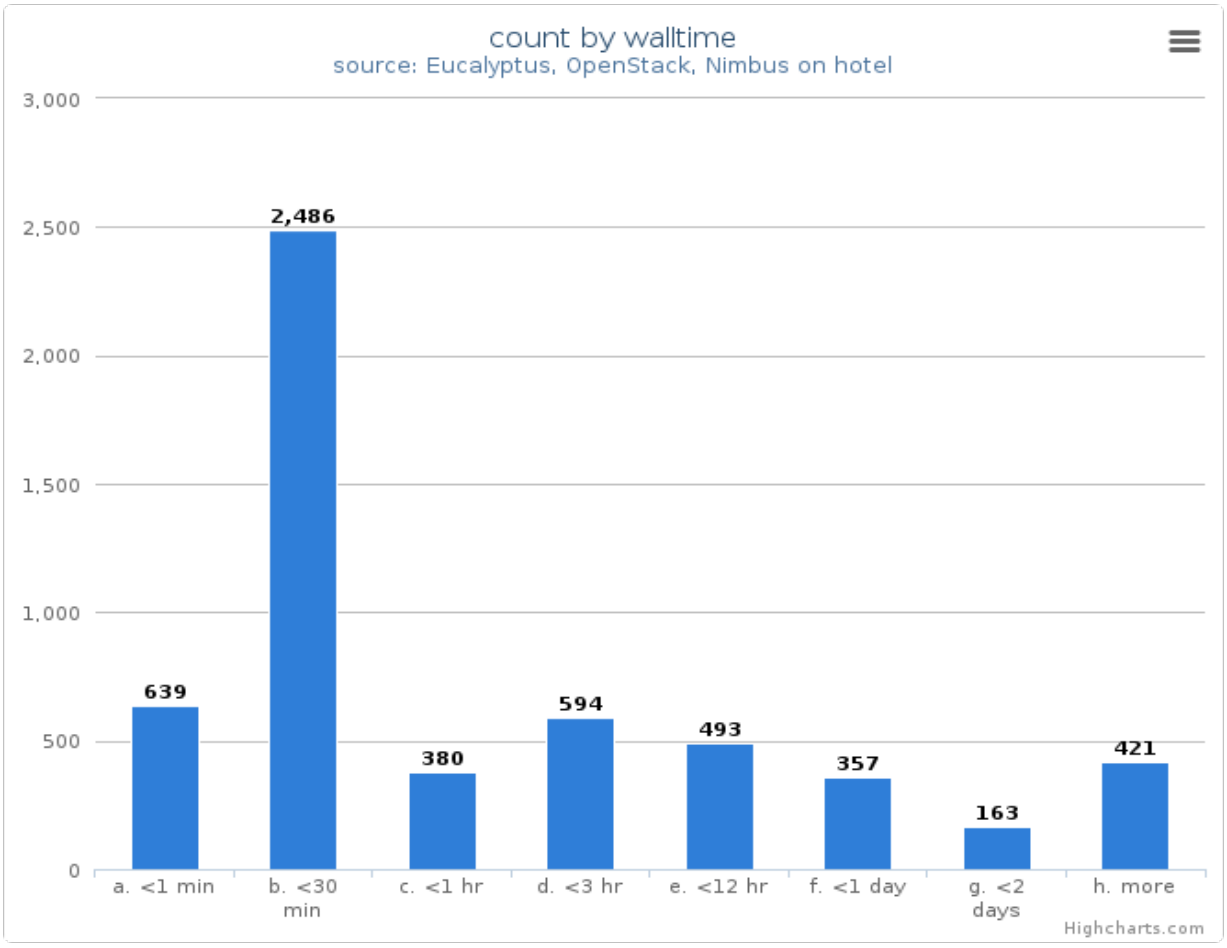

Figure 5: VM count by wall time
This chart illustrates usage patterns of VM instances in terms of running wall time.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus
- Hostname: hotel

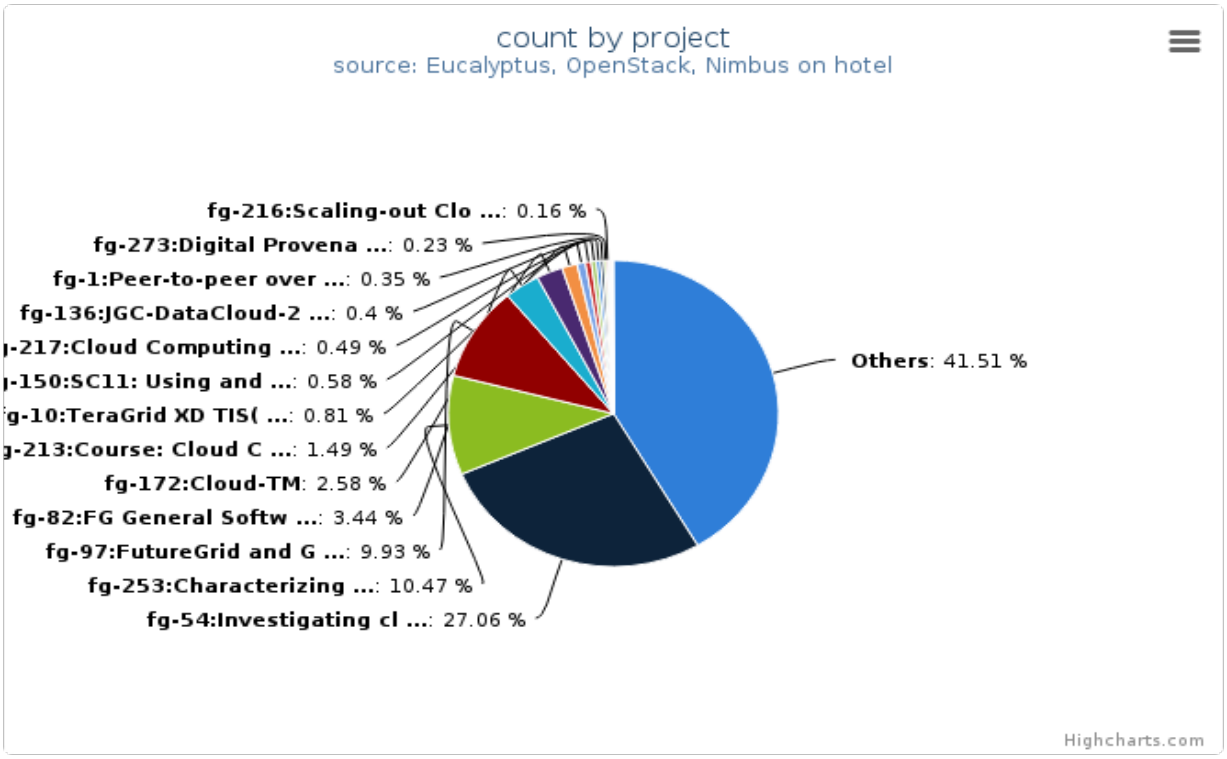

Figure 6: VMs count by project

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus
- Hostname: hotel

Table 4.1: VMs count by project

Project	Value
Others	1784
fg-54:Investigating cloud computing as a solution for analyzing particle physics data	1163
fg-253:Characterizing Performance of Infrastructure Clouds	450
fg-97:FutureGrid and Grid'5000 Collaboration	427
fg-82:FG General Software Development	148
fg-172:Cloud-TM	111
fg-213:Course: Cloud Computing class - second edition	64
fg-10:TeraGrid XD TIS(Technology Insertion Service) Technology Evaluation Laboratory	35
fg-150:SC11: Using and Building Infrastructure Clouds for Science	25
fg-217:Cloud Computing In Education	21
fg-136:JGC-DataCloud-2012 paper experiments	17
fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters	15
fg-273:Digital Provenance Research	10
fg-216:Scaling-out CloudBLAST: Deploying Elastic MapReduce across Geographically Distributed Virtulized Resources for BLAST	7
fg-121:Elastic Computing	4
fg-239:Community Comparison of Cloud frameworks	4
fg-294:Predicting economic activities using social media	3
fg-215:FuturGrid Directory Entry	3
fg-225:Budget-constrained workflow scheduler	3
fg-316:Course: Cloud Computing Class - third edition	2
fg-201:ExTENCI Testing, Validation, and Performance	1
fg-266:Secure medical files sharing	1

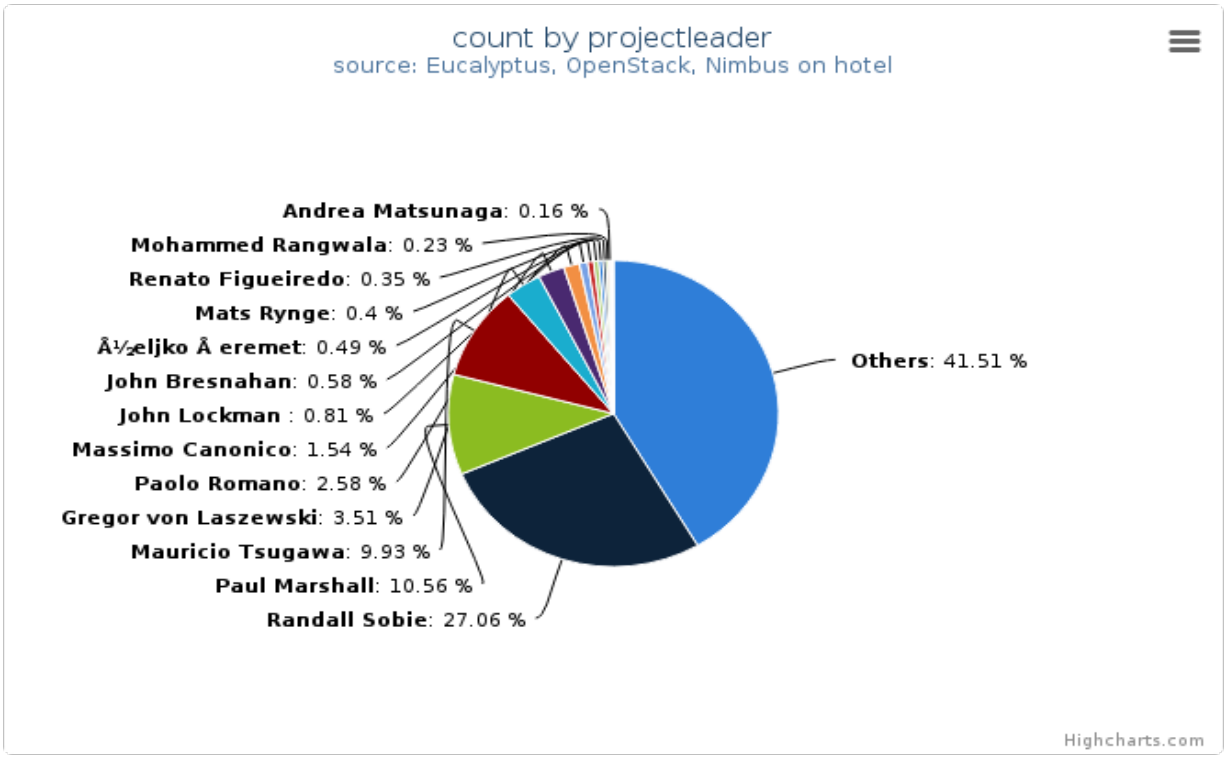

Figure 7: VMs count by project leader
This chart also illustrates the proportion of launched VM instances by project Leader. The same data in tabular form follows.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus
- Hostname: hotel

Table 4.2: VMs count by project leader

Projectleader	Value
Others	1784
Randall Sobie	1163
Paul Marshall	454
Mauricio Tsugawa	427
Gregor von Laszewski	151
Paolo Romano	111
Massimo Canonico	66
John Lockman	35
John Bresnahan	25
Željko Šeremet	21
Mats Rynge	17
Renato Figueiredo	15
Mohammed Rangwala	10
Andrea Matsunaga	7
Yong Zhao	4
Adrian Muresan	3
Shuyuan Deng	3
Abdelkrim Hadjidj	1
Preston Smith	1

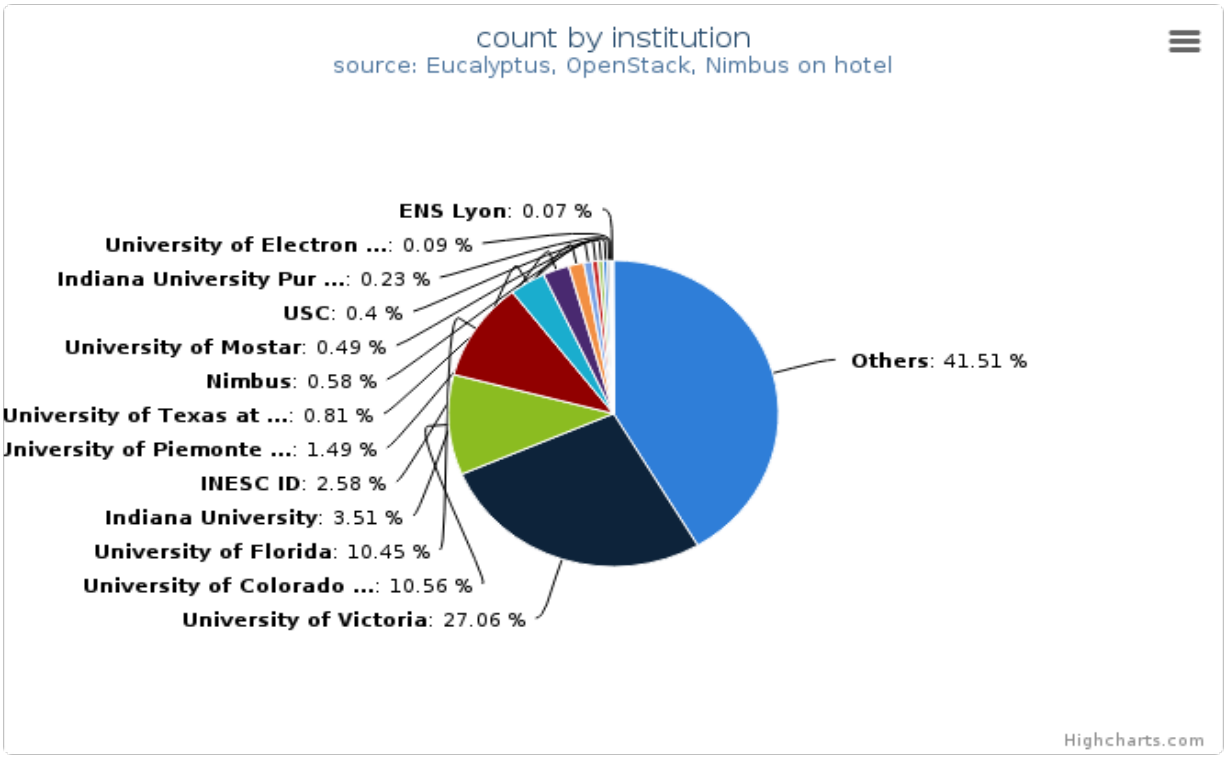

Figure 8: VMs count by institution
This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus
- Hostname: hotel

Table 4.3: VMs count by institution

Institution	Value
Others	1784
University of Victoria	1163
University of Colorado at Boulder	454
University of Florida	449
Indiana University	151
INESC ID	111
University of Piemonte Orientale	64
University of Texas at Austin	35
Nimbus	25
University of Mostar	21
USC	17
Indiana University Purdue University Indianapolis	10
University of Electronic Science and Technology	4
University of Wisconsin -Milwaukee	3
ENS Lyon	3
University of Piemonte Orientale, Computer Science Department	2
Purdue University	1
University of Technology of Compiegne	1

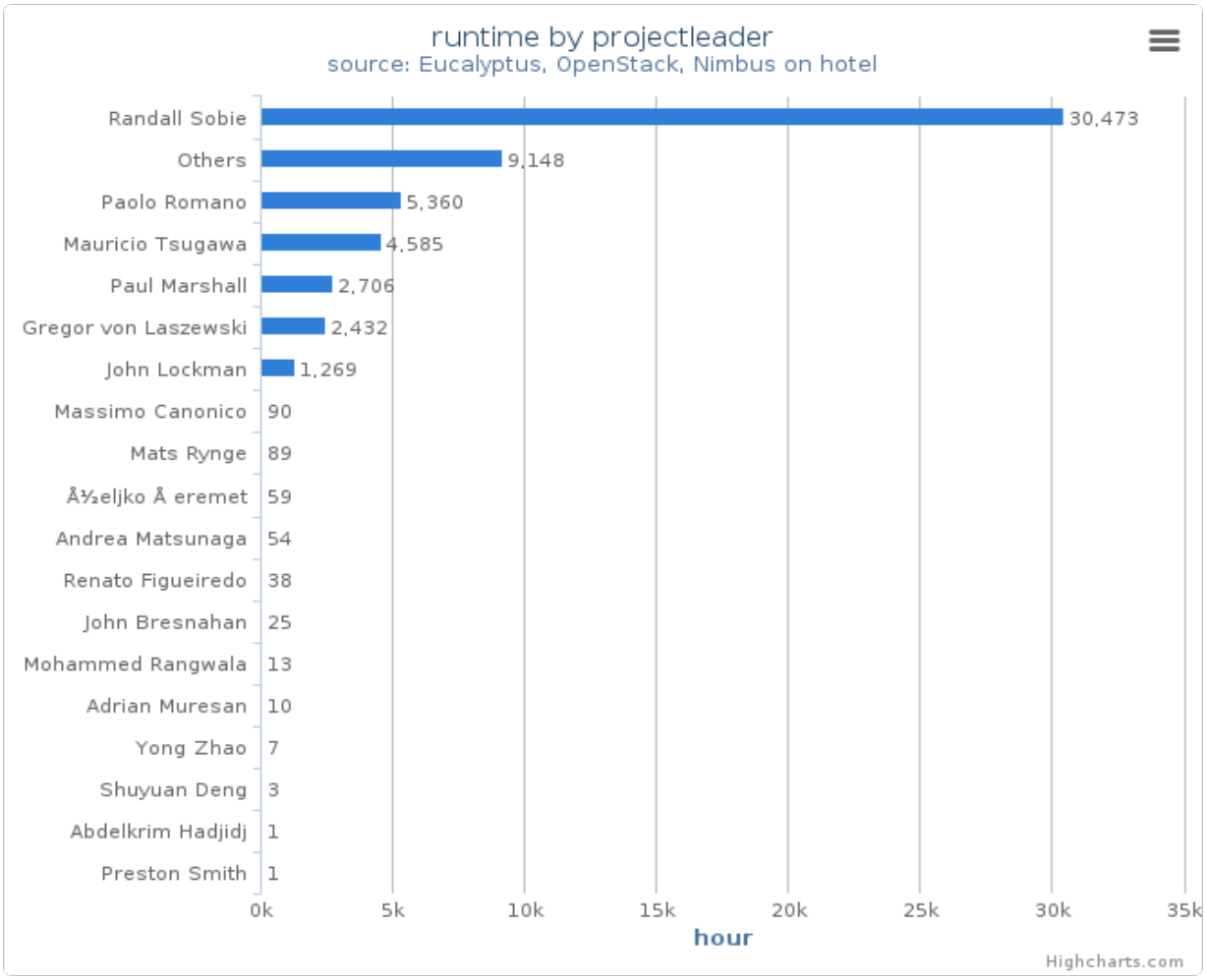

Figure 9: Wall time (hours) by project leader
This chart illustrates proportionate total run times by project leader.

- Period: April 01 – June 30, 2013
- 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.

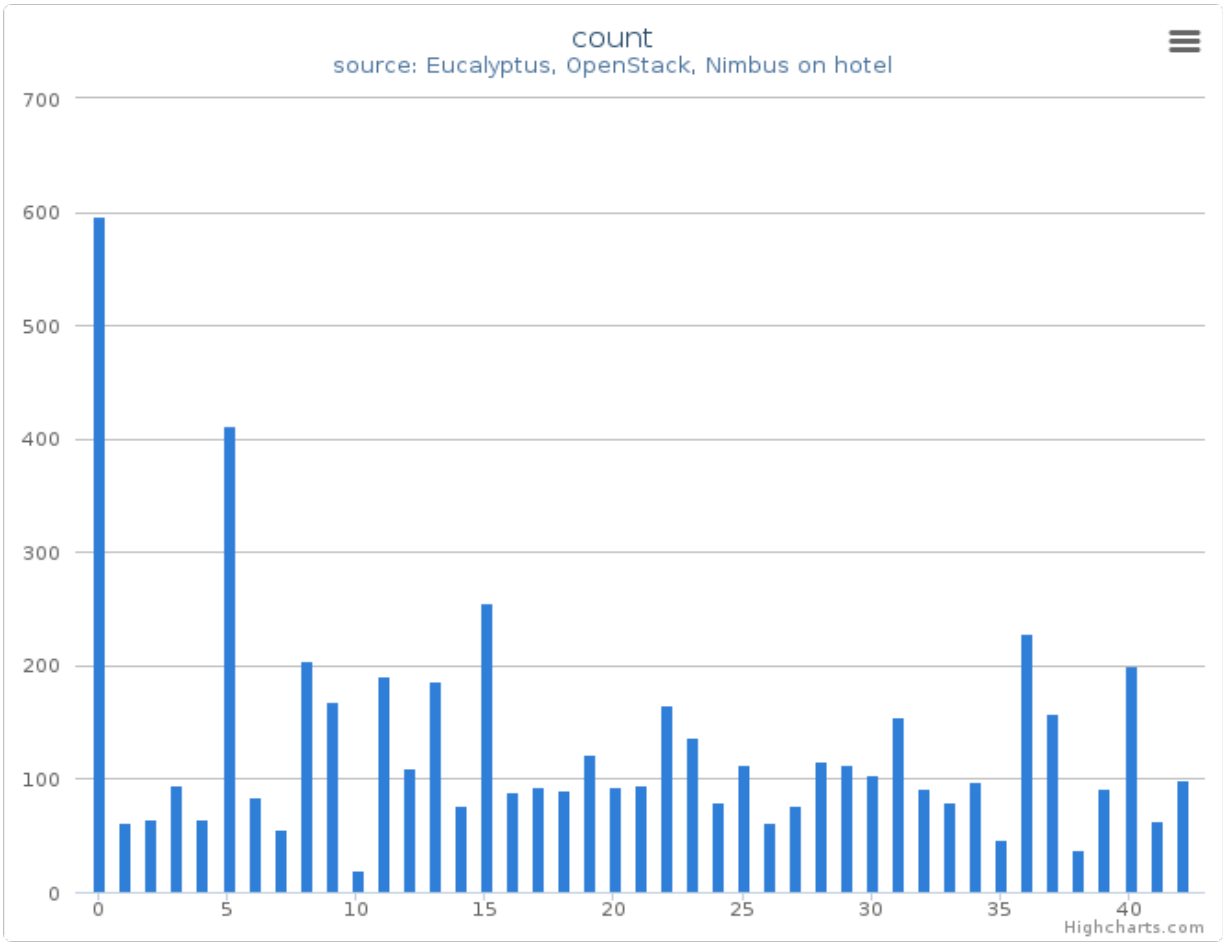

Figure 10: VMs count by systems (compute nodes) in Cluster (hotel)
This column chart represents VMs count among systems.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus
- Hostname: hotel

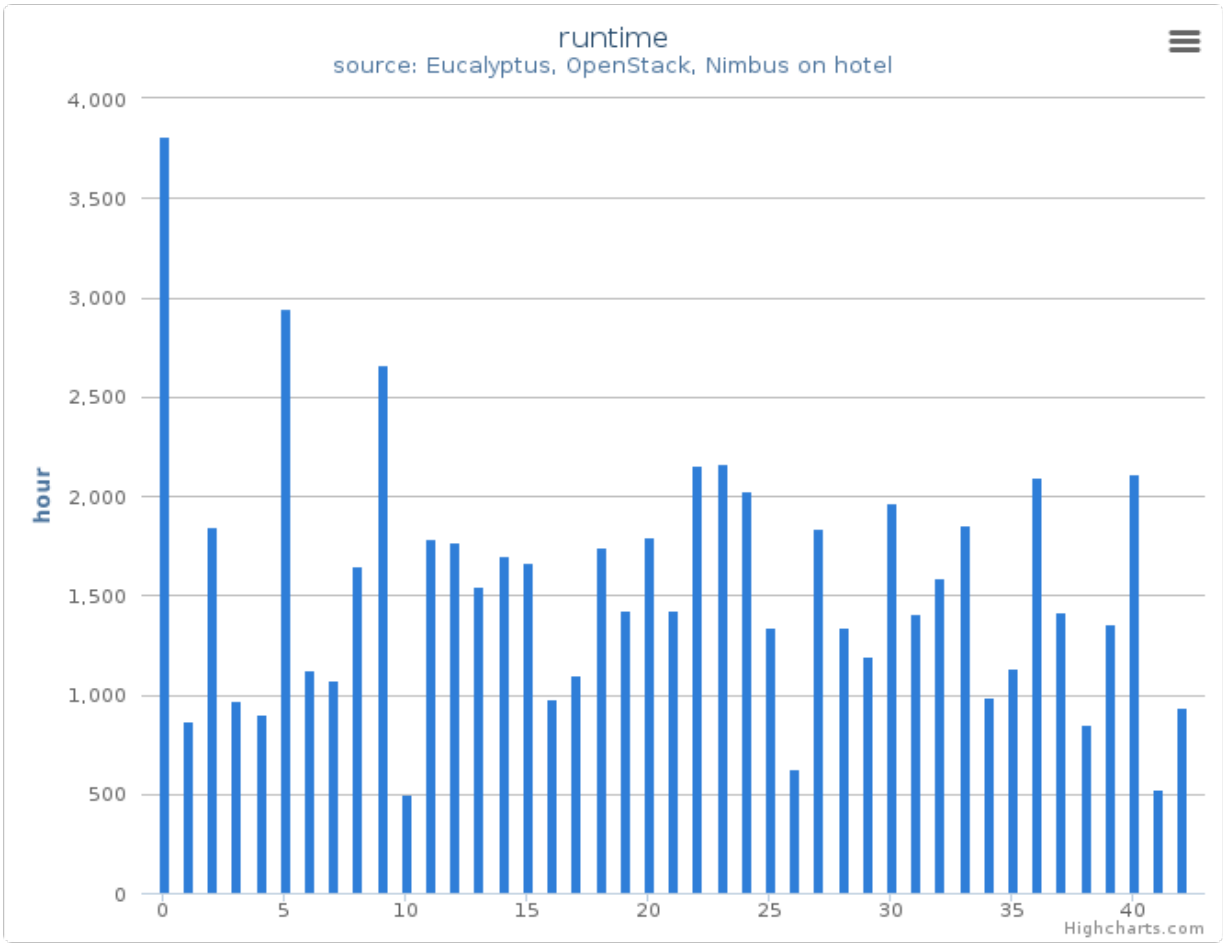

Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (hotel)
This column chart represents wall time among systems.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus
- Hostname: hotel

CHAPTER

FIVE

USAGE REPORT ALAMO

- Period: April 01 – June 30, 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

5.1 Histogram

5.1.1 Summary (Monthly)

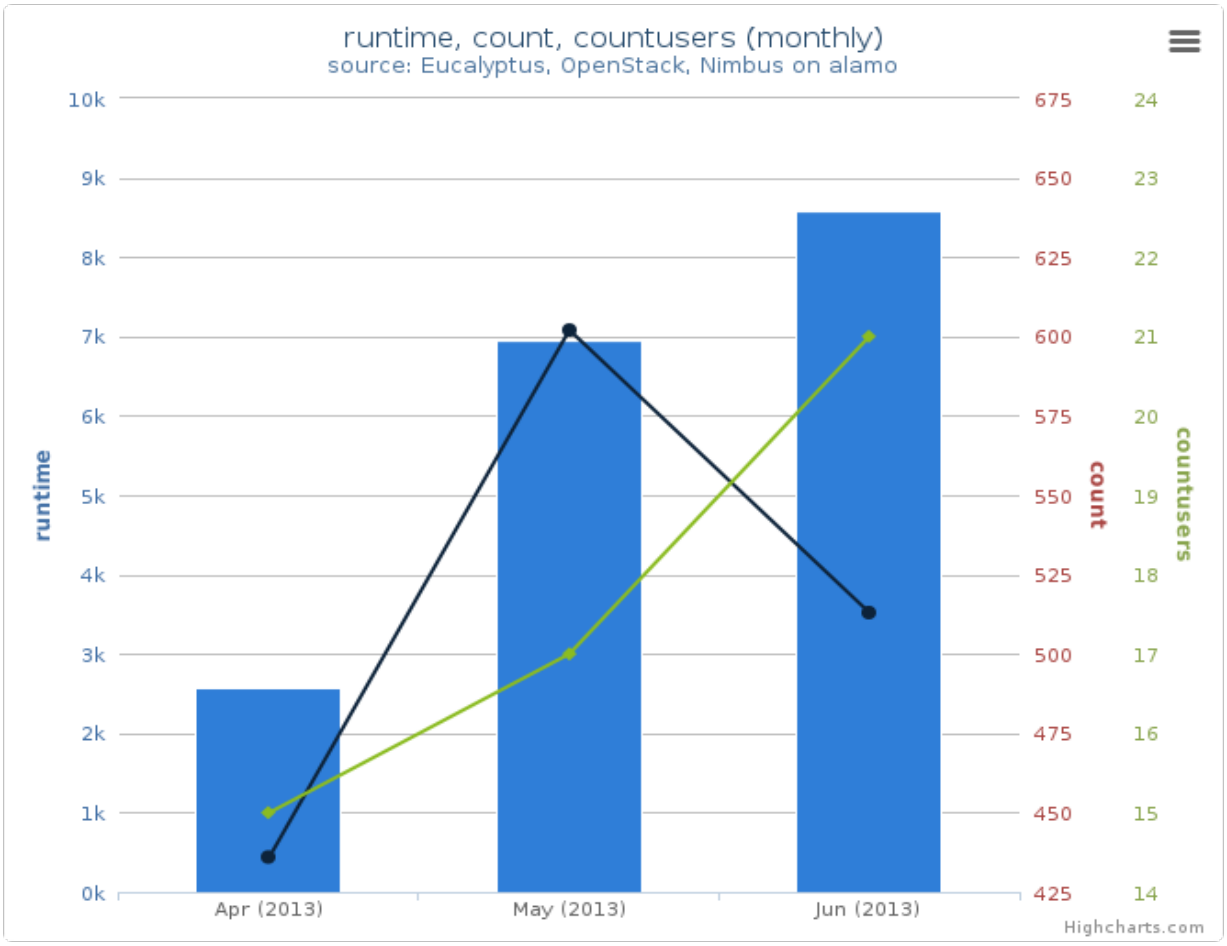

Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)
This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: April 01 – June 30, 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

5.1.2 Summary (Daily)

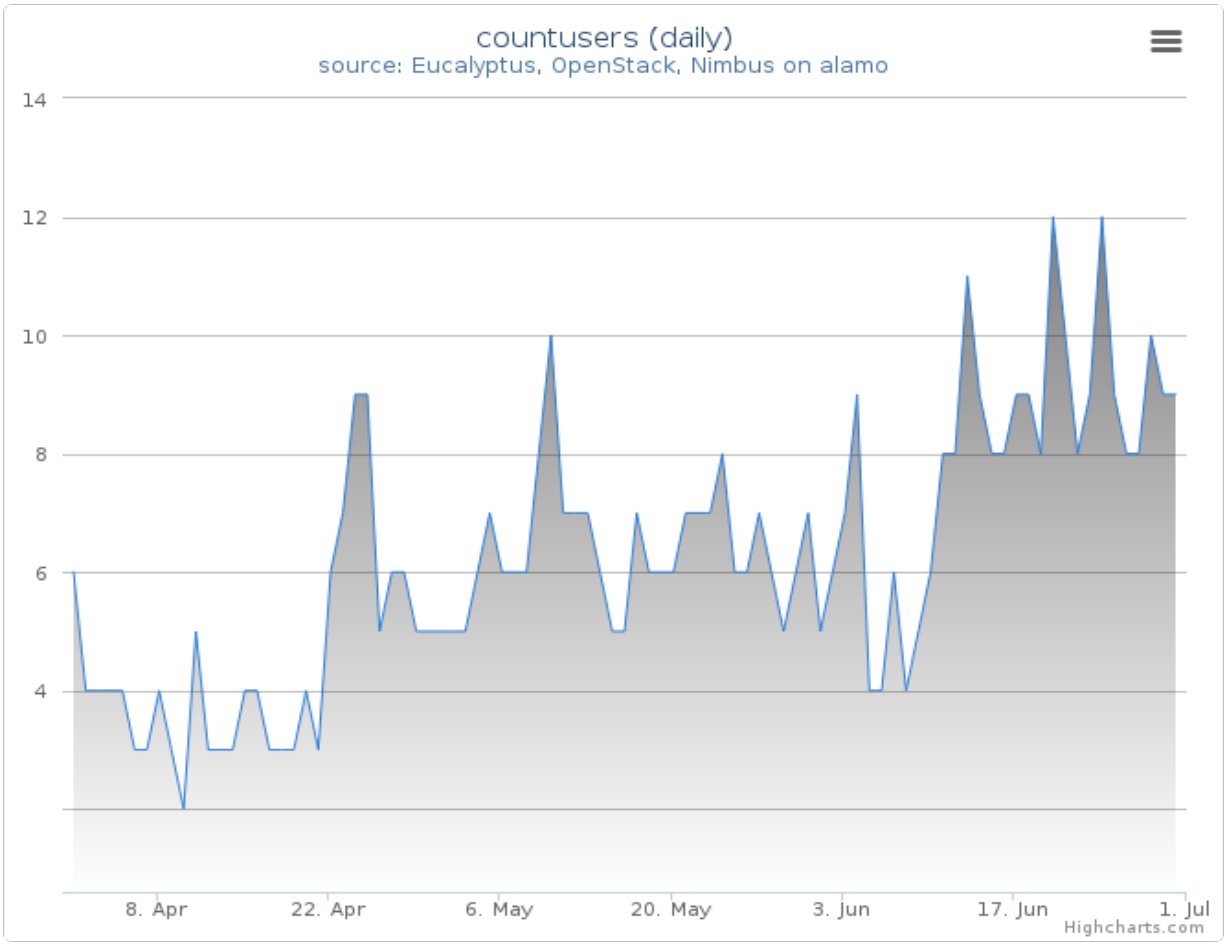

Figure 2: Users count

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

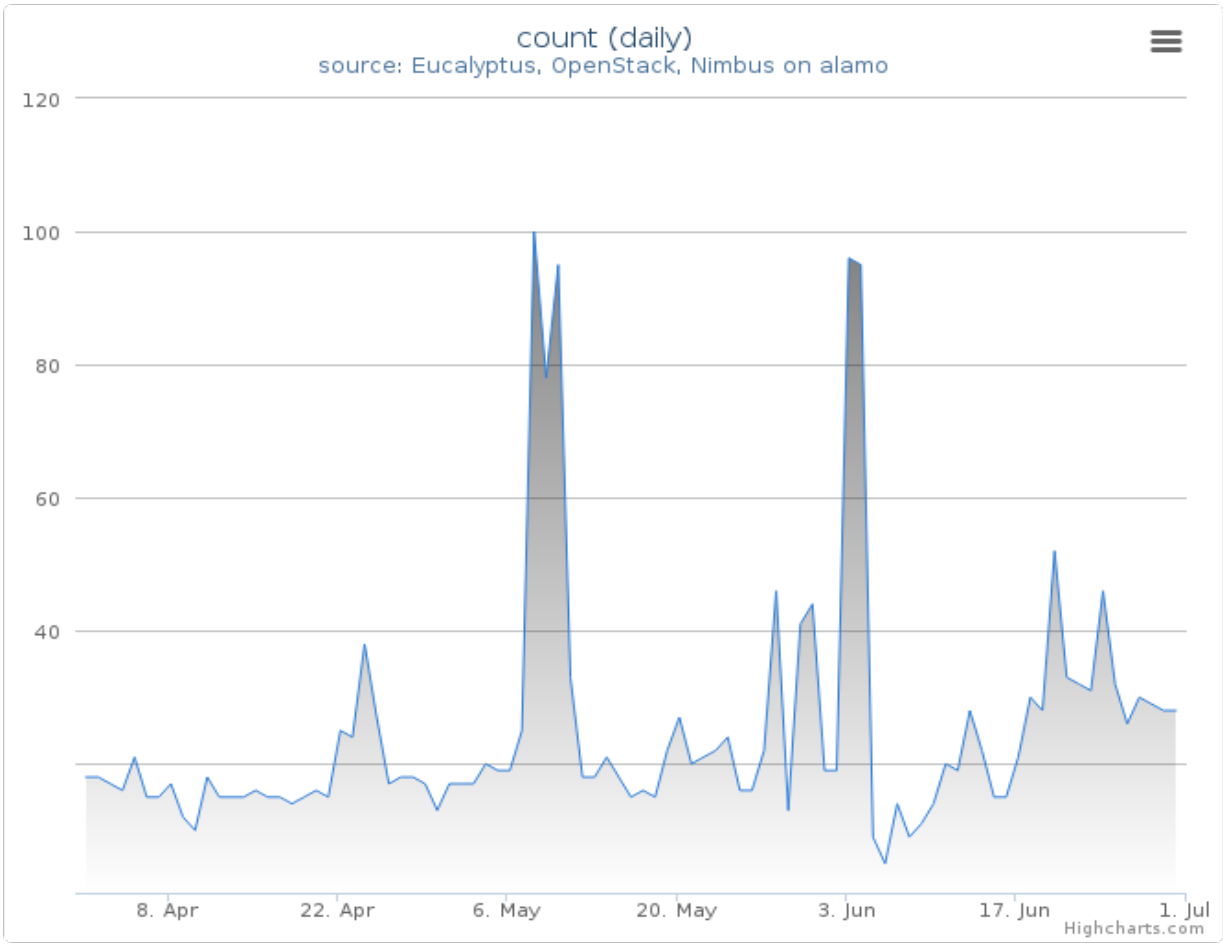

Figure 3: VMs count

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

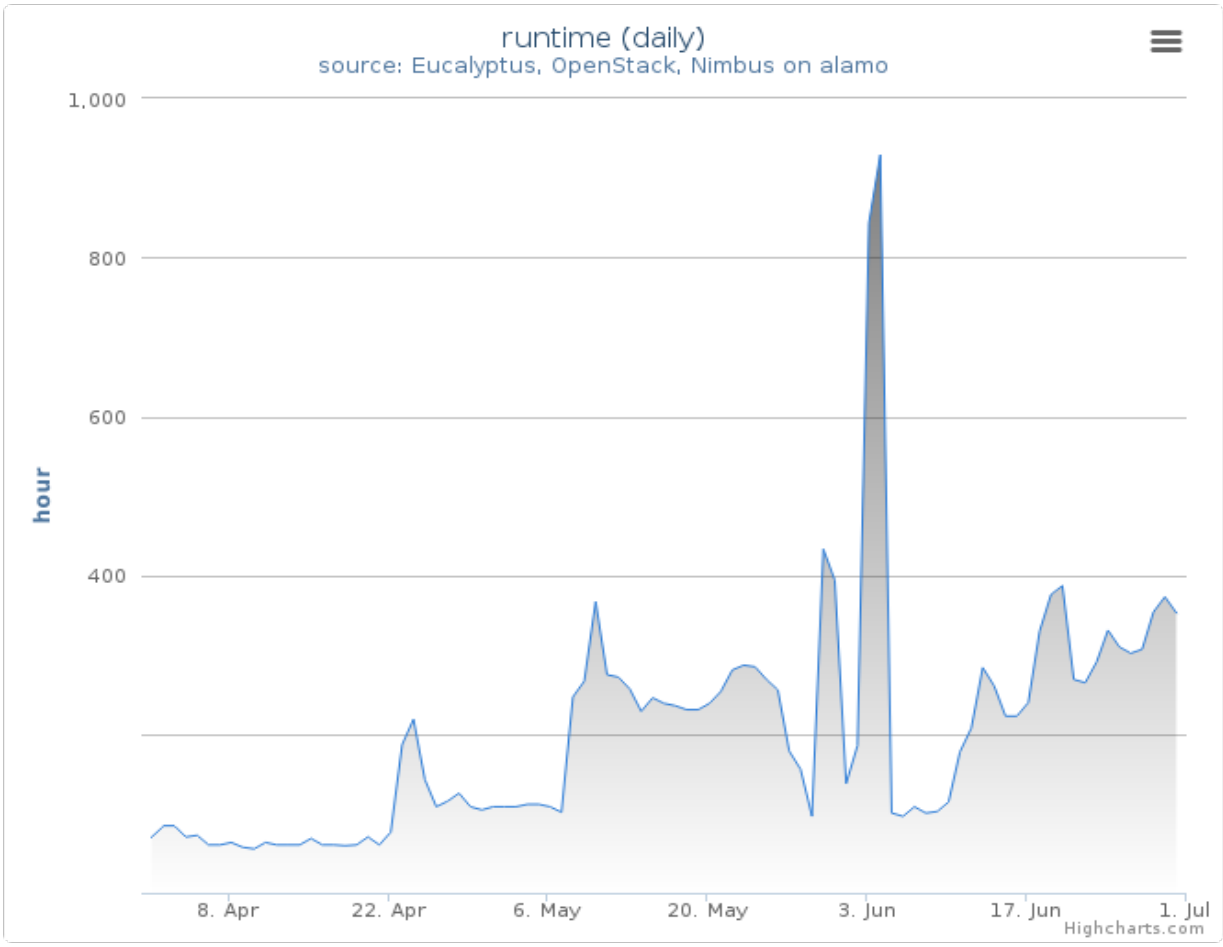

Figure 4: Wall time (hours)

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

5.2 Distribution

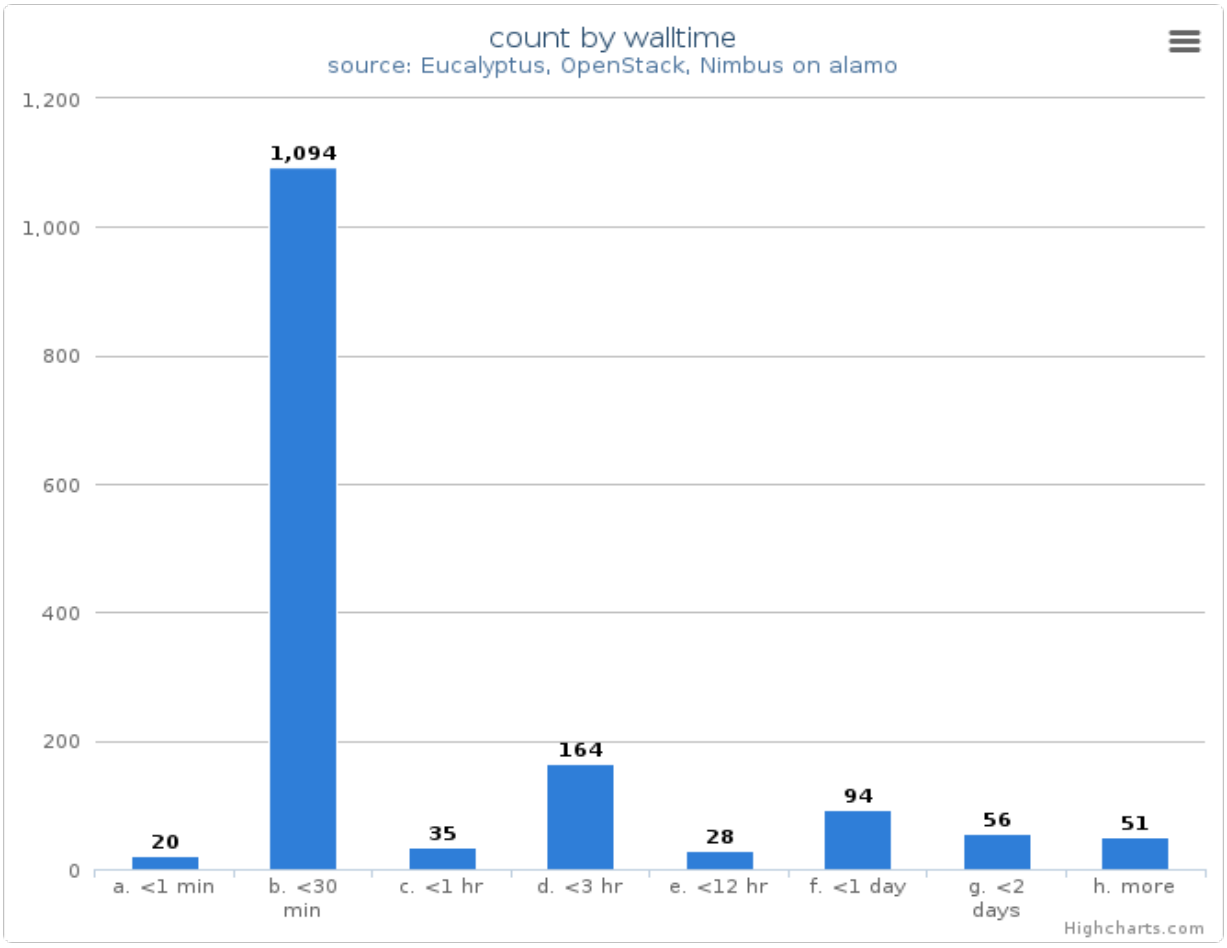

Figure 5: VM count by wall time
This chart illustrates usage patterns of VM instances in terms of running wall time.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

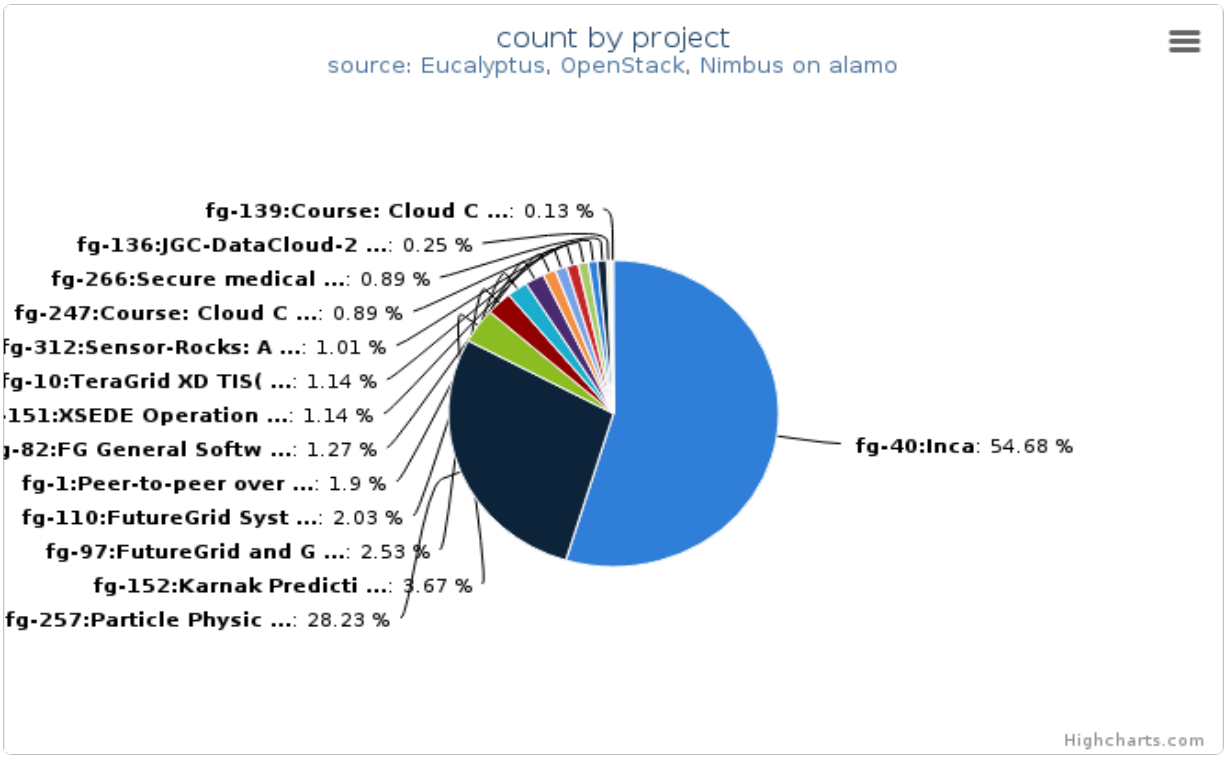

Figure 6: VMs count by project

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

Table 5.1: VMs count by project

Project	Value
fg-40:Inca	432
fg-257:Particle Physics Data analysis cluster for ATLAS LHC experiment	223
fg-152:Karnak Prediction Service	29
fg-97:FutureGrid and Grid'5000 Collaboration	20
fg-110:FutureGrid Systems Development	16
fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters	15
fg-82:FG General Software Development	10
fg-151:XSEDE Operations Group	9
fg-10:TeraGrid XD TIS(Technology Insertion Service) Technology Evaluation Laboratory	9
fg-312:Sensor-Rocks: A novel integrated framework to improve software Operations and Management (O&M) and power management in environmental observing systems	8
fg-247:Course: Cloud Computing and Storage Class	7
fg-266:Secure medical files sharing	7
fg-136:JGC-DataCloud-2012 paper experiments	2
fg-310:OpenStack Familiarization for TACC	1
fg-176:Cloud Interoperability Testbed	1
fg-139:Course: Cloud Computing and Storage Class	1

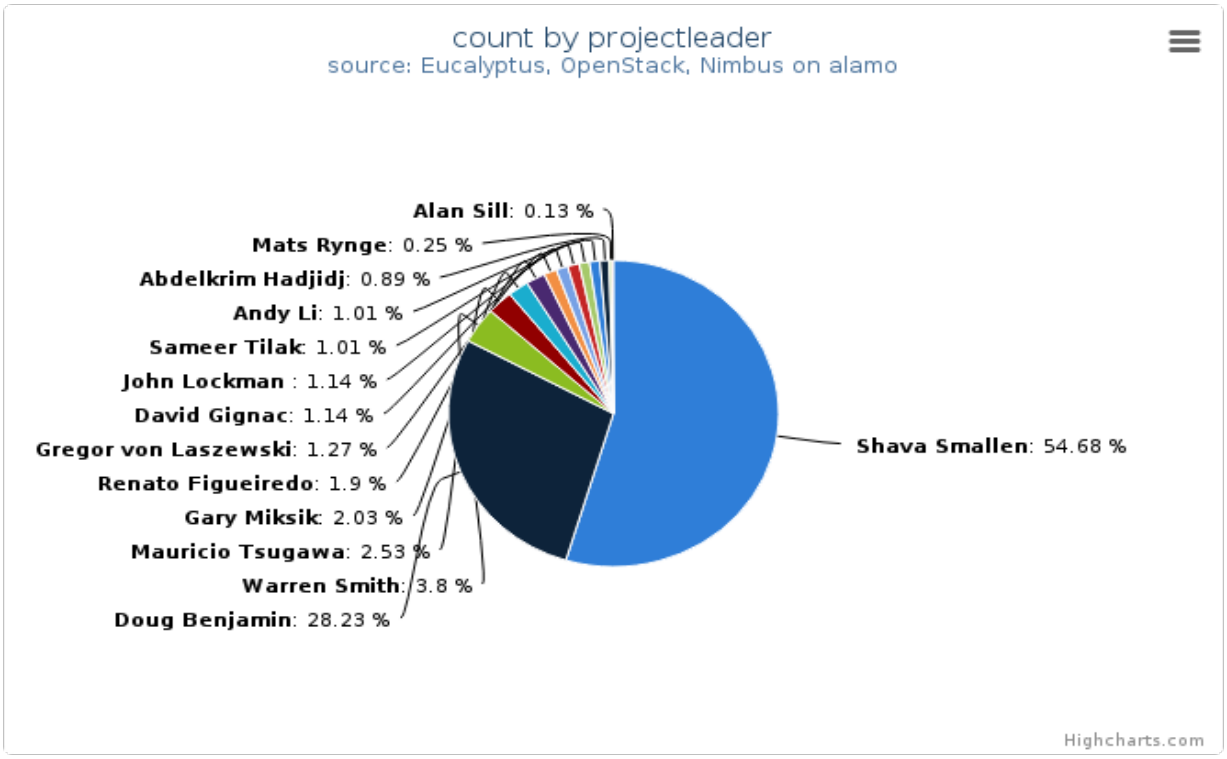

Figure 7: VMs count by project leader

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

Table 5.2: VMs count by project leader

Projectleader	Value
Shava Smallen	432
Doug Benjamin	223
Warren Smith	30
Mauricio Tsugawa	20
Gary Miksik	16
Renato Figueiredo	15
Gregor von Laszewski	10
David Gignac	9
John Lockman	9
Sameer Tilak	8
Andy Li	8
Abdelkrim Hadjidj	7
Mats Rynge	2
Alan Sill	1

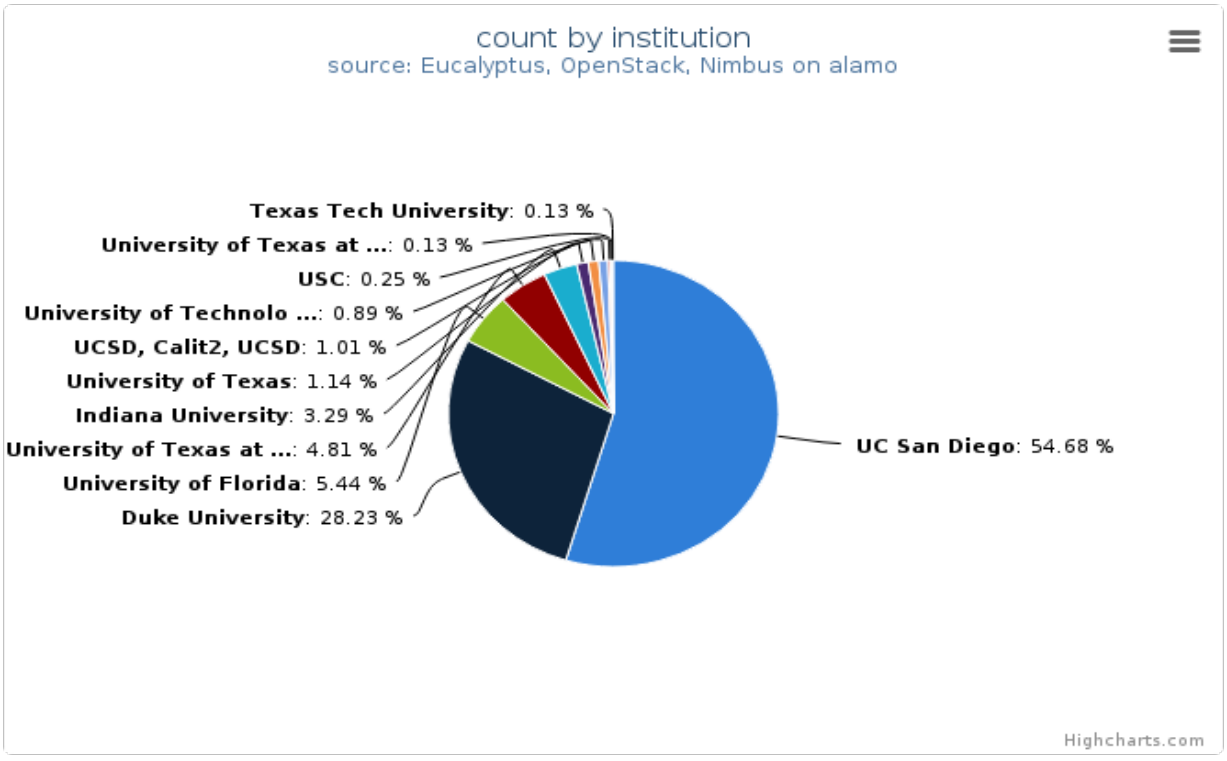

Figure 8: VMs count by institution

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

Table 5.3: VMs count by institution

Institution	Value
UC San Diego	432
Duke University	223
University of Florida	43
University of Texas at Austin	38
Indiana University	26
University of Texas	9
UCSD, Calit2, UCSD	8
University of Technology of Compiegne	7
USC	2
University of Texas at Austin, Texas Advanced Computing Center	1
Texas Tech University	1

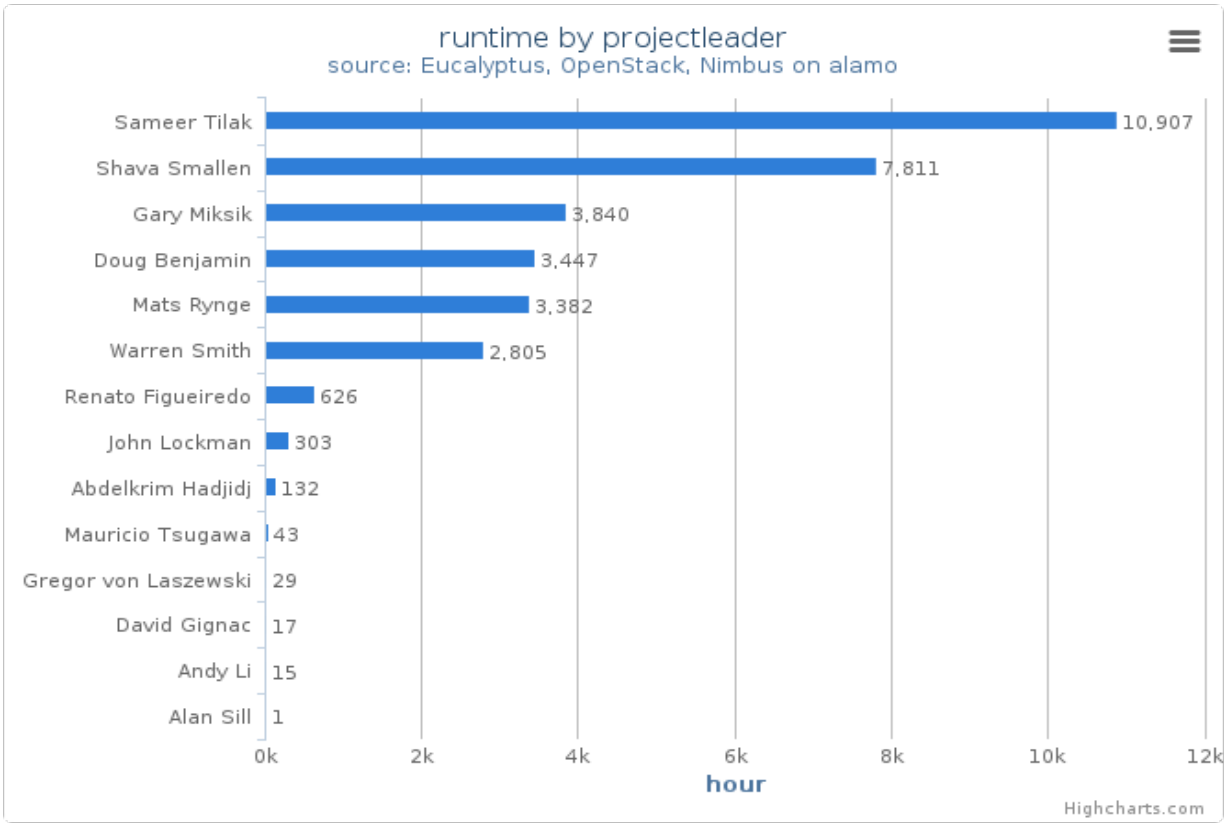

Figure 9: Wall time (hours) by project leader
This chart illustrates proportionate total run times by project leader.

- Period: April 01 – June 30, 2013
- 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.

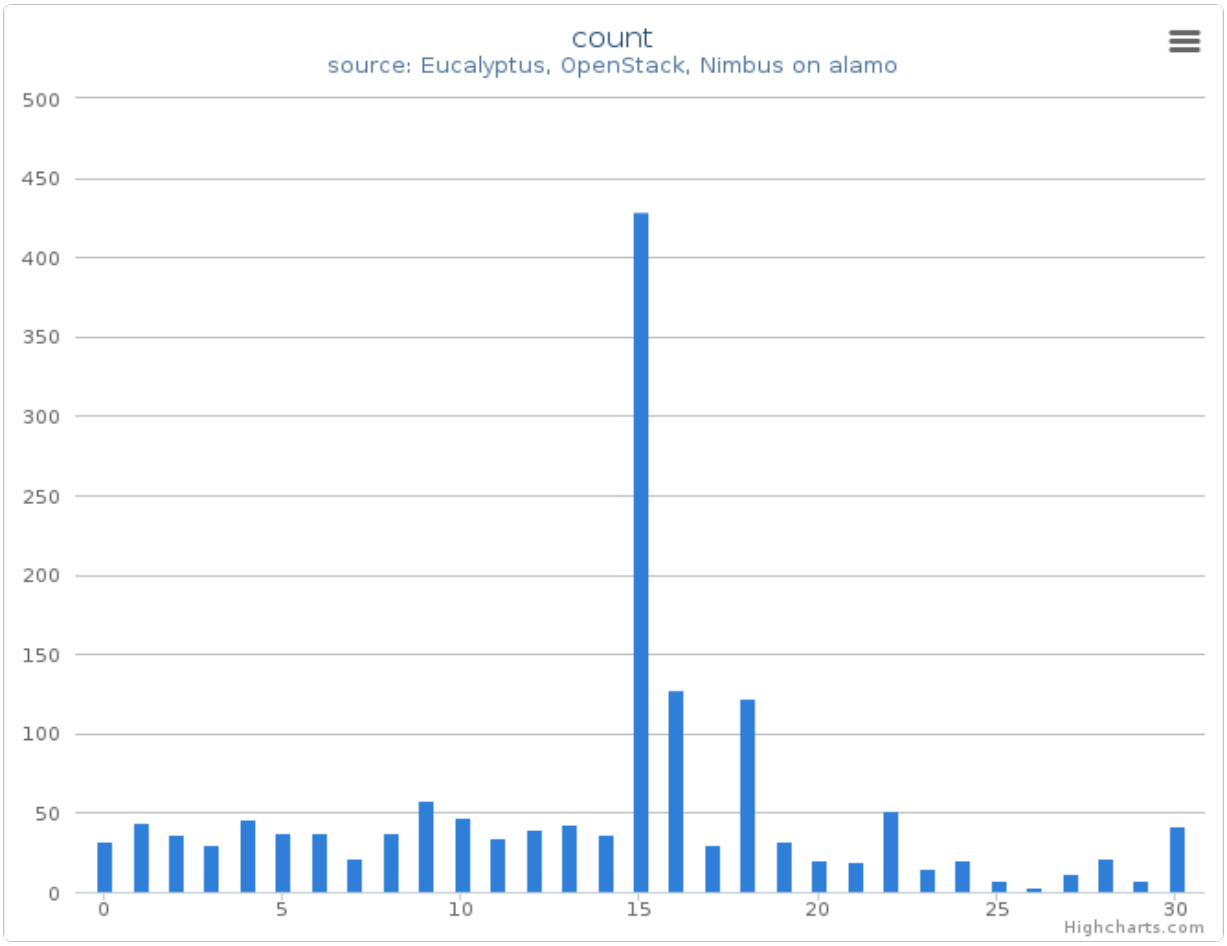

Figure 10: VMs count by systems (compute nodes) in Cluster (alamo)
This column chart represents VMs count among systems.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

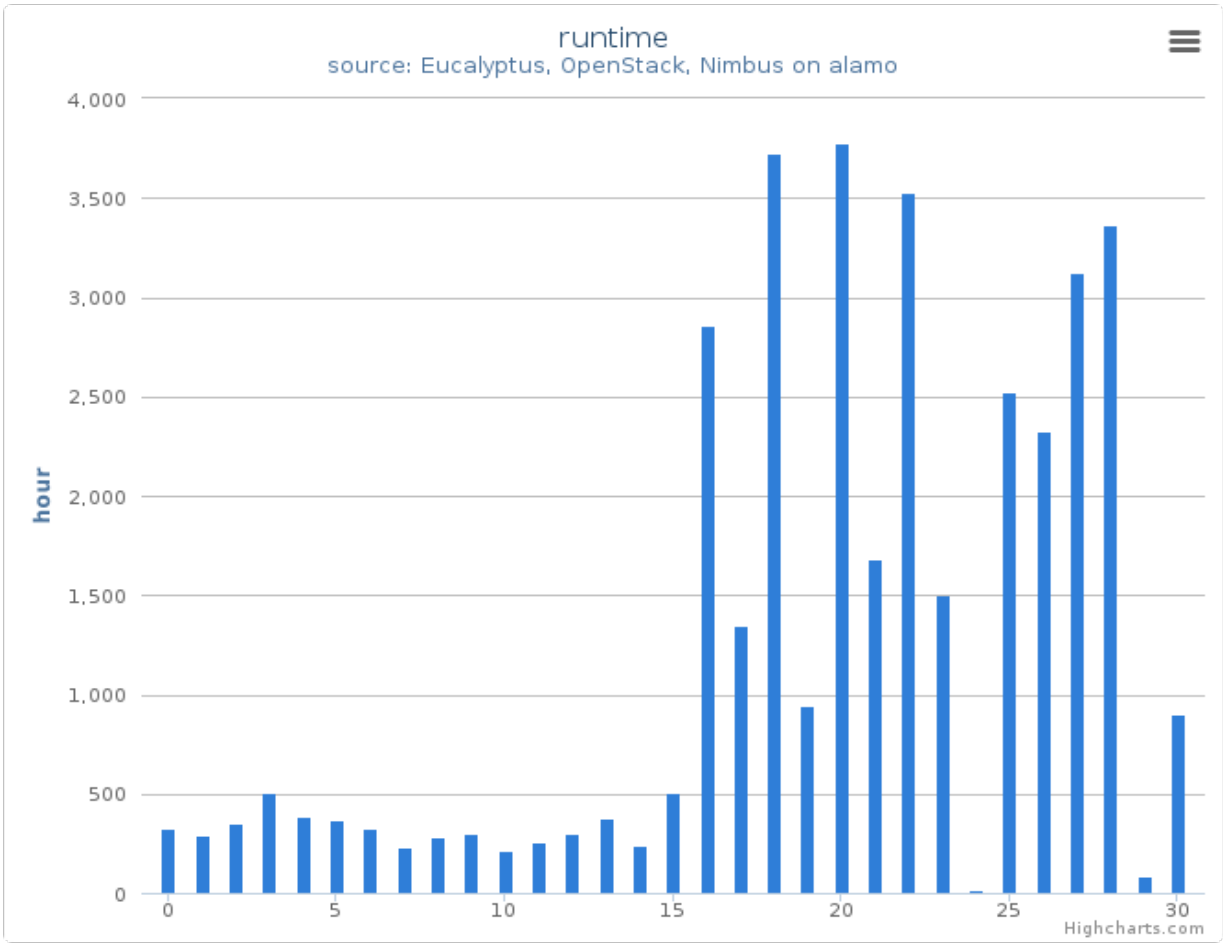

Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (alamo)
This column chart represents wall time among systems.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo

CHAPTER

SIX

USAGE REPORT FOXTROT

- Period: April 01 – June 30, 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

6.1 Histogram

6.1.1 Summary (Monthly)

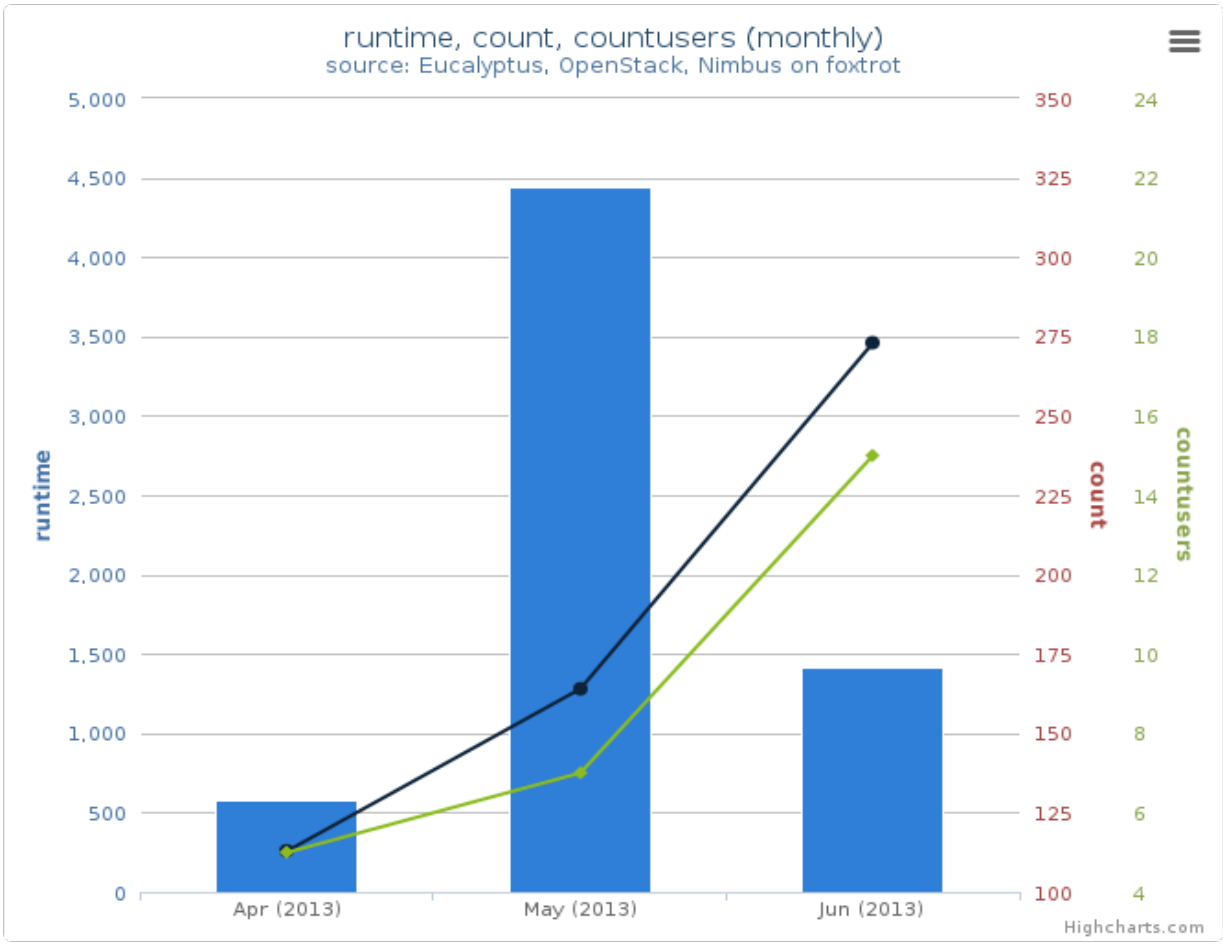

Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)
This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: April 01 – June 30, 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

6.1.2 Summary (Daily)

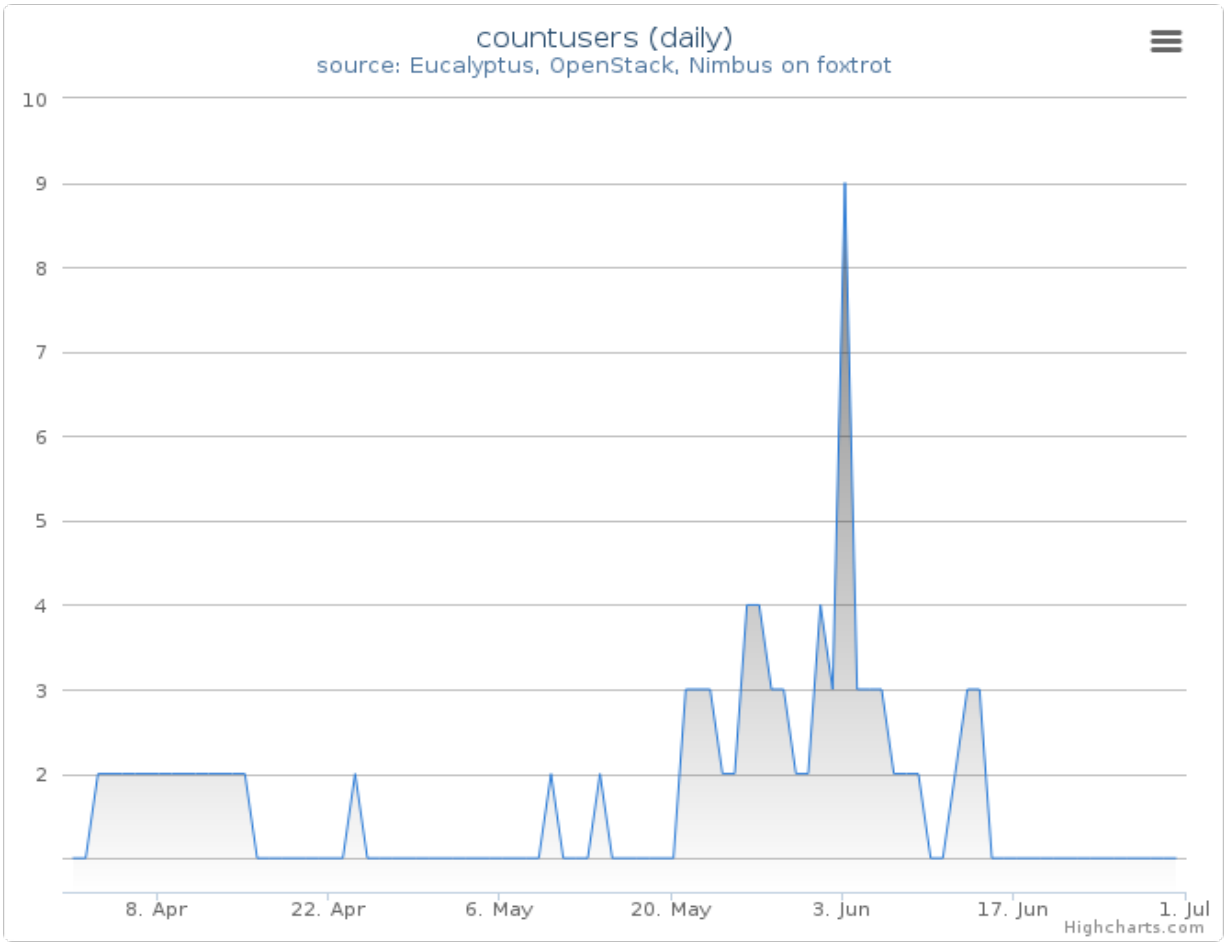

Figure 2: Users count

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus
- Hostname: foxtrot

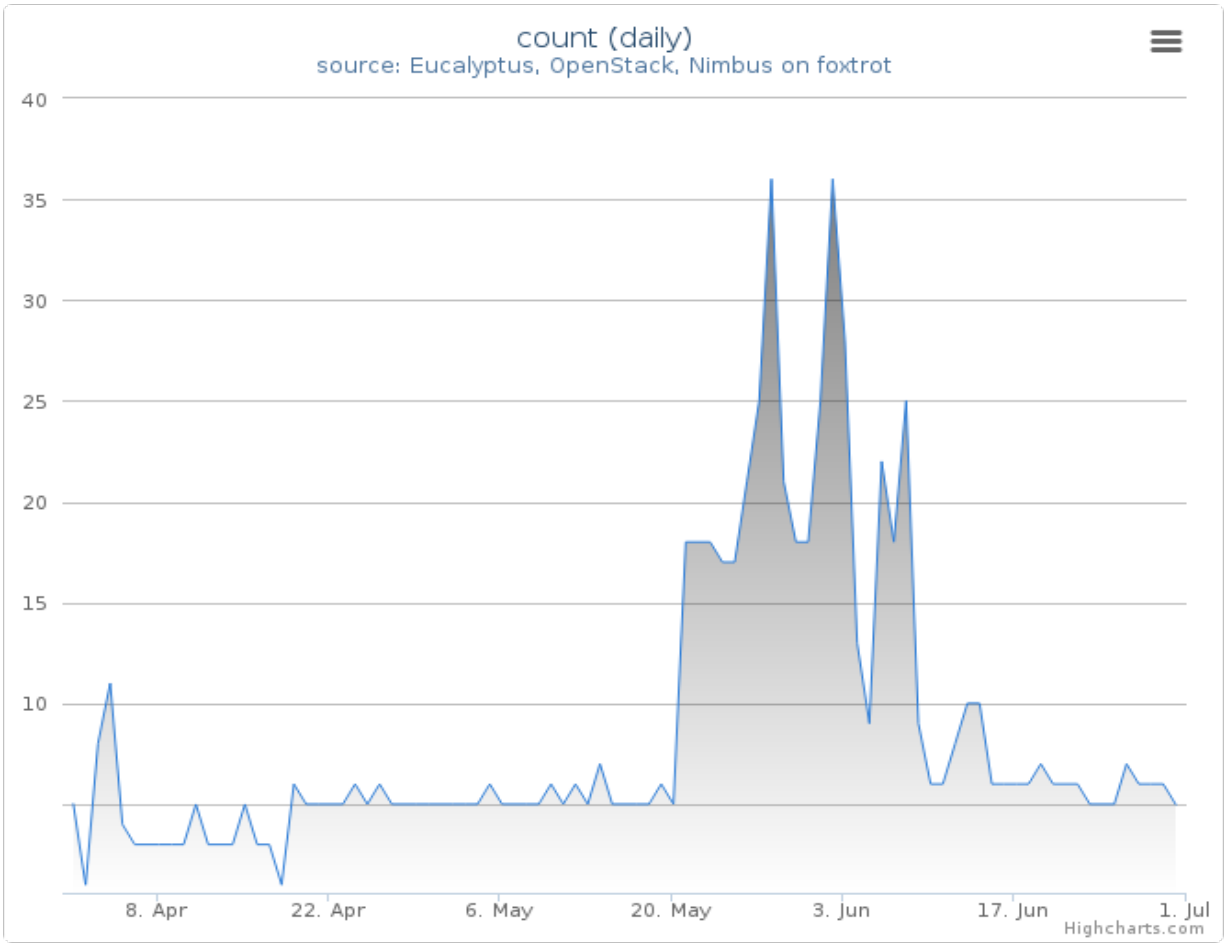

Figure 3: VMs count

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus
- Hostname: foxtrot

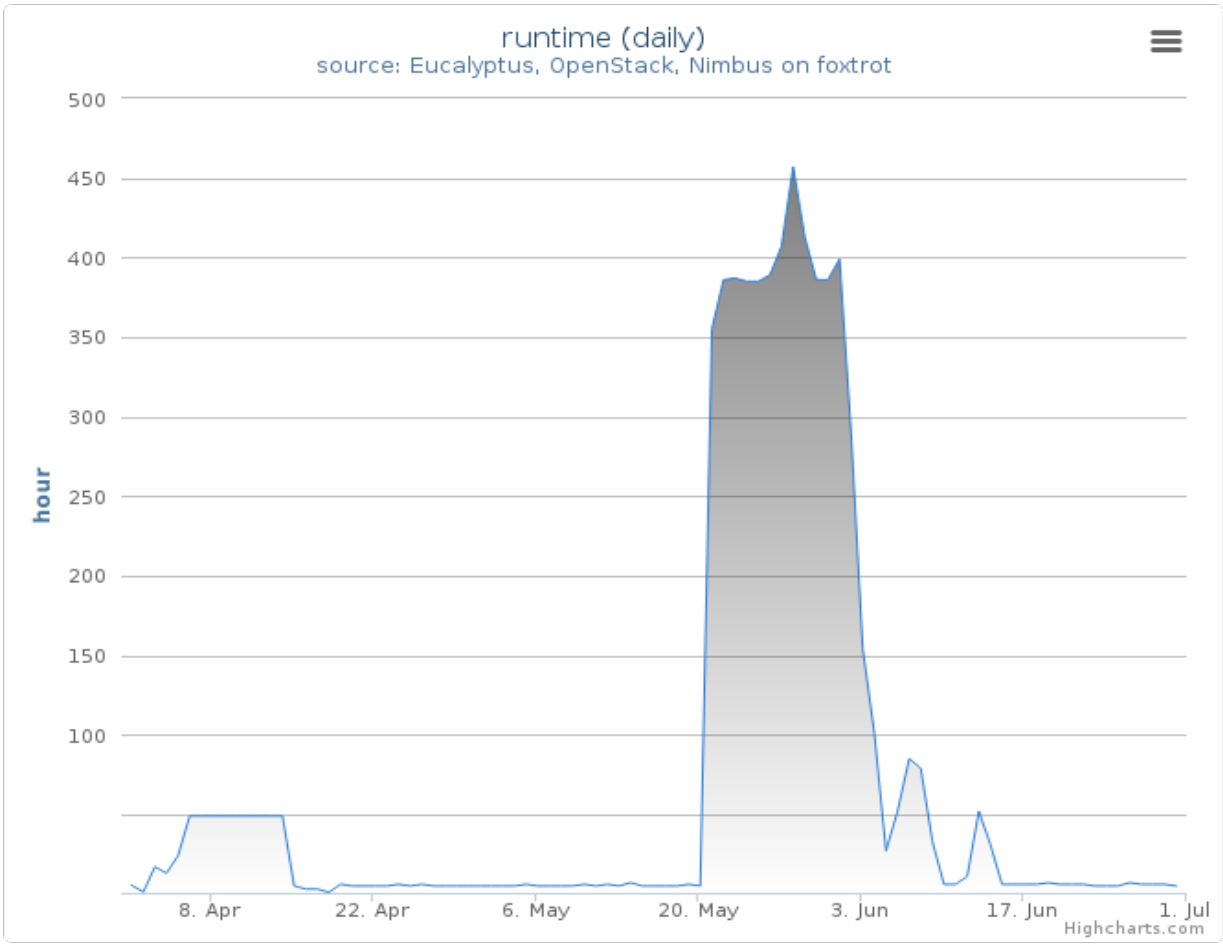

Figure 4: Wall time (hours)

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus
- Hostname: foxtrot

6.2 Distribution

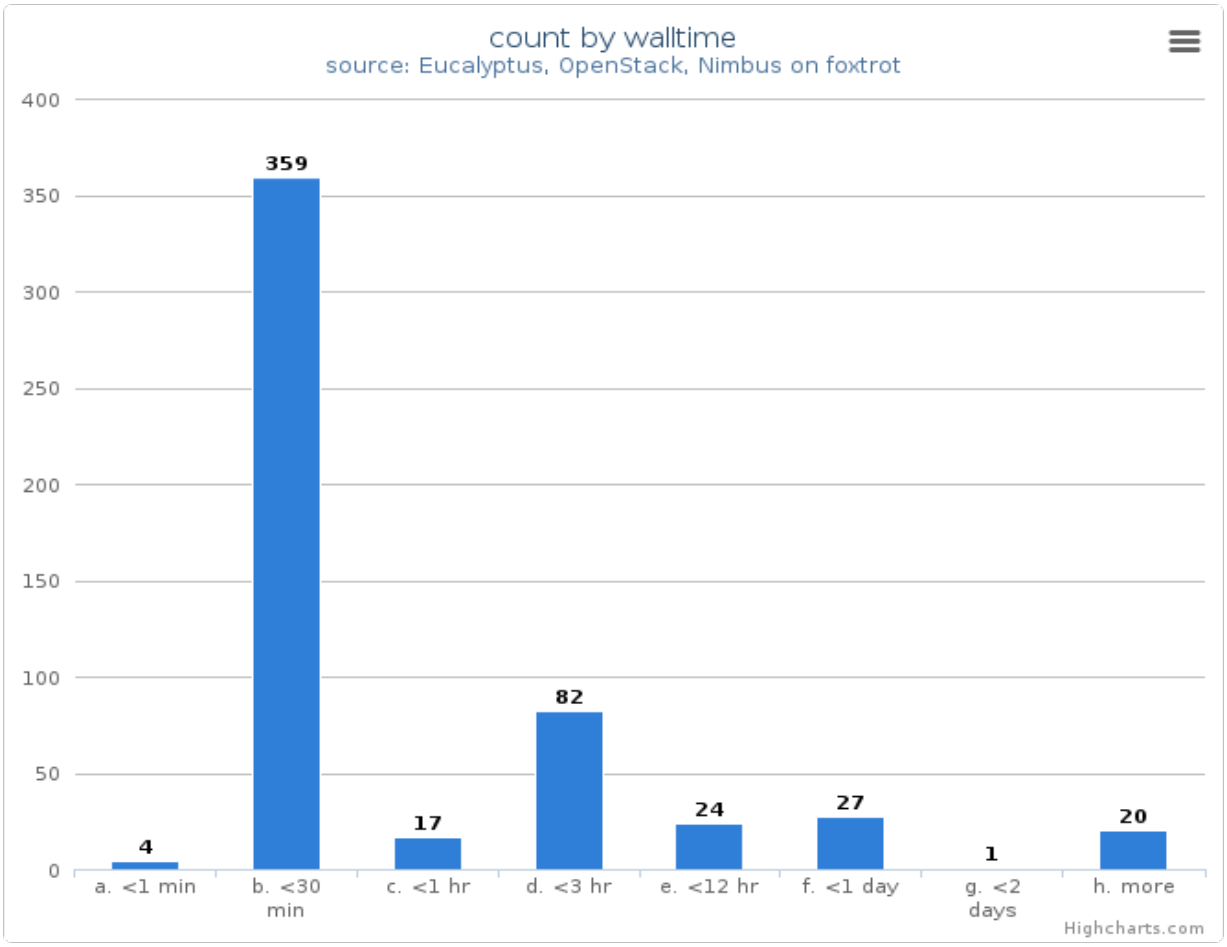

Figure 5: VM count by wall time
This chart illustrates usage patterns of VM instances in terms of running wall time.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus
- Hostname: foxtrot

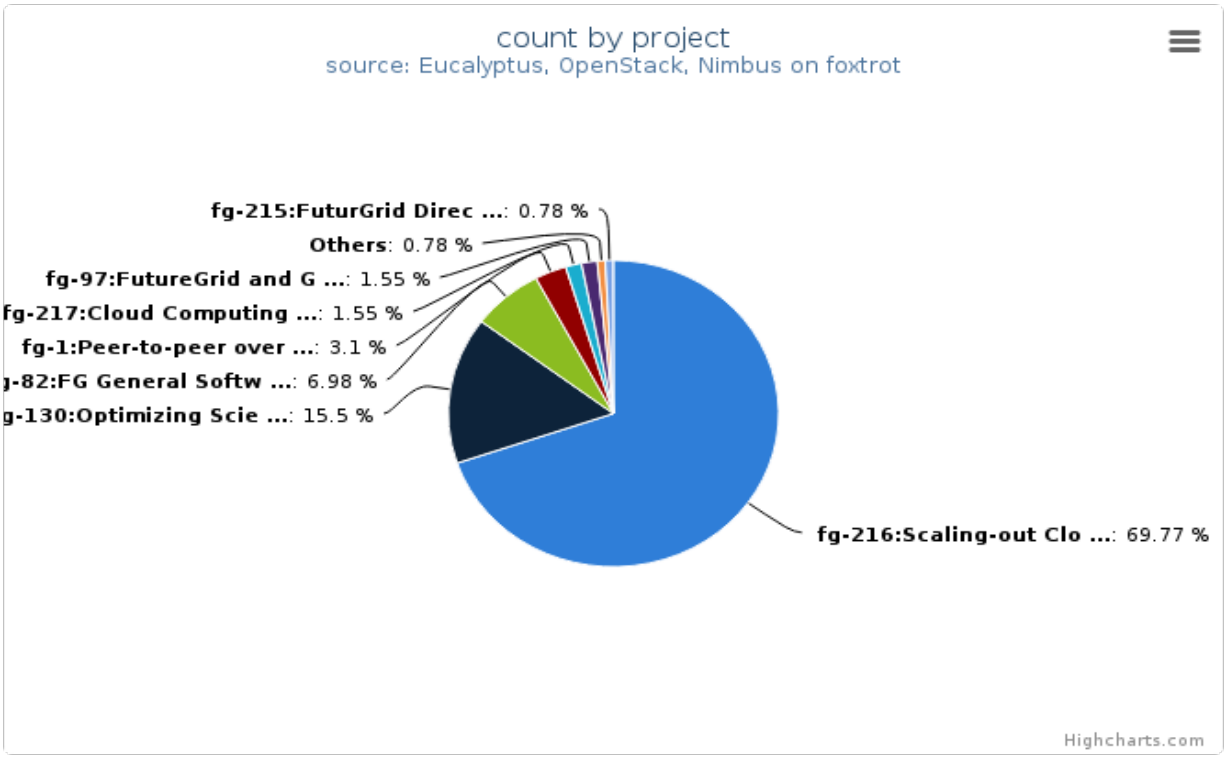

Figure 6: VMs count by project

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

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus
- Hostname: foxtrot

Table 6.1: VMs count by project

Project	Value
fg-216:Scaling-out CloudBLAST: Deploying Elastic MapReduce across Geographically Distributed Virtulized Resources for BLAST	90
fg-130:Optimizing Scientific Workflows on Clouds	20
fg-82:FG General Software Development	9
fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters	4
fg-217:Cloud Computing In Education	2
fg-97:FutureGrid and Grid‘5000 Collaboration	2
Others	1
fg-215:FuturGrid Directory Entry	1

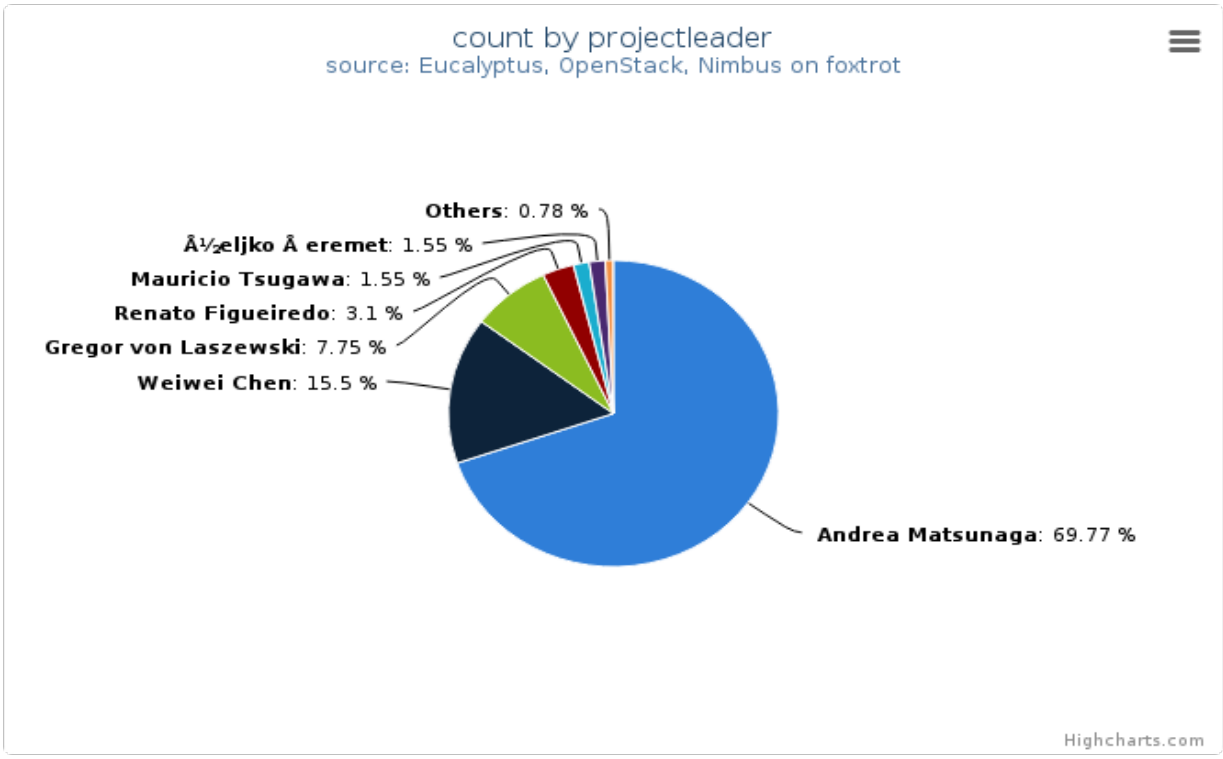

Figure 7: VMs count by project leader

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, 2013
- Cloud(IaaS): nimbus
- Hostname: foxtrot

Table 6.2: VMs count by project leader

Projectleader	Value
Andrea Matsunaga	90
Weiwei Chen	20
Gregor von Laszewski	10
Renato Figueiredo	4
Mauricio Tsugawa	2
Željko Šeremet	2
Others	1

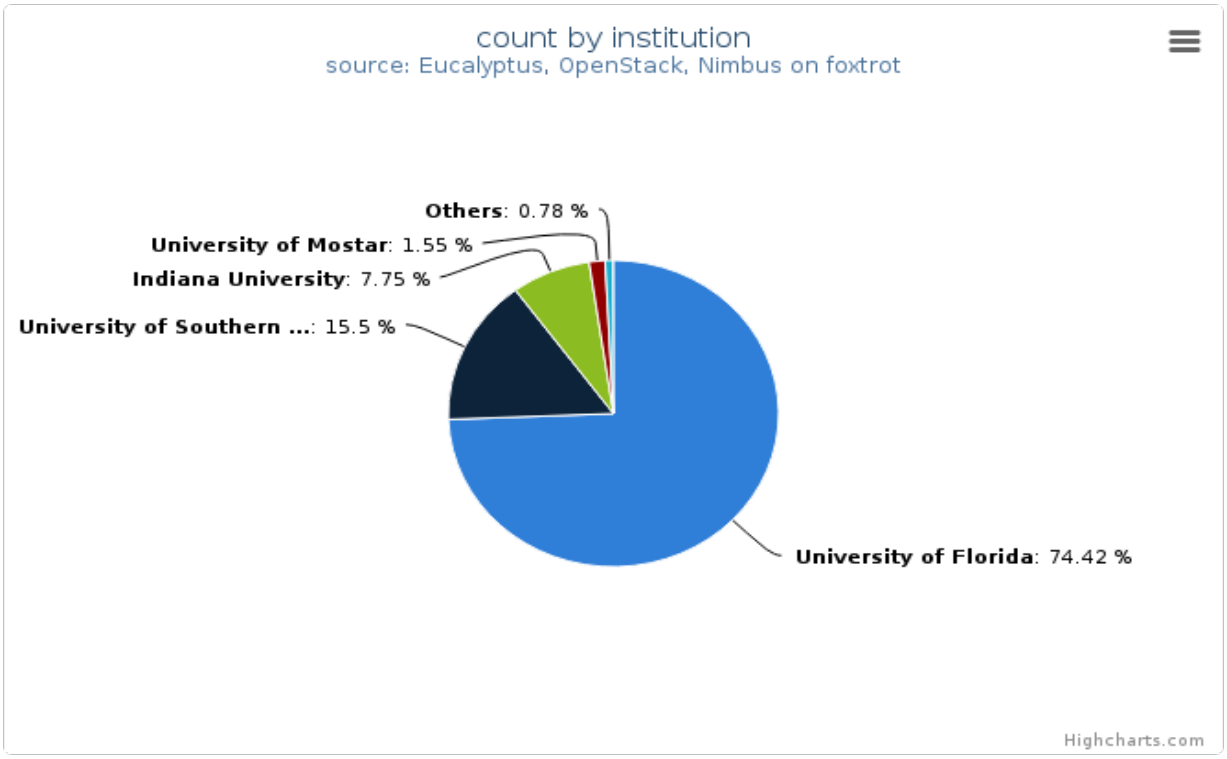

Figure 8: VMs count by institution
This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus
- Hostname: foxtrot

Table 6.3: VMs count by institution

Institution	Value
University of Florida	96
University of Southern California	20
Indiana University	10
University of Mostar	2
Others	1

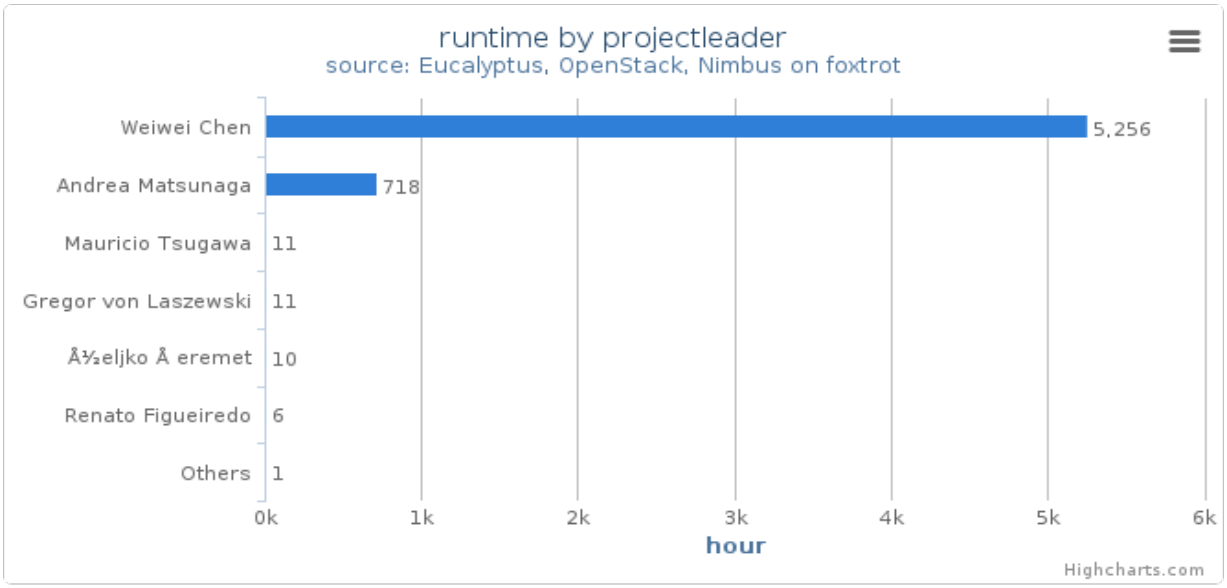

Figure 9: Wall time (hours) by project leader
This chart illustrates proportionate total run times by project leader.

- Period: April 01 – June 30, 2013
- 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.

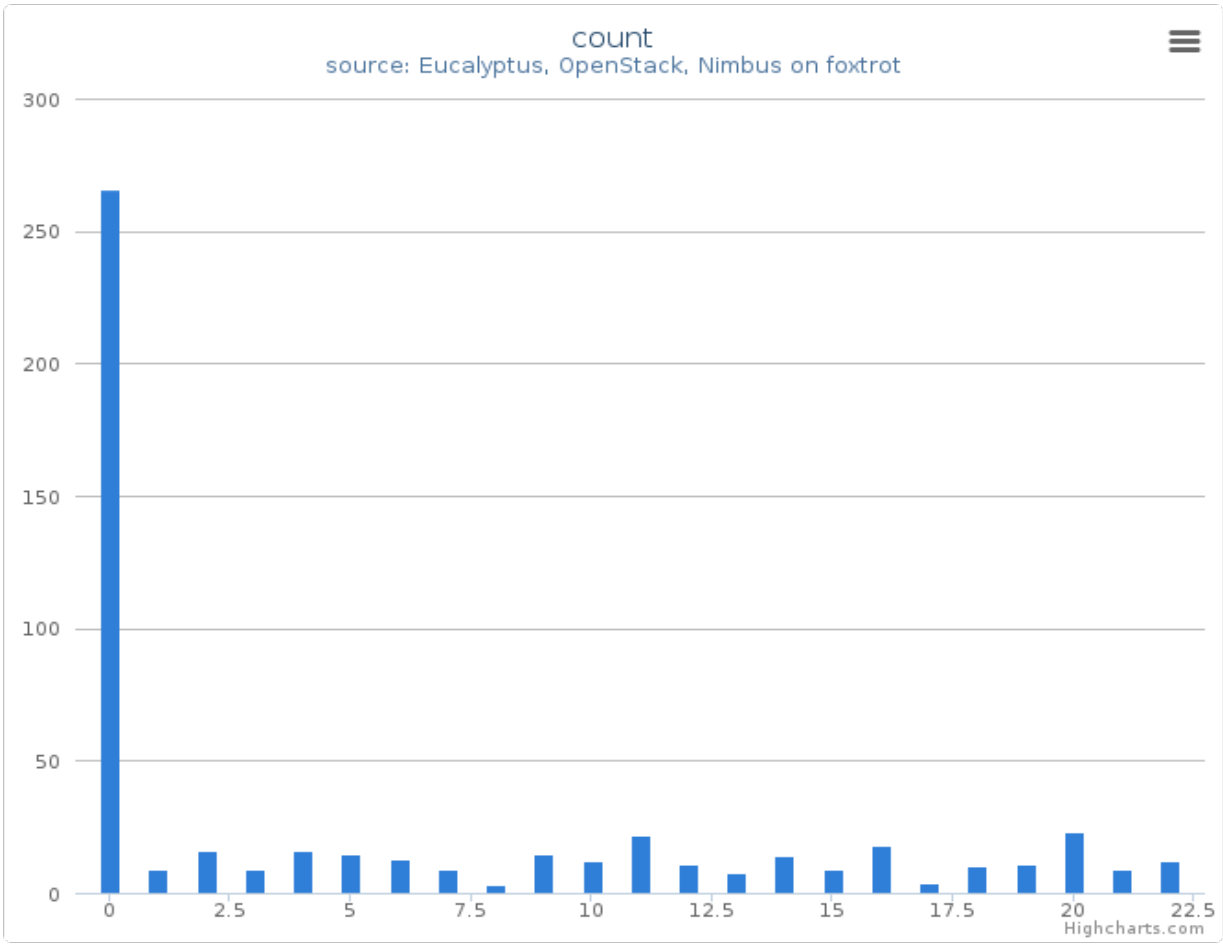

Figure 10: VMs count by systems (compute nodes) in Cluster (foxtrot)
This column chart represents VMs count among systems.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus
- Hostname: foxtrot

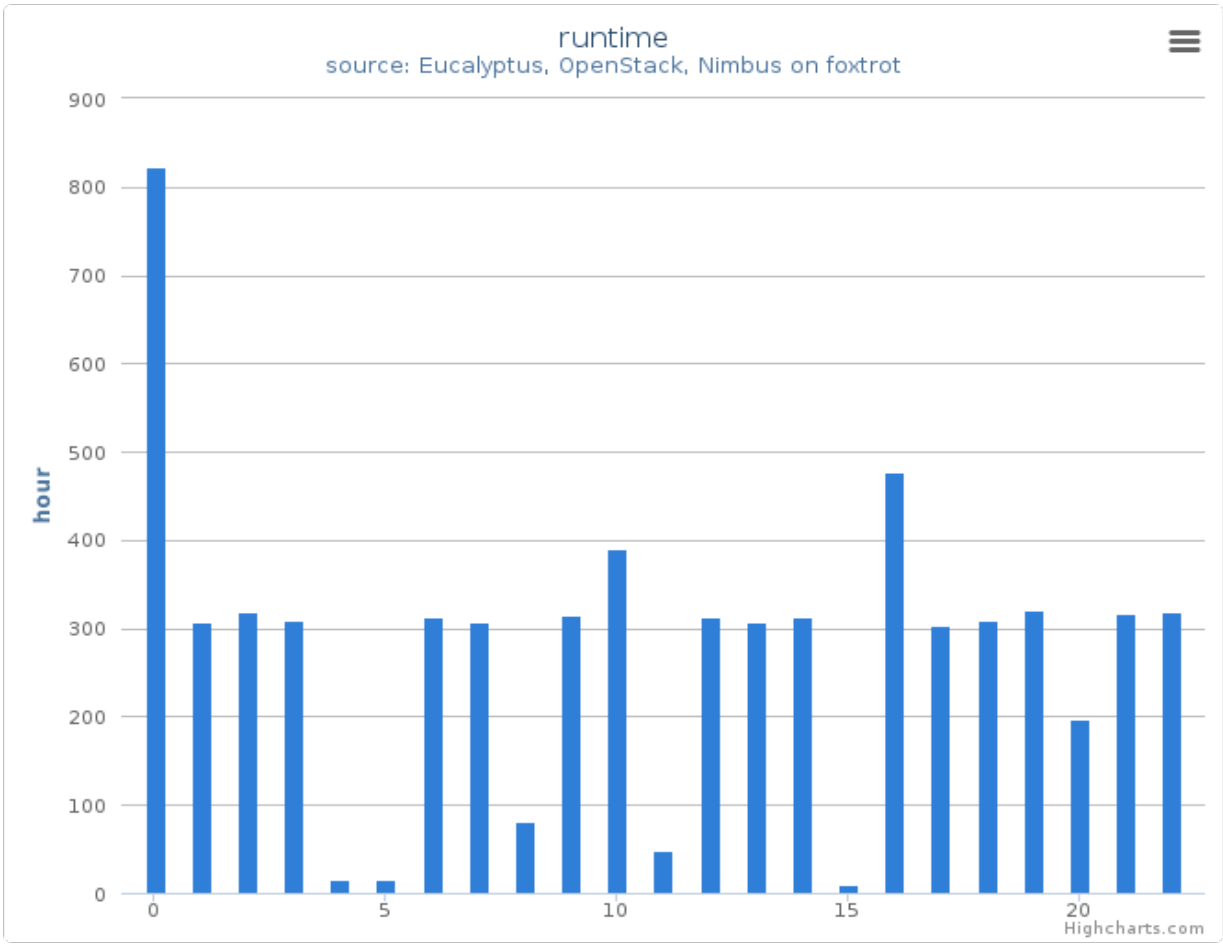

Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (foxtrot)
This column chart represents wall time among systems.

- Period: April 01 – June 30, 2013
- Cloud(IaaS): nimbus
- Hostname: foxtrot

CHAPTER

SEVEN

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

CHAPTER

EIGHT

USER TABLE (HPC)

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