FG Resource Report

Release 0.4

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CONTENTS

Date Created: Thu, 20 Jun 2013

CHAPTER

ONE

SUMMARY REPORT (ALL)

- Period: January 01 – March 31, 2012
- Cloud(india.futuregrid.org): eucalyptus, openstack
- Cloud(sierra.futuregrid.org): eucalyptus, nimbus
- Cloud(hotel.futuregrid.org): nimbus
- Cloud(alamo.futuregrid.org): nimbus
- Cloud(foxtrot.futuregrid.org): nimbus
- Metrics: VMs count, Users count, Wall hours, Distribution by Wall Hours, Project, Project Leader, and Institution, and Systems

1.1 Wall Hours by Clusters (Total, monthly)

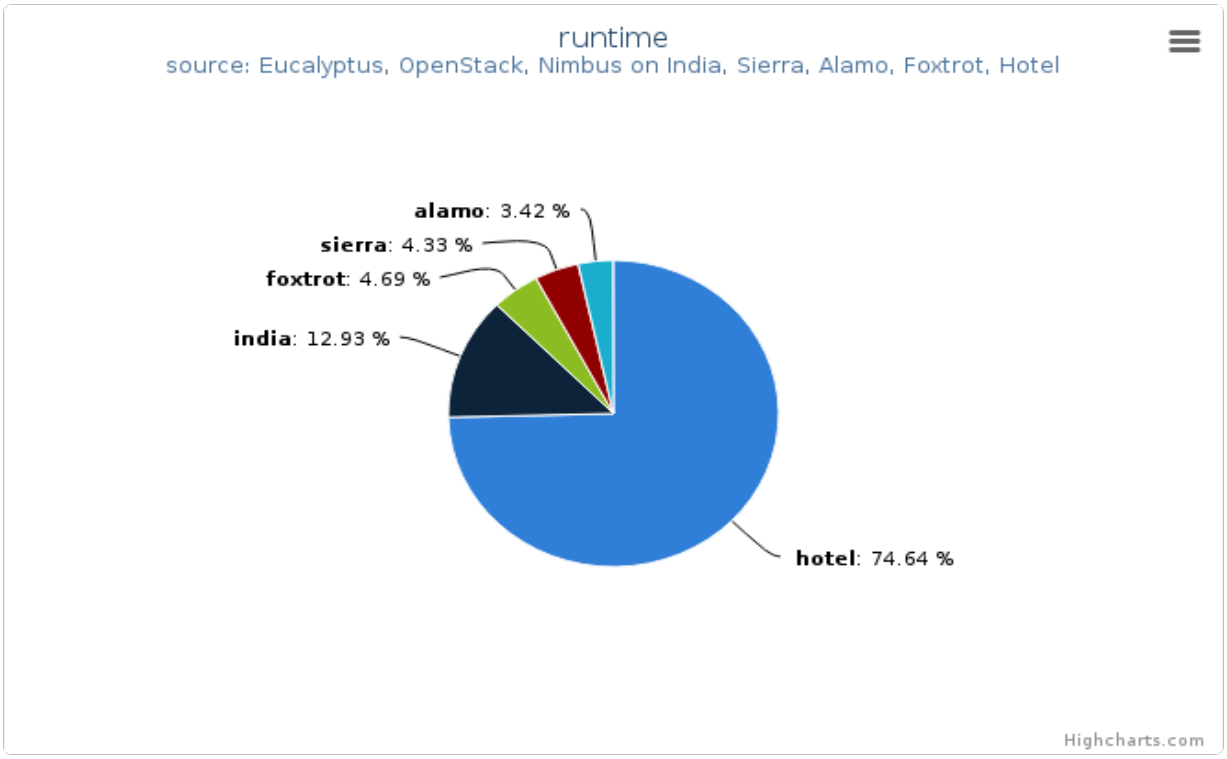

Figure 1. Wall time (hours) by Clusters
This chart represents overall usage of wall time (hours).

- Period: January 01 – March 31, 2012
- **Cloud:**
  - india: Eucalyptus, Openstack
  - sierra: Eucalyptus, Nimbus
  - hotel: Nimbus
  - alamo: Nimbus
  - foxtrot: Nimbus

Table 1.1: Wall time (hours) by Clusters

Total	Value
hotel	122617.0
india	21245.0
foxtrot	7702.0
sierra	7110.0
alamo	5611.0

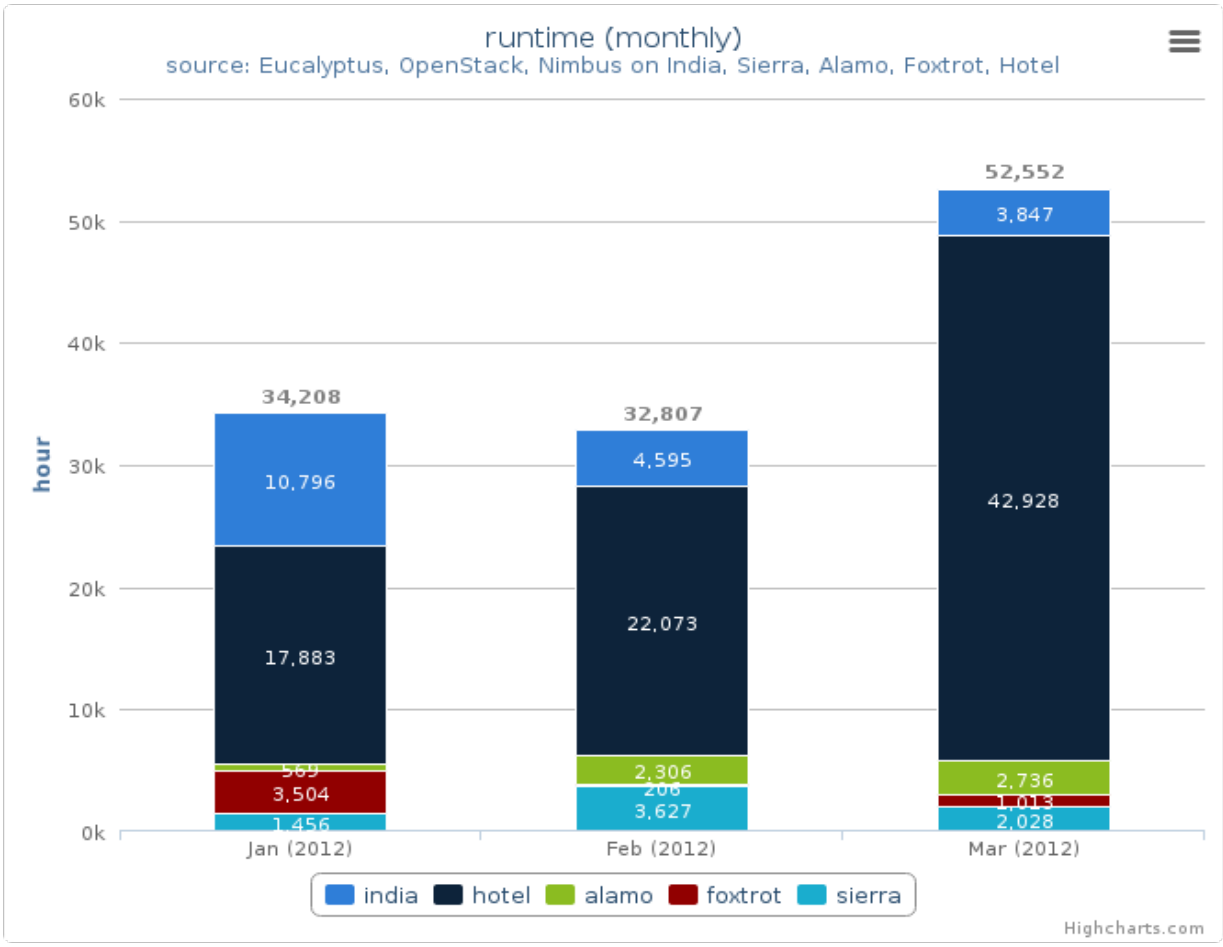

Figure 2. Wall time (hours) by Clusters (monthly)
This stacked column chart represents average monthly usage of wall time (hours).

- Period: January 01 – March 31, 2012
- **Cloud:**
  - india: Eucalyptus, Openstack
  - sierra: Eucalyptus, Nimbus
  - hotel: Nimbus
  - alamo: Nimbus
  - foxtrot: Nimbus

1.2 VM Count by Clusters (Total, monthly)

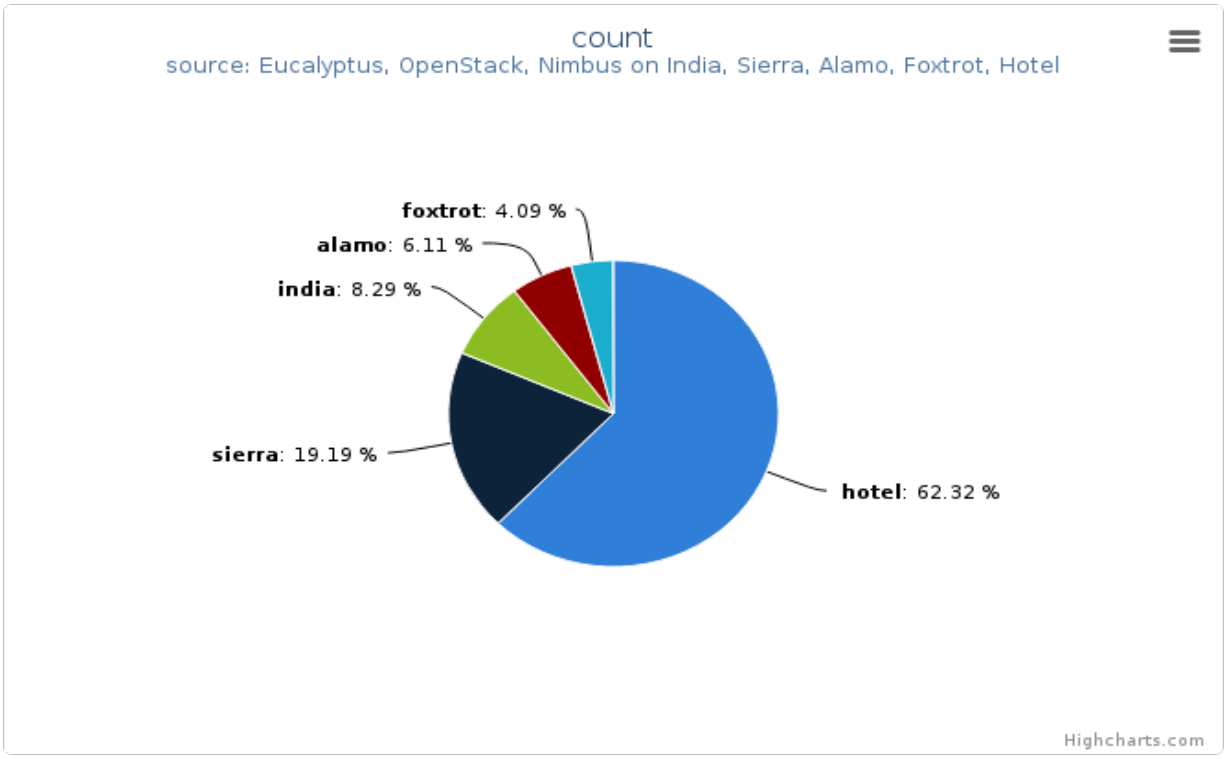

Figure 3. VMs count by Clusters
This chart represents overall VM instances count during the period.

- Period: January 01 – March 31, 2012
- **Cloud:**
  - india: Eucalyptus, Openstack
  - sierra: Eucalyptus, Nimbus
  - hotel: Nimbus
  - alamo: Nimbus
  - foxtrot: Nimbus

Table 1.2: VM instance count by Clusters

Total	Value
hotel	10350
sierra	3187
india	1376
alamo	1014
foxtrot	680

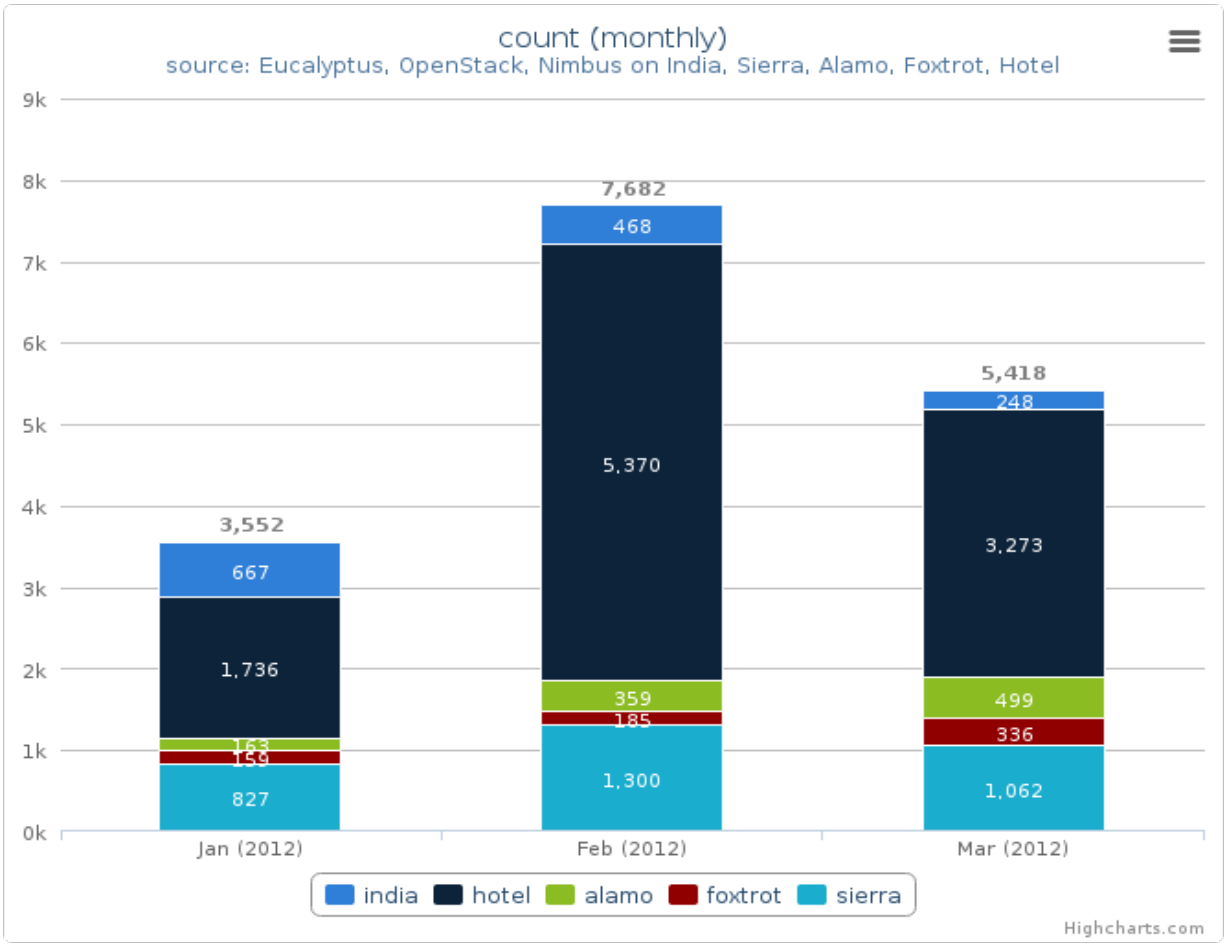

Figure 4. VMs count by Clusters (monthly)
This stacked column chart represents average VM instances count per month.

- Period: January 01 – March 31, 2012
- **Cloud:**
  - india: Eucalyptus, Openstack
  - sierra: Eucalyptus, Nimbus
  - hotel: Nimbus
  - alamo: Nimbus
  - foxtrot: Nimbus

1.3 Users Count by Clusters (Total, monthly)

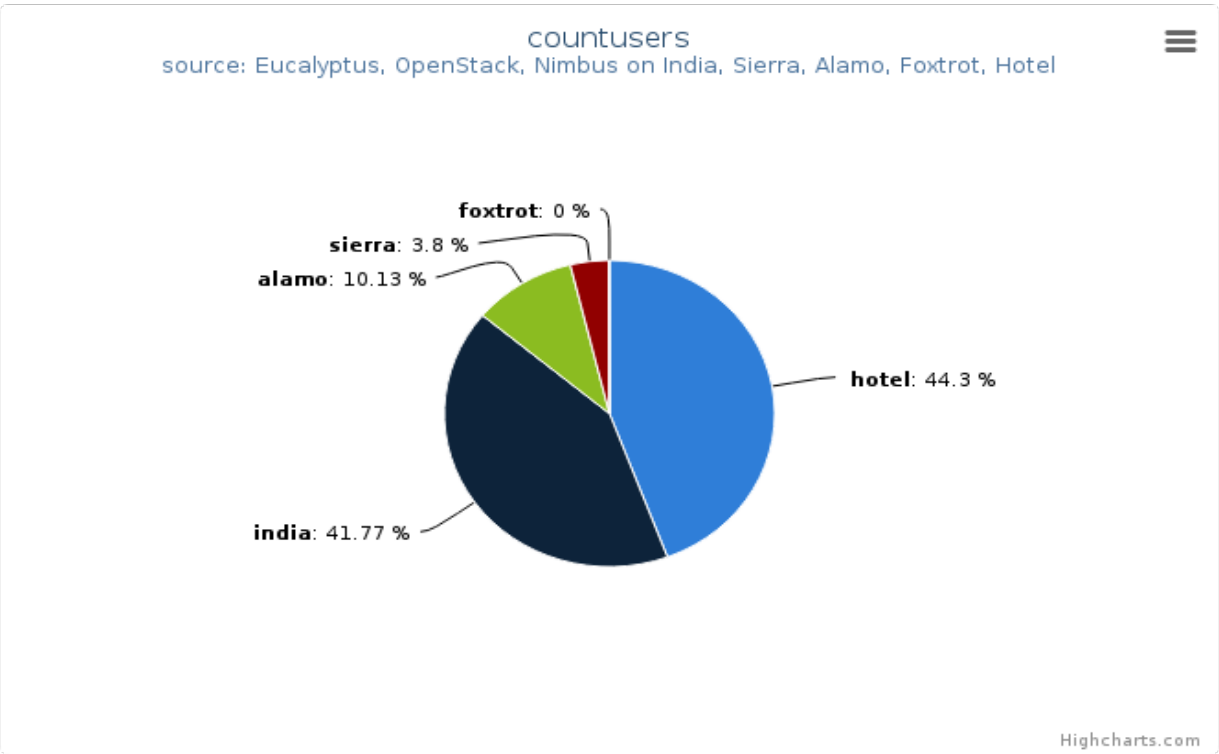

Figure 5. Users count by Clusters
This chart represents total number of active users.

- Period: January 01 – March 31, 2012
- **Cloud:**
  - india: Eucalyptus, Openstack
  - sierra: Eucalyptus, Nimbus
  - hotel: Nimbus
  - alamo: Nimbus
  - foxtrot: Nimbus

Table 1.3: User count by Clusters

Total	Value
hotel	35
india	33
alamo	8
sierra	3
foxtrot	0

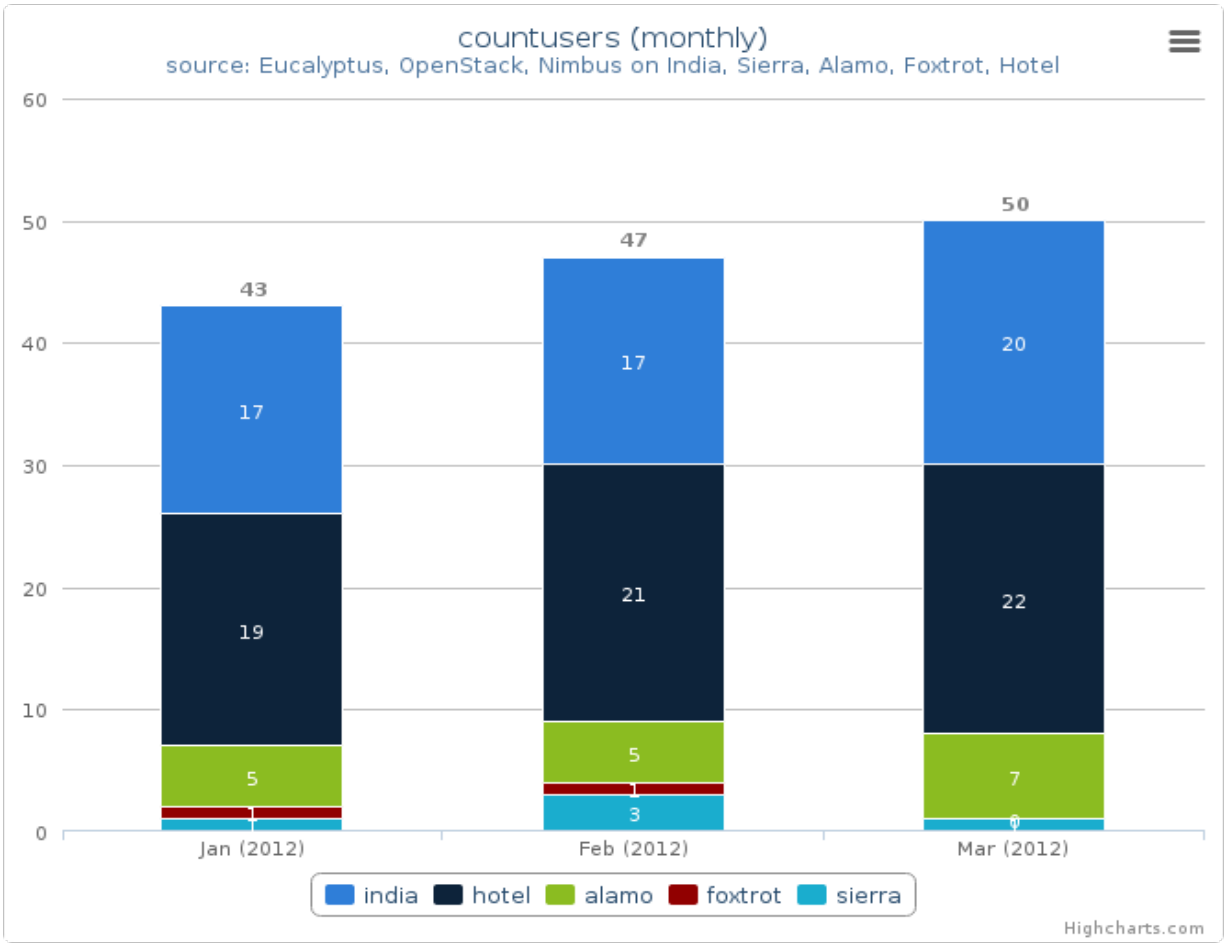

Figure 6. Users count by Clusters (Monthly)
This stacked column chart represents average count of active users per month.

- Period: January 01 – March 31, 2012
- **Cloud:**
  - india: Eucalyptus, Openstack
  - sierra: Eucalyptus, Nimbus
  - hotel: Nimbus
  - alamo: Nimbus
  - foxtrot: Nimbus

CHAPTER

TWO

USAGE REPORT SIERRA

- Period: January 01 – March 31, 2012
- Hostname: sierra.futuregrid.org
- Services: nimbus, eucalyptus
- Metrics: VMs count, Users count, Wall time (hours), Distribution by wall time, project, project leader, and institution, and systems

2.1 Histogram

2.1.1 Summary (Monthly)

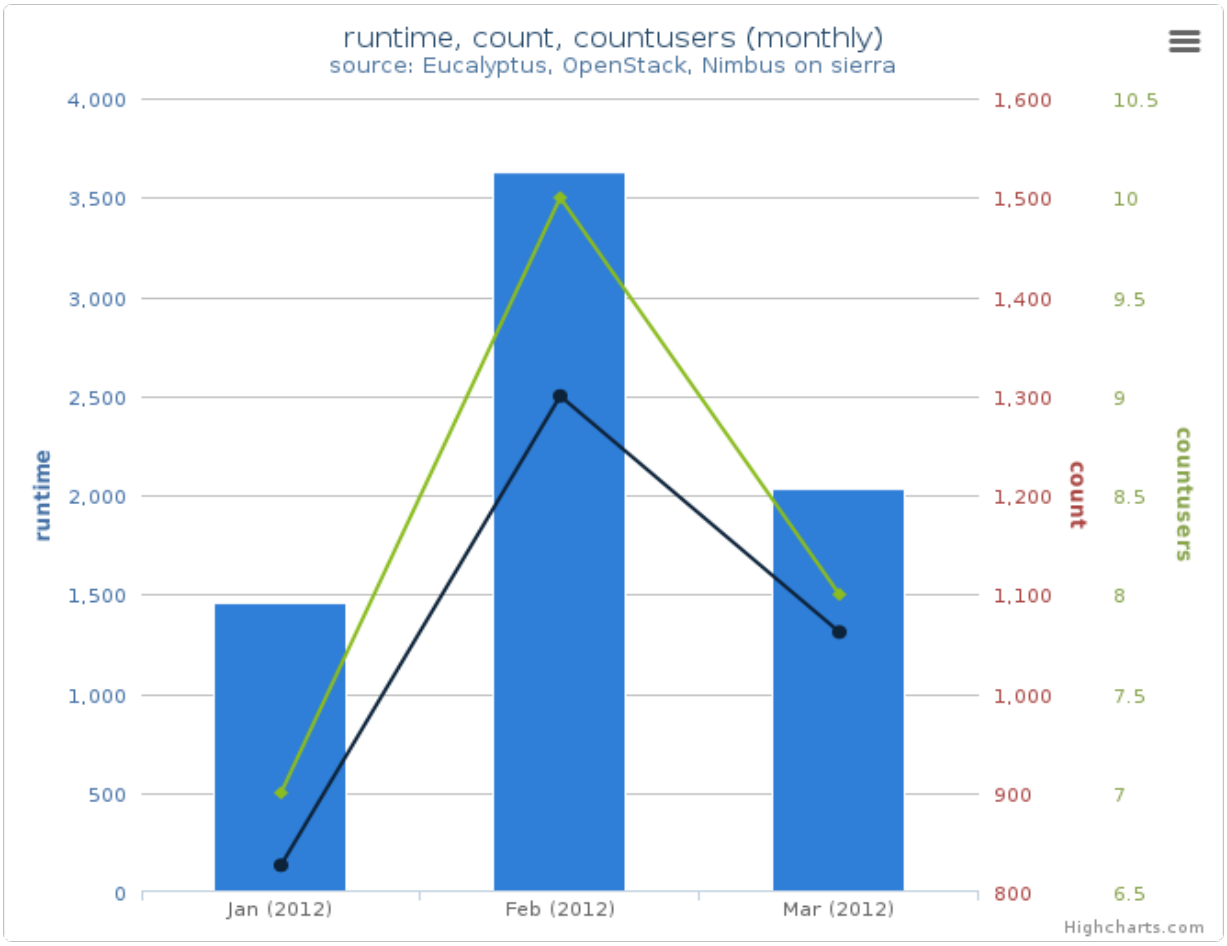

Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)
This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus, eucalyptus
- Hostname: sierra
- **Metric:**
  - Runtime (Wall time hours): Sum of time elapsed from launch to termination of VM instances
  - Count (VM count): The number of launched VM instances
  - User count (Active): The number of users who launched VMs

2.1.2 Summary (Daily)

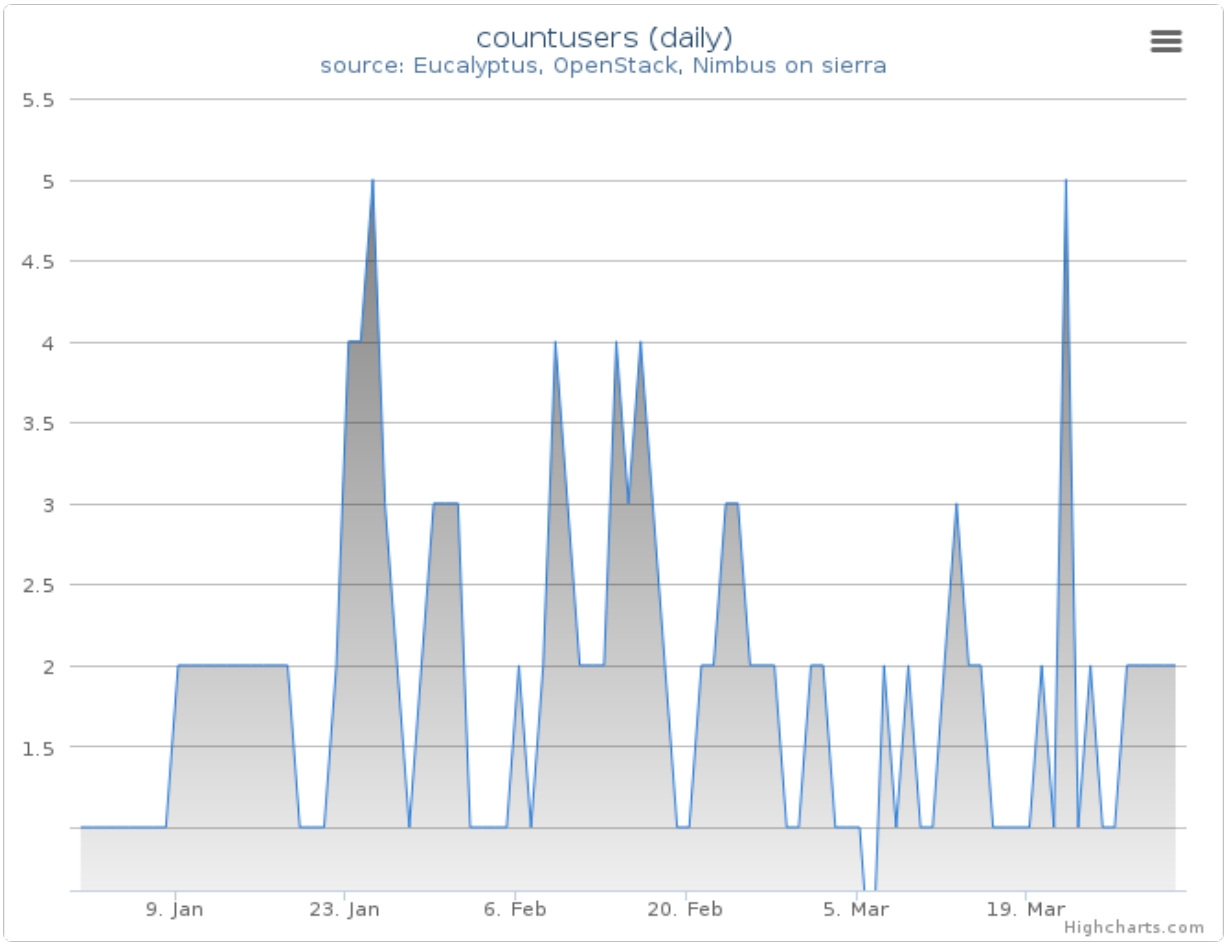

Figure 2: Users count

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus, eucalyptus
- Hostname: sierra

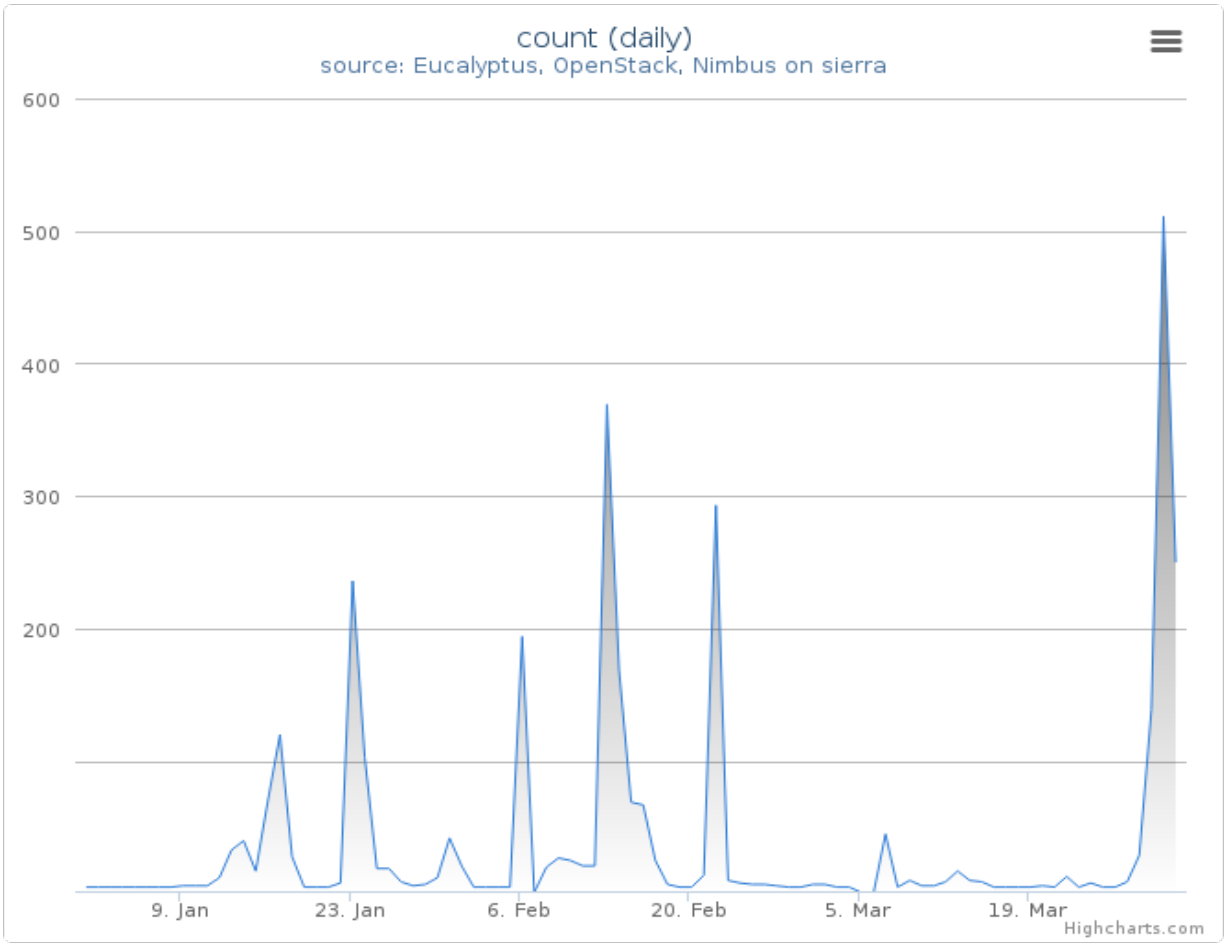

Figure 3: VMs count

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus, eucalyptus
- Hostname: sierra

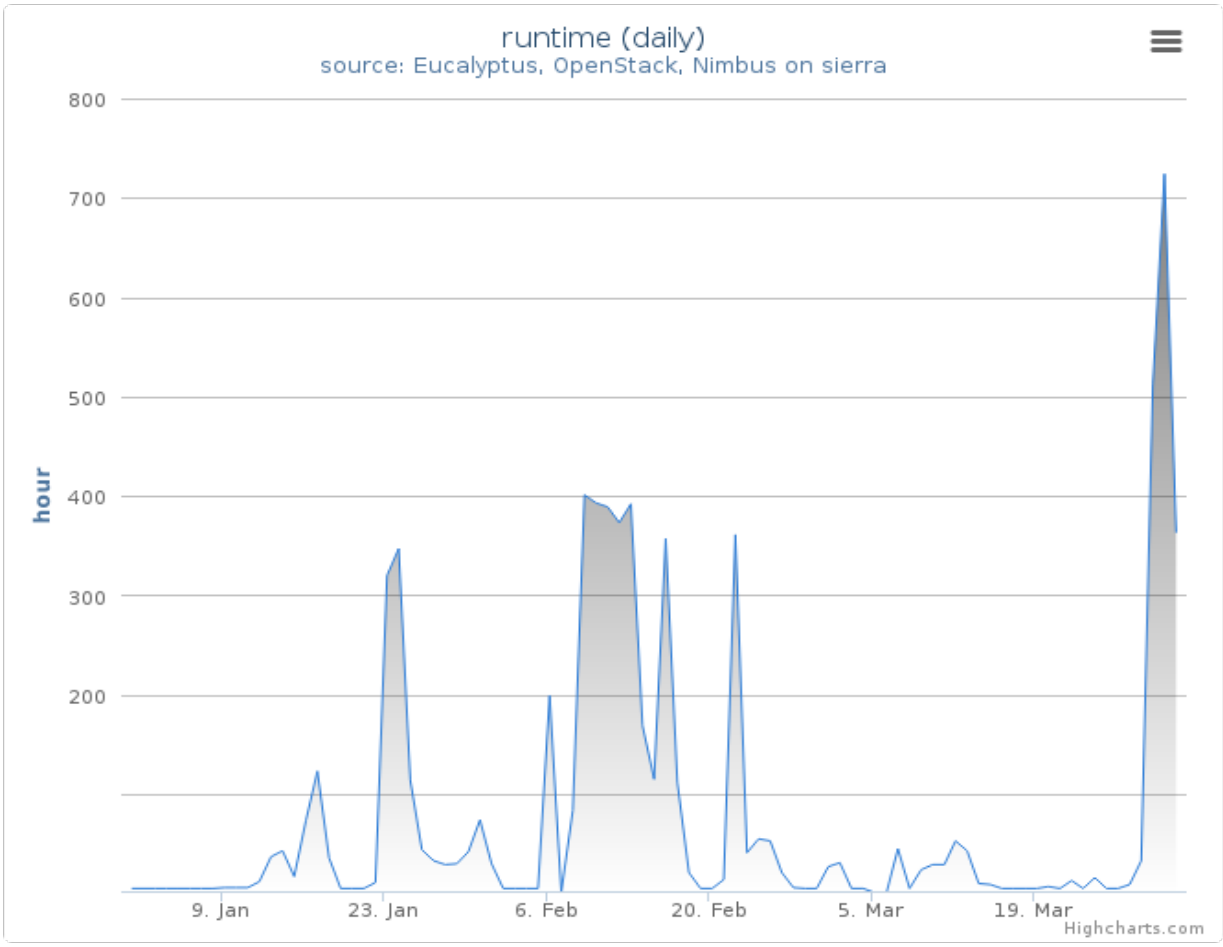

Figure 4: Wall time (hours)

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus, eucalyptus
- Hostname: sierra

2.2 Distribution

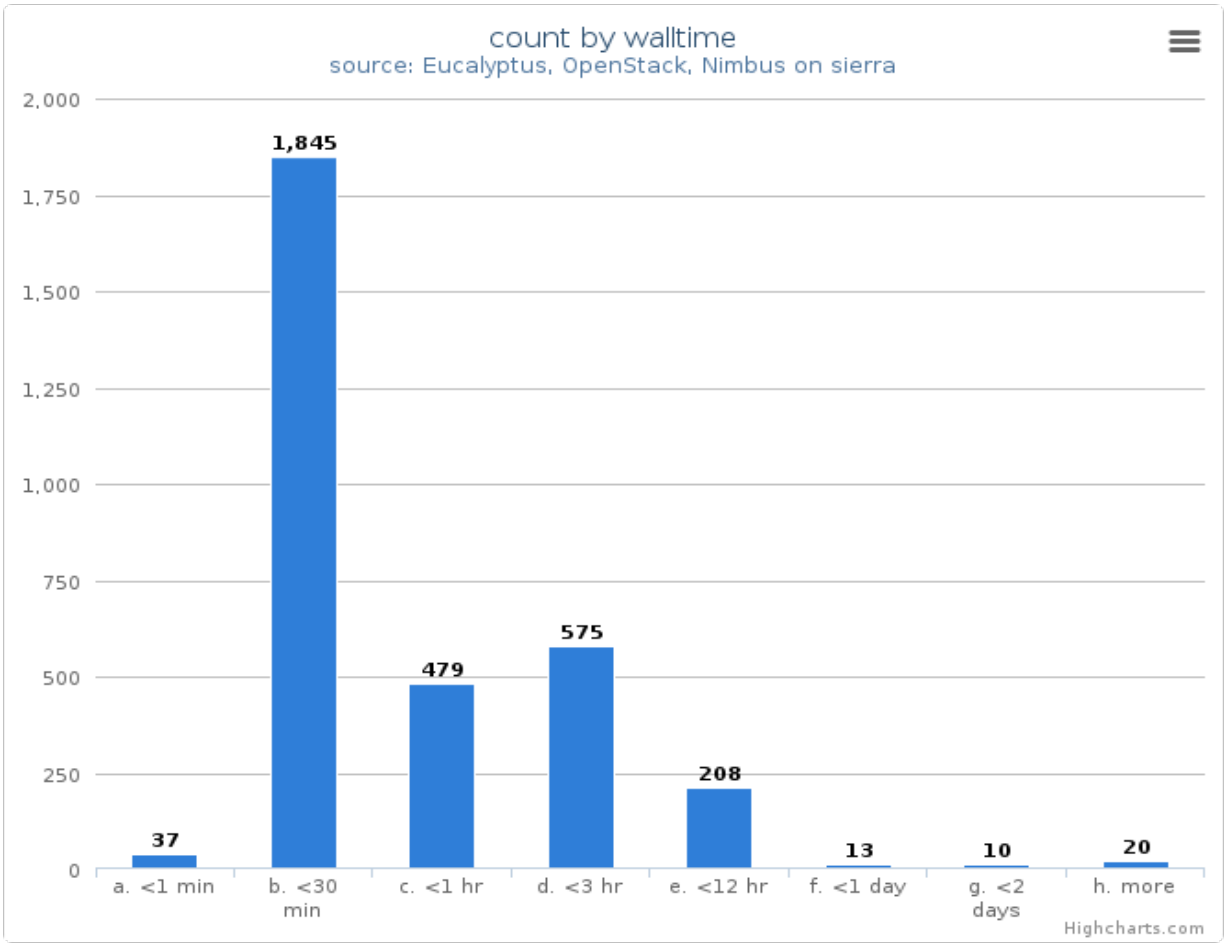

Figure 5: VM count by wall time
This chart illustrates usage patterns of VM instances in terms of running wall time.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus, eucalyptus
- Hostname: sierra

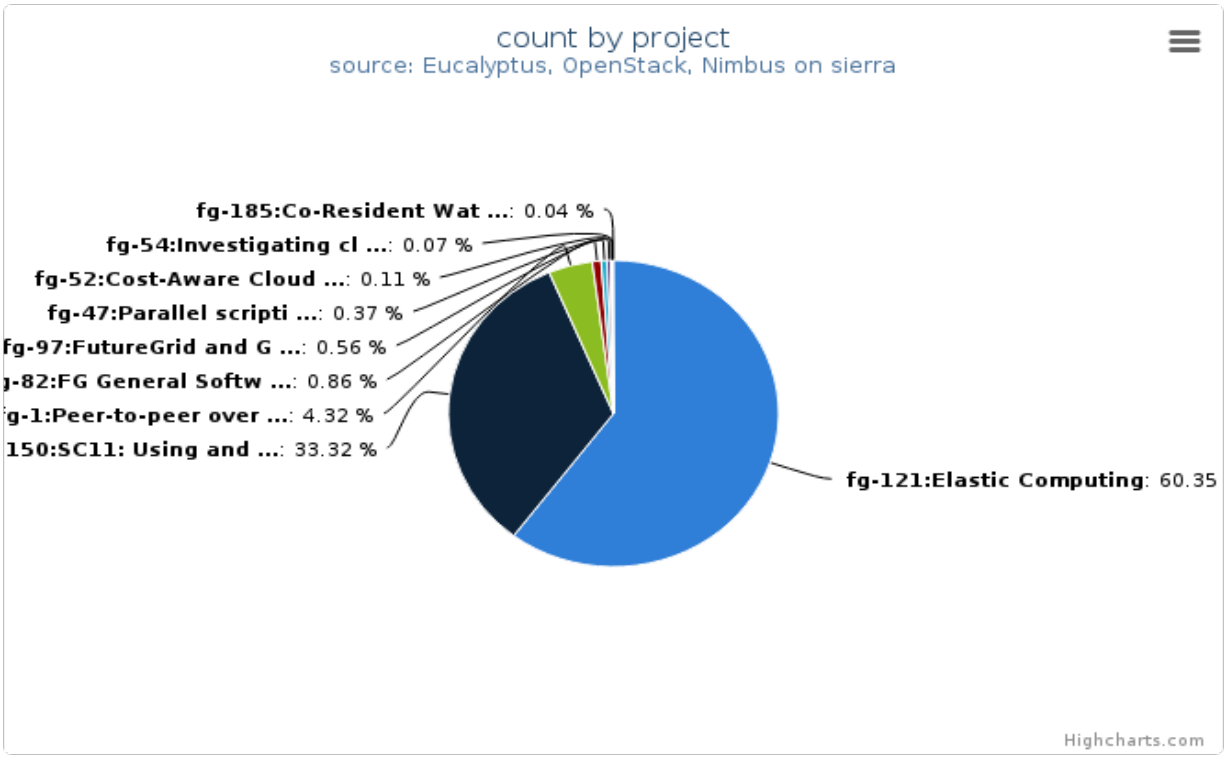

Figure 6: VMs count by project

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus, eucalyptus
- Hostname: sierra

Table 2.1: VMs count by project

Project	Value
fg-121:Elastic Computing	1621
fg-150:SC11: Using and Building Infrastructure Clouds for Science	895
fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters	116
fg-82:FG General Software Development	23
fg-97:FutureGrid and Grid‘5000 Collaboration	15
fg-47:Parallel scripting using cloud resources	10
fg-52:Cost-Aware Cloud Computing	3
fg-54:Investigating cloud computing as a solution for analyzing particle physics data	2
fg-185:Co-Resident Watermarking	1

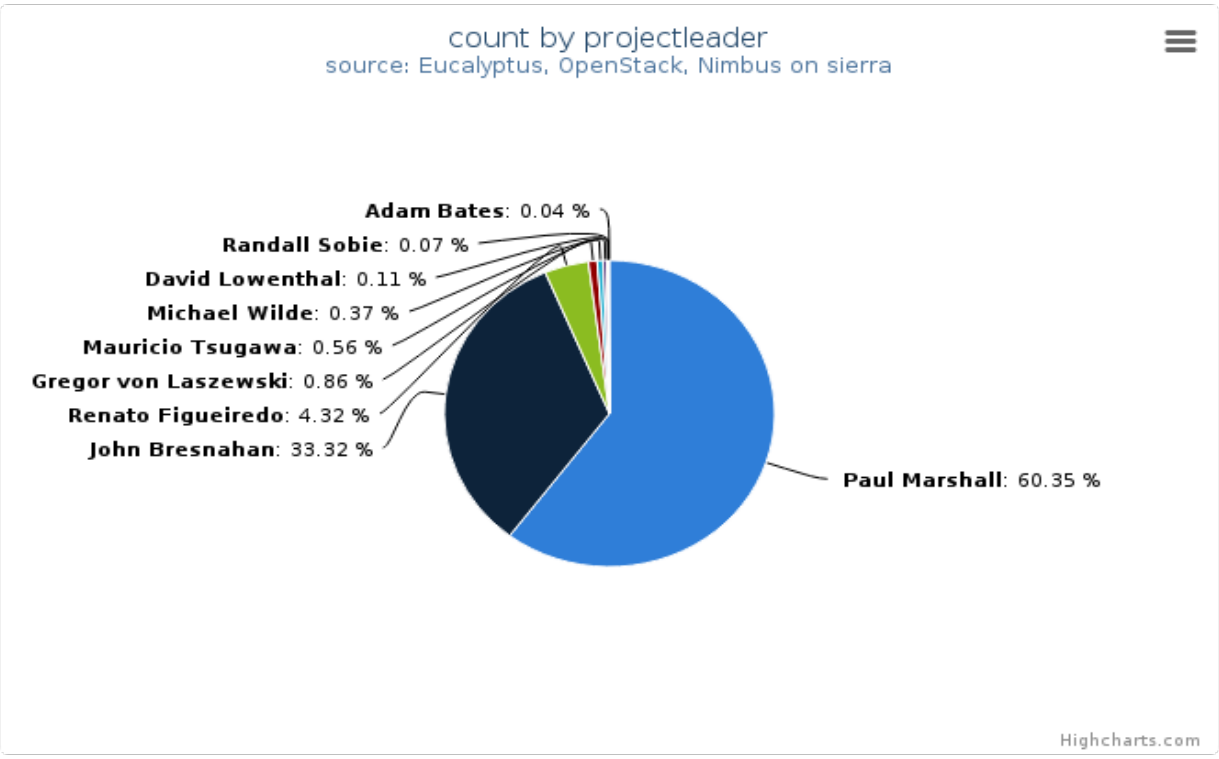

Figure 7: VMs count by project leader

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus, eucalyptus
- Hostname: sierra

Table 2.2: VMs count by project leader

Projectleader	Value
Paul Marshall	1621
John Bresnahan	895
Renato Figueiredo	116
Gregor von Laszewski	23
Mauricio Tsugawa	15
Michael Wilde	10
David Lowenthal	3
Randall Sobie	2
Adam Bates	1

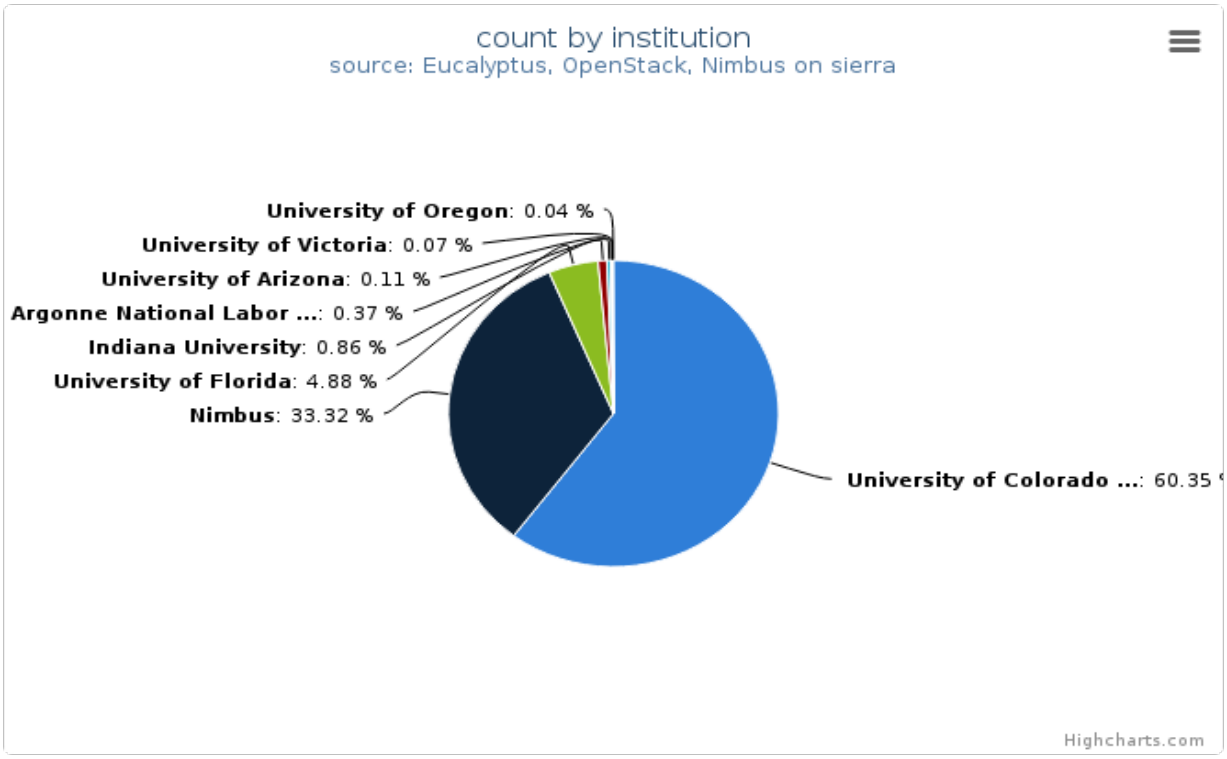

Figure 8: VMs count by institution
This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus, eucalyptus
- Hostname: sierra

Table 2.3: VMs count by institution

Institution	Value
University of Colorado at Boulder	1621
Nimbus	895
University of Florida	131
Indiana University	23
Argonne National Laboratory	10
University of Arizona	3
University of Victoria	2
University of Oregon	1

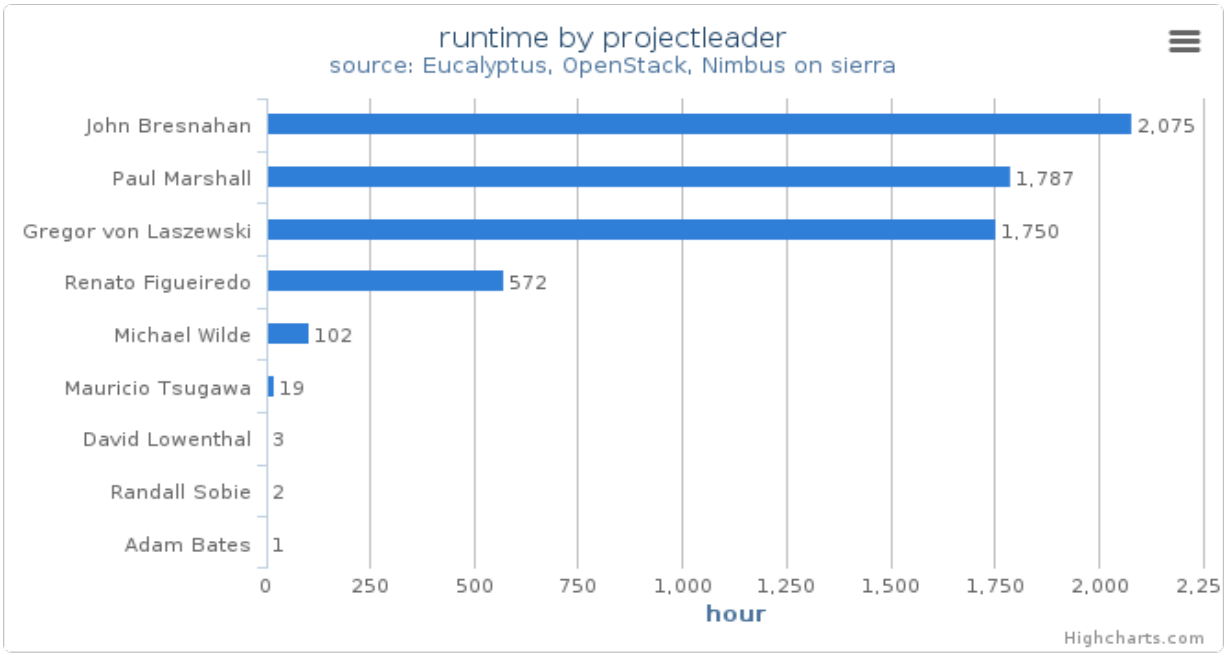

Figure 9: Wall time (hours) by project leader
This chart illustrates proportionate total run times by project leader.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus, eucalyptus
- Hostname: sierra

2.3 System information

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

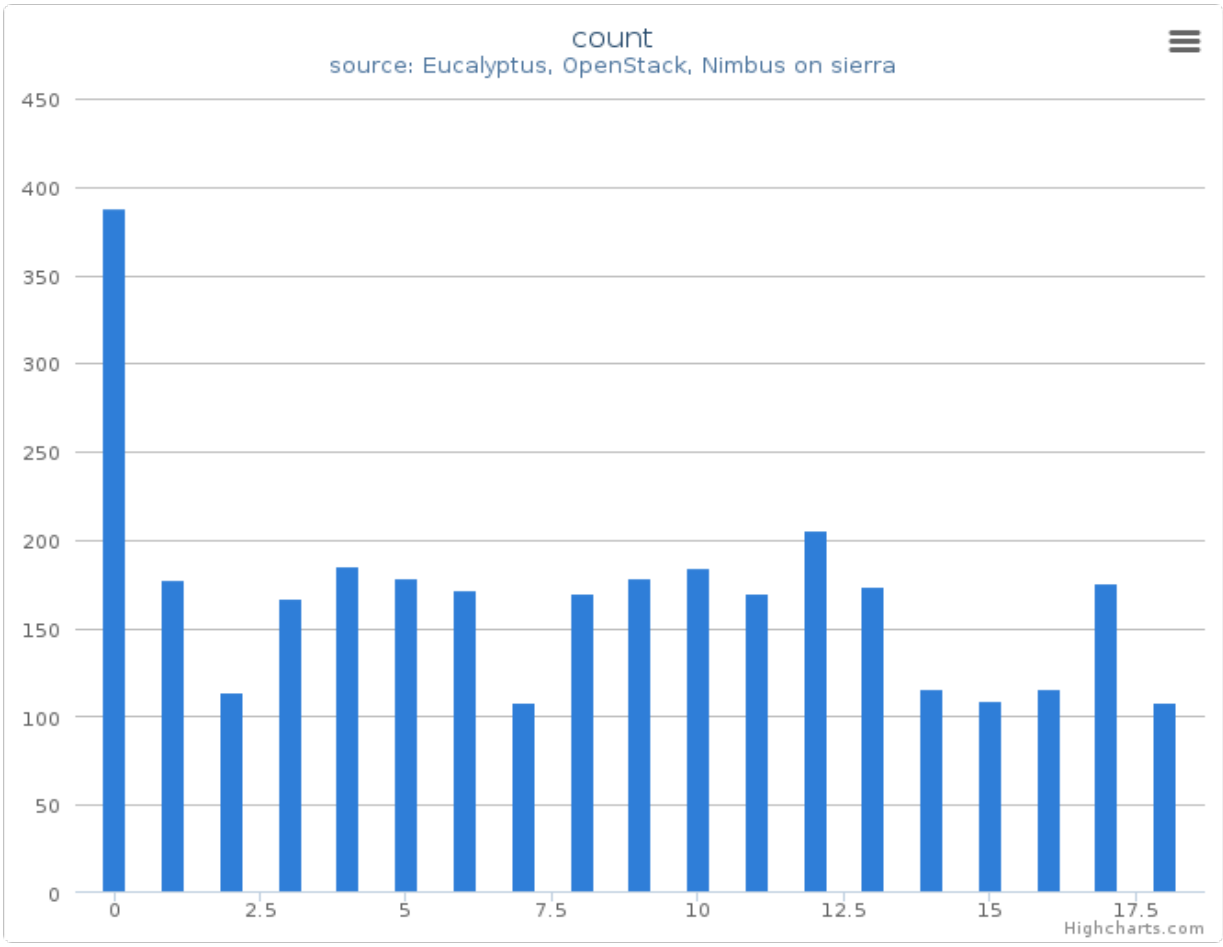

Figure 10: VMs count by systems (compute nodes) in Cluster (sierra)
This column chart represents VMs count among systems.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus, eucalyptus
- Hostname: sierra

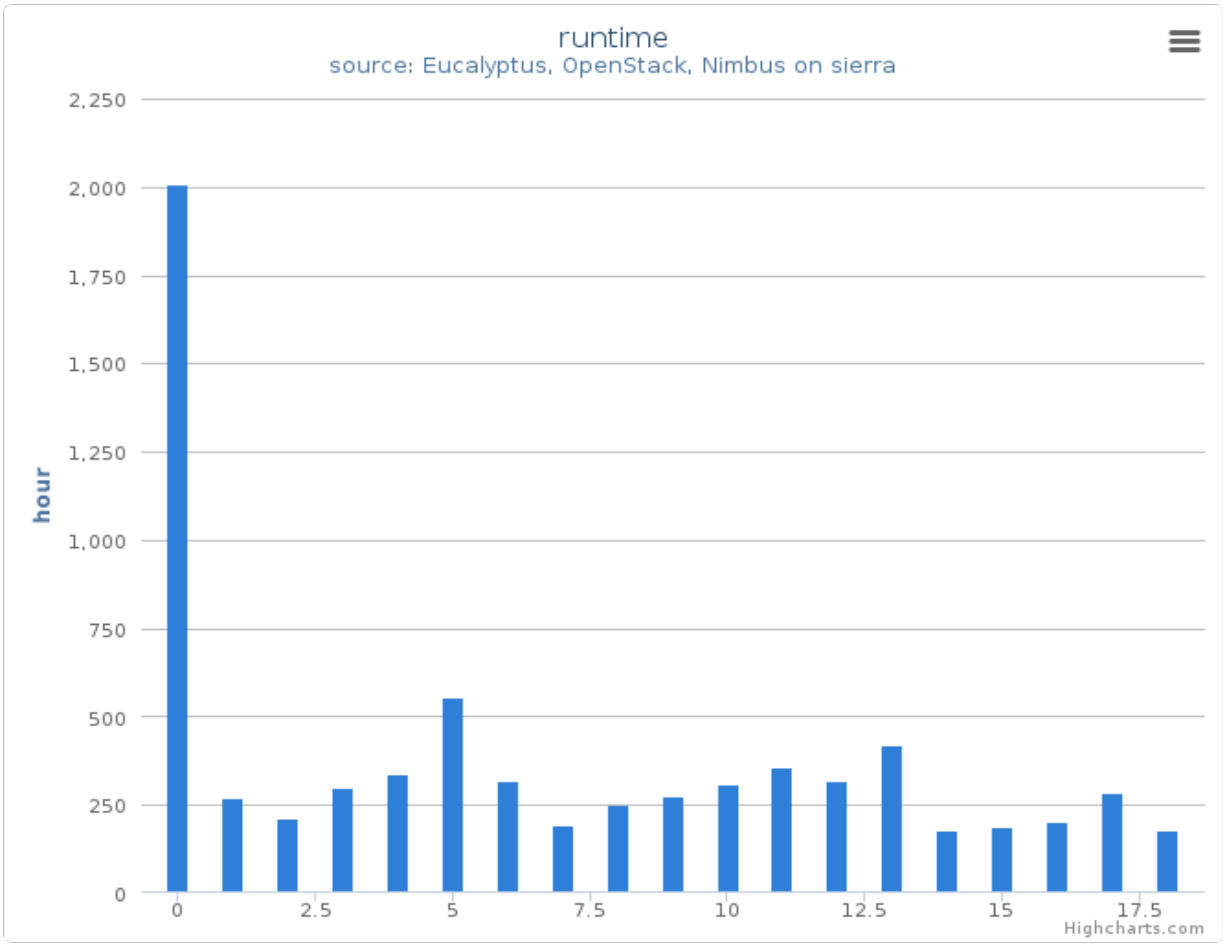

Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (sierra)
This column chart represents wall time among systems.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus, eucalyptus
- Hostname: sierra

CHAPTER

THREE

USAGE REPORT INDIA

- Period: January 01 – March 31, 2012
- Hostname: india.futuregrid.org
- Services: openstack, eucalyptus
- Metrics: VMs count, Users count, Wall time (hours), Distribution by wall time, project, project leader, and institution, and systems

3.1 Histogram

3.1.1 Summary (Monthly)

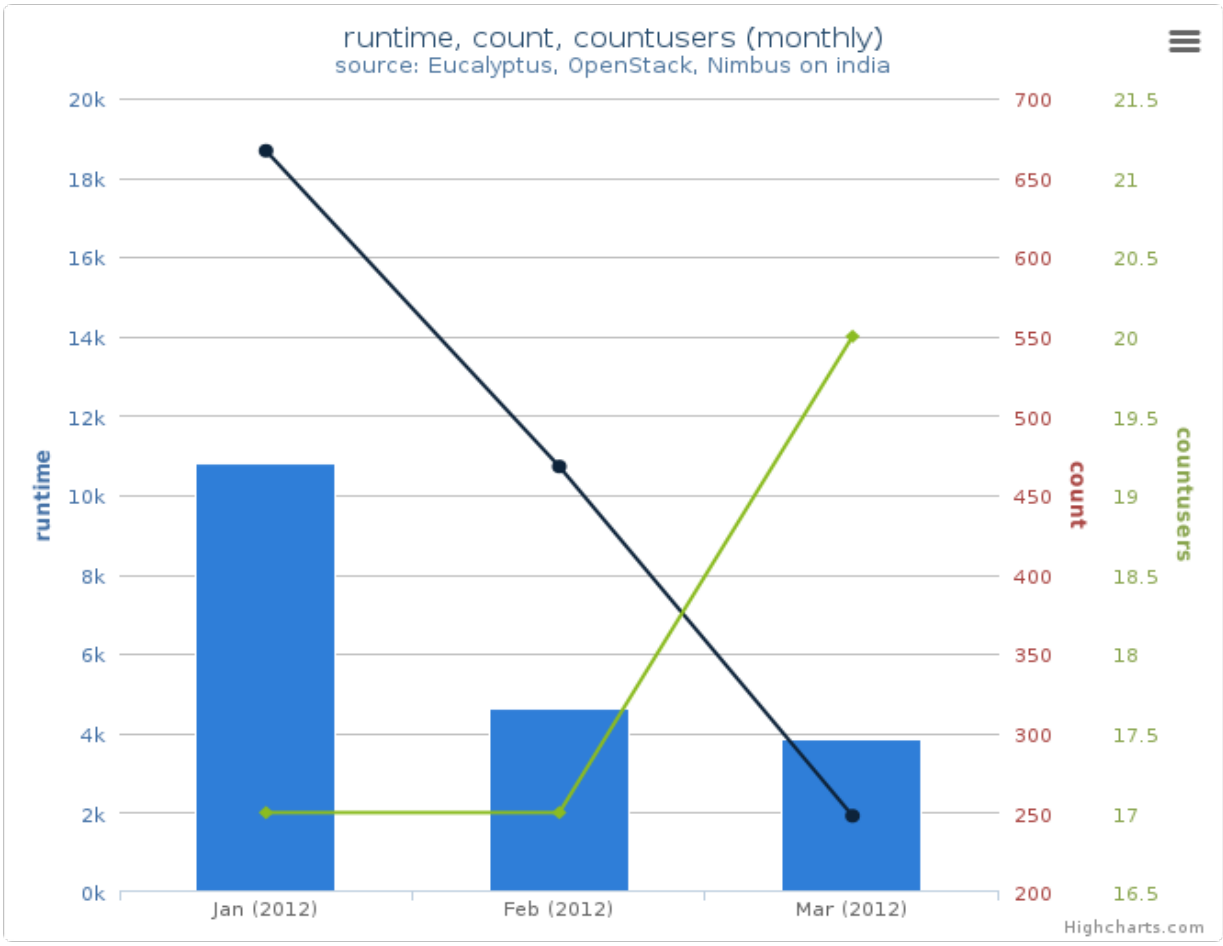

Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)
This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india
- **Metric:**
  - Runtime (Wall time hours): Sum of time elapsed from launch to termination of VM instances
  - Count (VM count): The number of launched VM instances
  - User count (Active): The number of users who launched VMs

3.1.2 Summary (Daily)

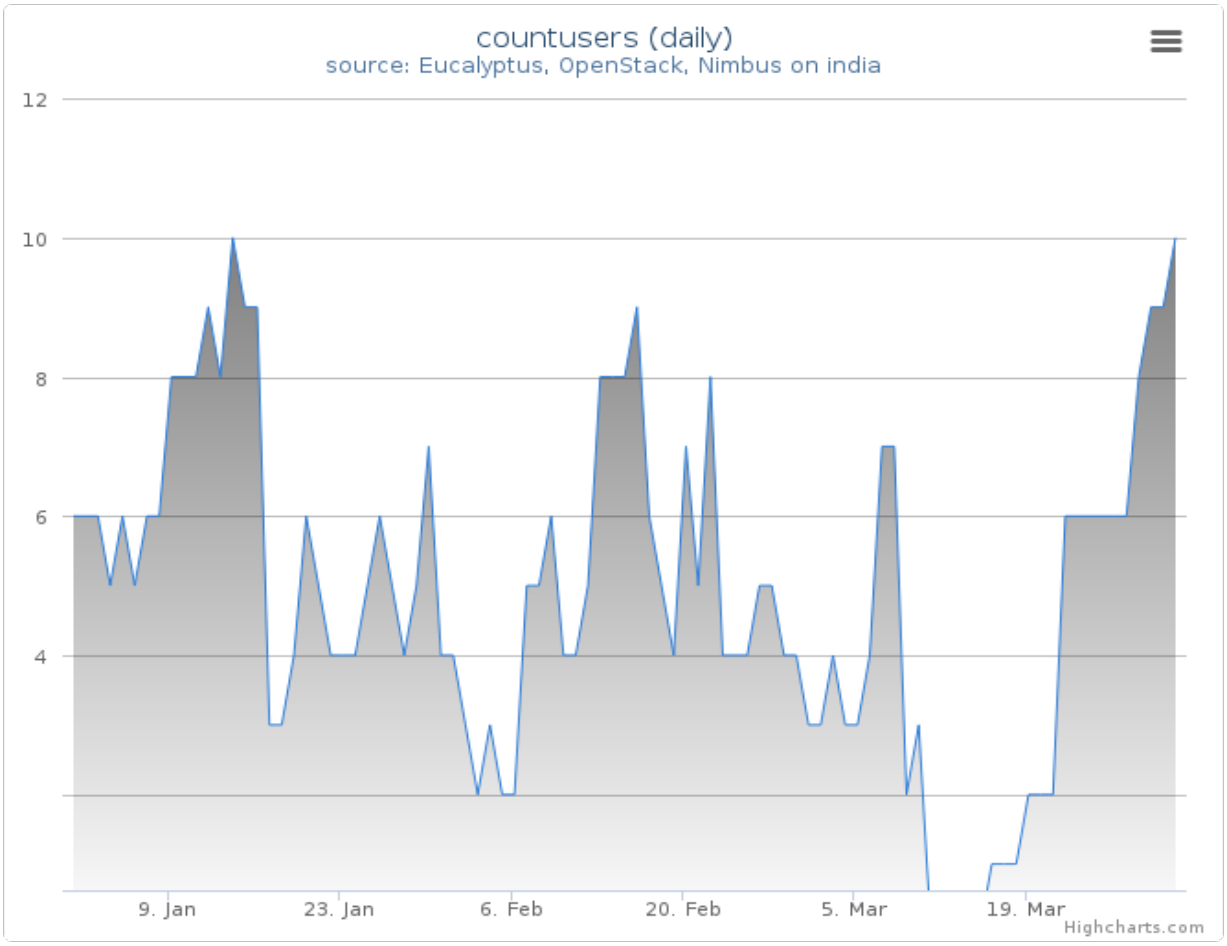

Figure 2: Users count

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

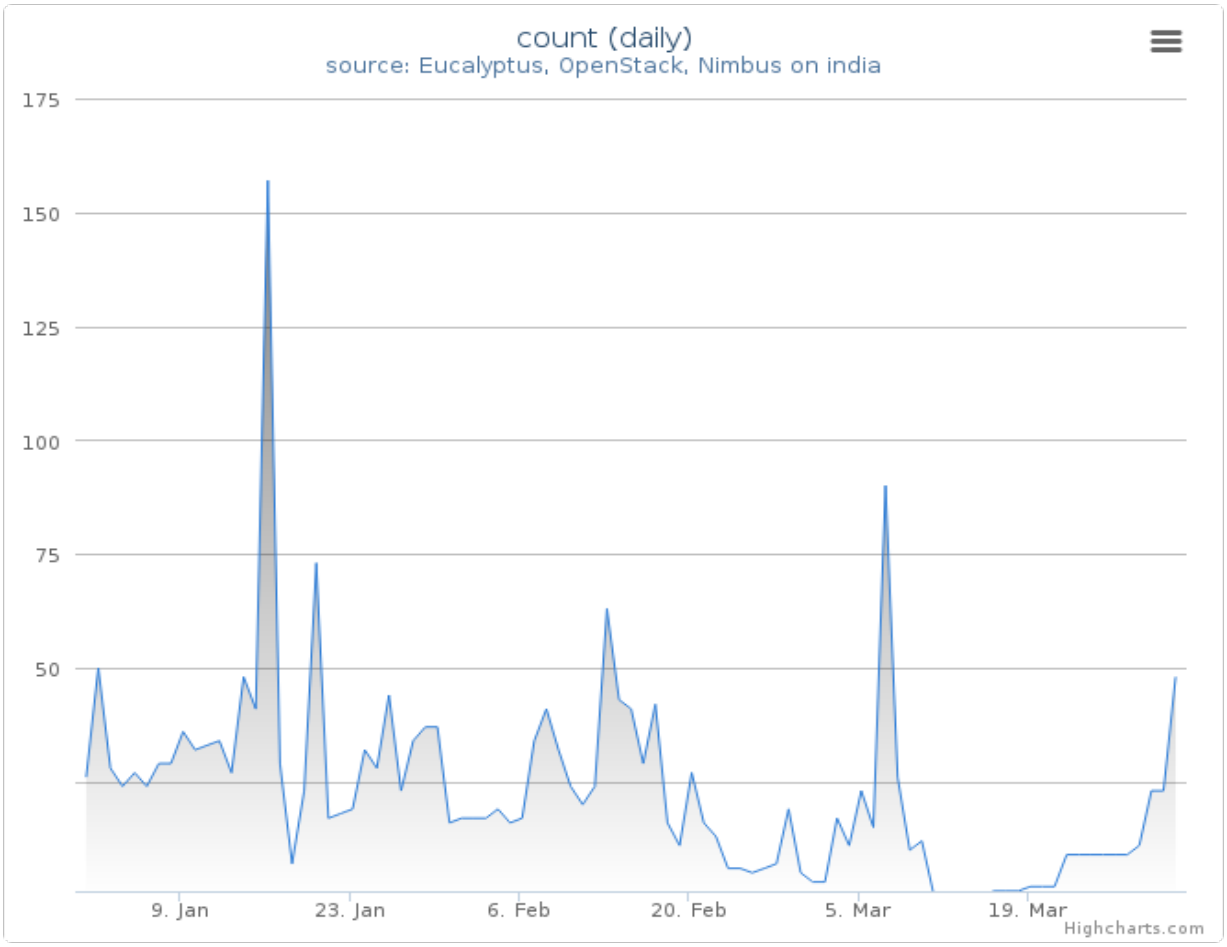

Figure 3: VMs count

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

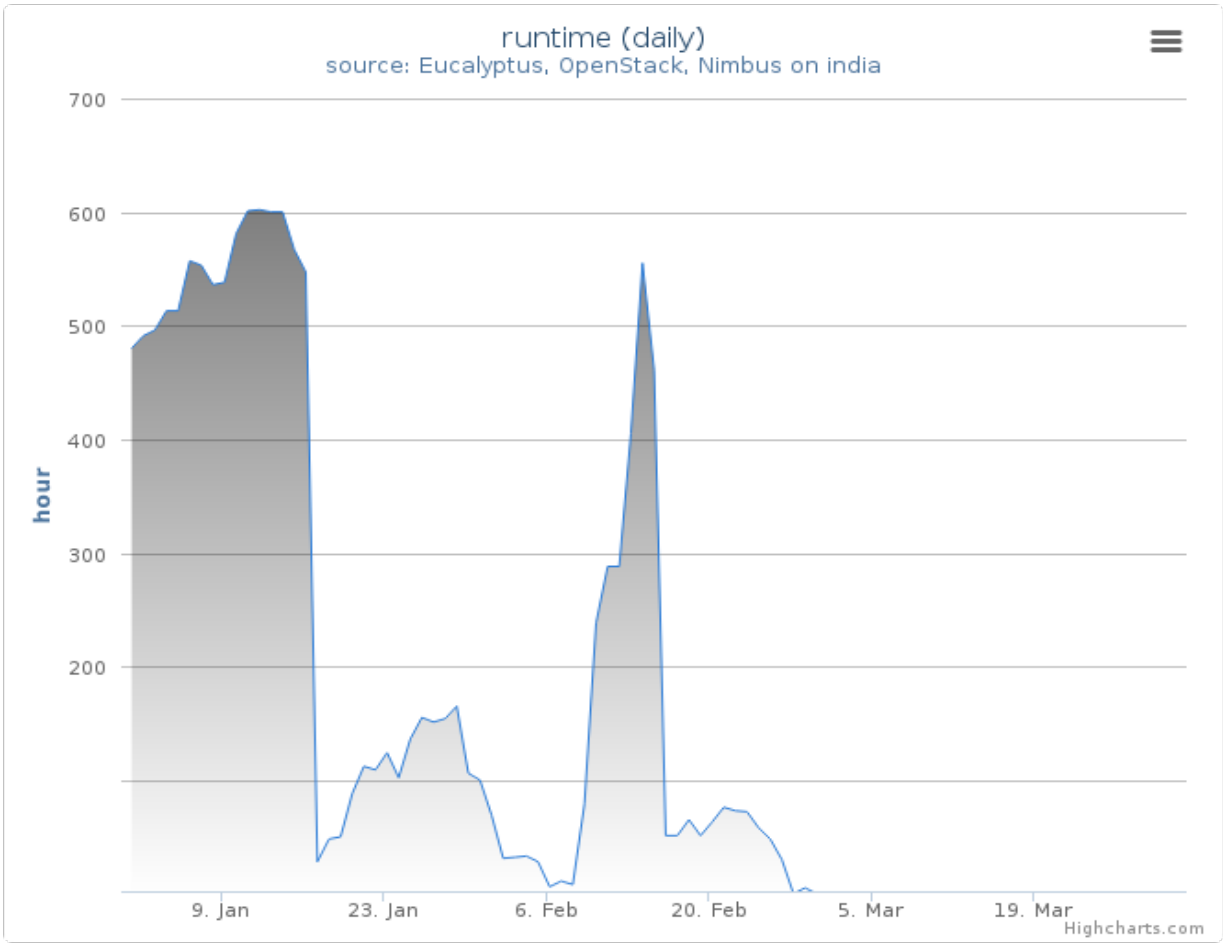

Figure 4: Wall time (hours)

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

3.2 Distribution

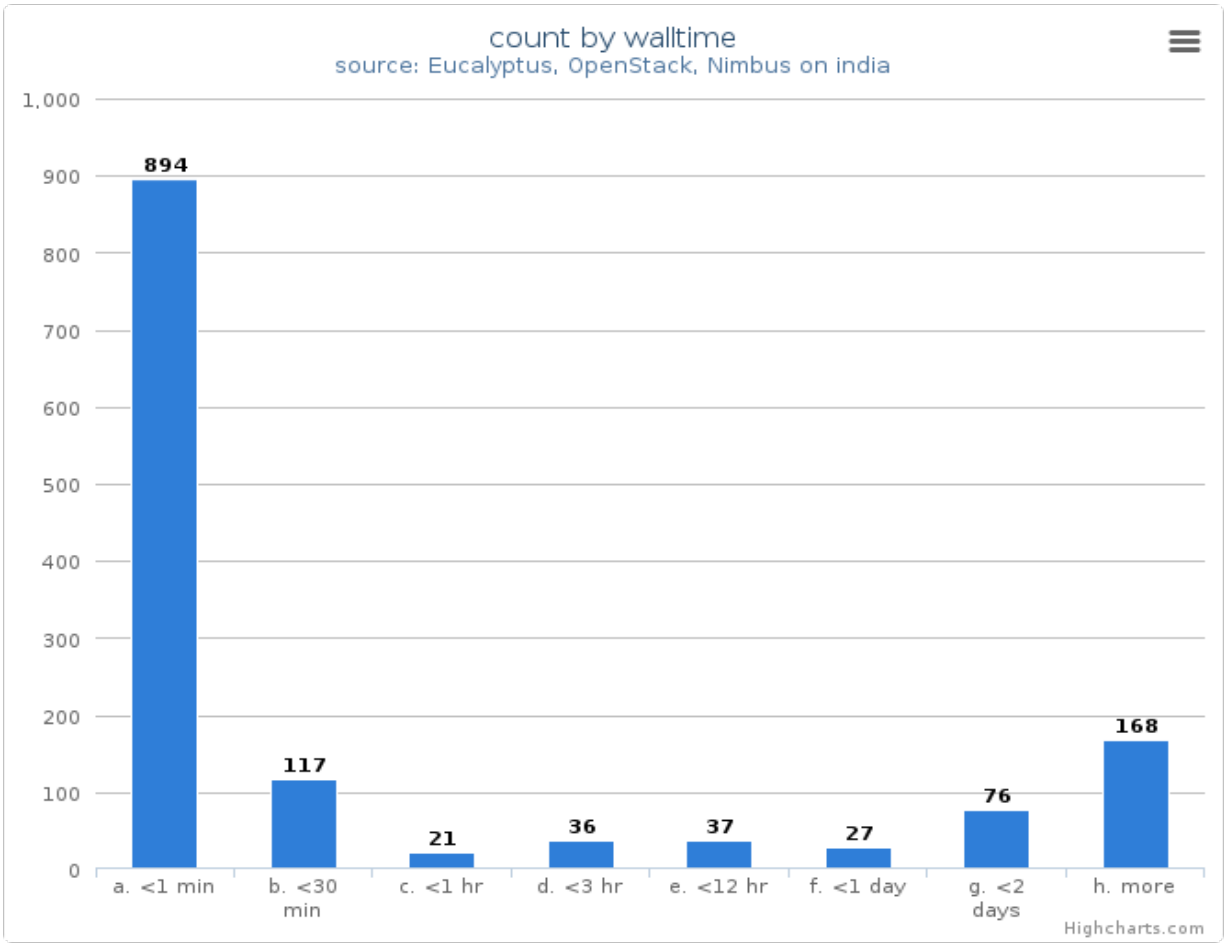

Figure 5: VM count by wall time
This chart illustrates usage patterns of VM instances in terms of running wall time.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

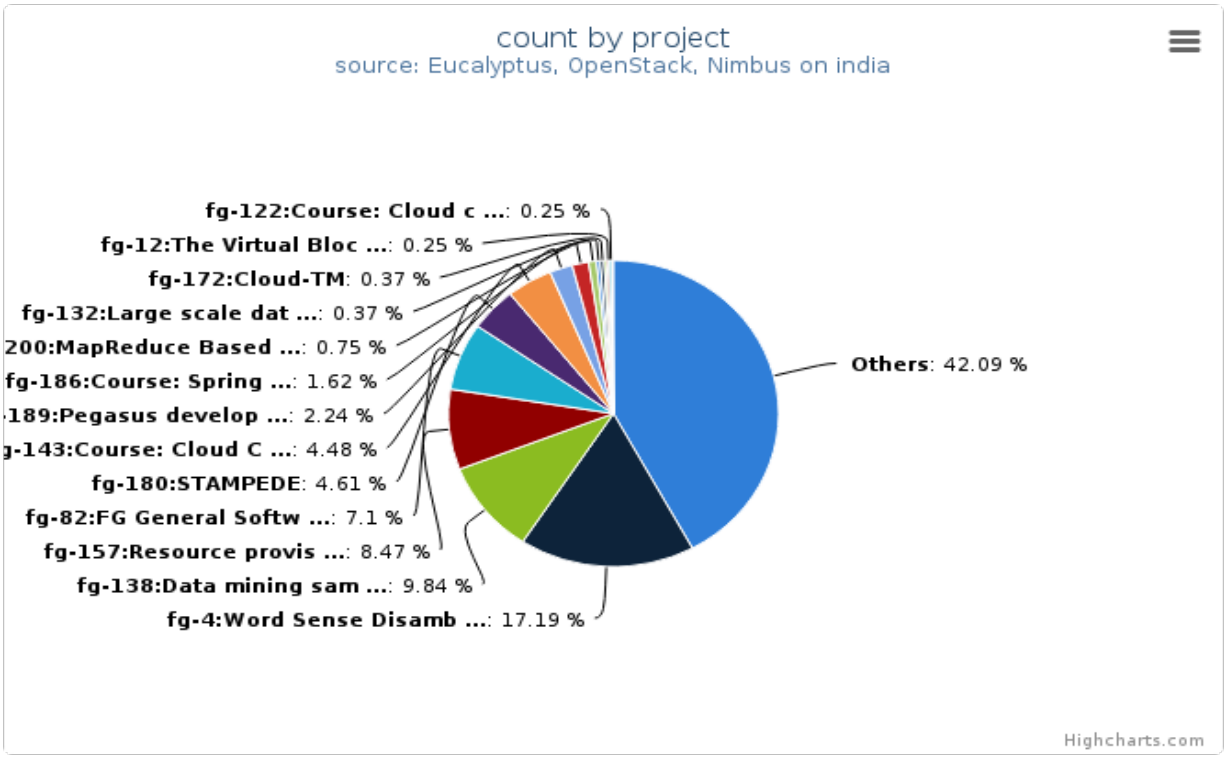

Figure 6: VMs count by project

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

Table 3.1: VMs count by project

Project	Value
Others	338
fg-4:Word Sense Disambiguation for Web 2.0 Data	138
fg-138:Data mining samples based on Twister	79
fg-157:Resource provisioning for e-Science environments	68
fg-82:FG General Software Development	57
fg-180:STAMPEDE	37
fg-143:Course: Cloud Computing for Data Intensive Science Class	36
fg-189:Pegasus development and improvement platform	18
fg-186:Course: Spring 2012 B534 Distributed systems Graduate Course	13
fg-200:MapReduce Based Ray Tracing Class Project	6
fg-132:Large scale data analytics	3
fg-172:Cloud-TM	3
fg-15:Grid Appliance	2
fg-12:The Virtual Block Store system	2
fg-122:Course: Cloud computing class	2
fg-20:Development of an information service for FutureGrid	1

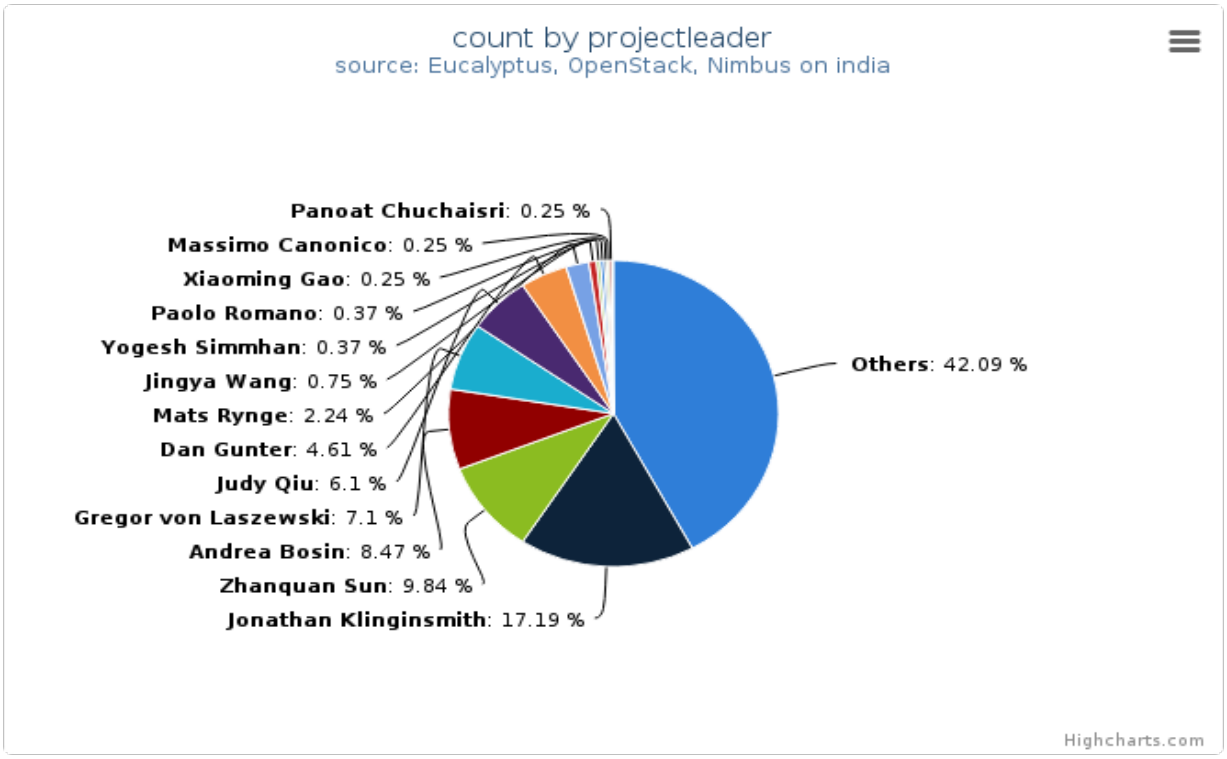

Figure 7: VMs count by project leader

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

- Period: January 01 – March 31, 2012

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

Table 3.2: VMs count by project leader

Projectleader	Value
Others	338
Jonathan Klinginsmith	138
Zhanquan Sun	79
Andrea Bosin	68
Gregor von Laszewski	57
Judy Qiu	49
Dan Gunter	37
Mats Rynge	18
Jingya Wang	6
Yogesh Simmhan	3
Paolo Romano	3
Xiaoming Gao	2
Massimo Canonico	2
Panoat Chuchaisri	2
Hyungro Lee	1

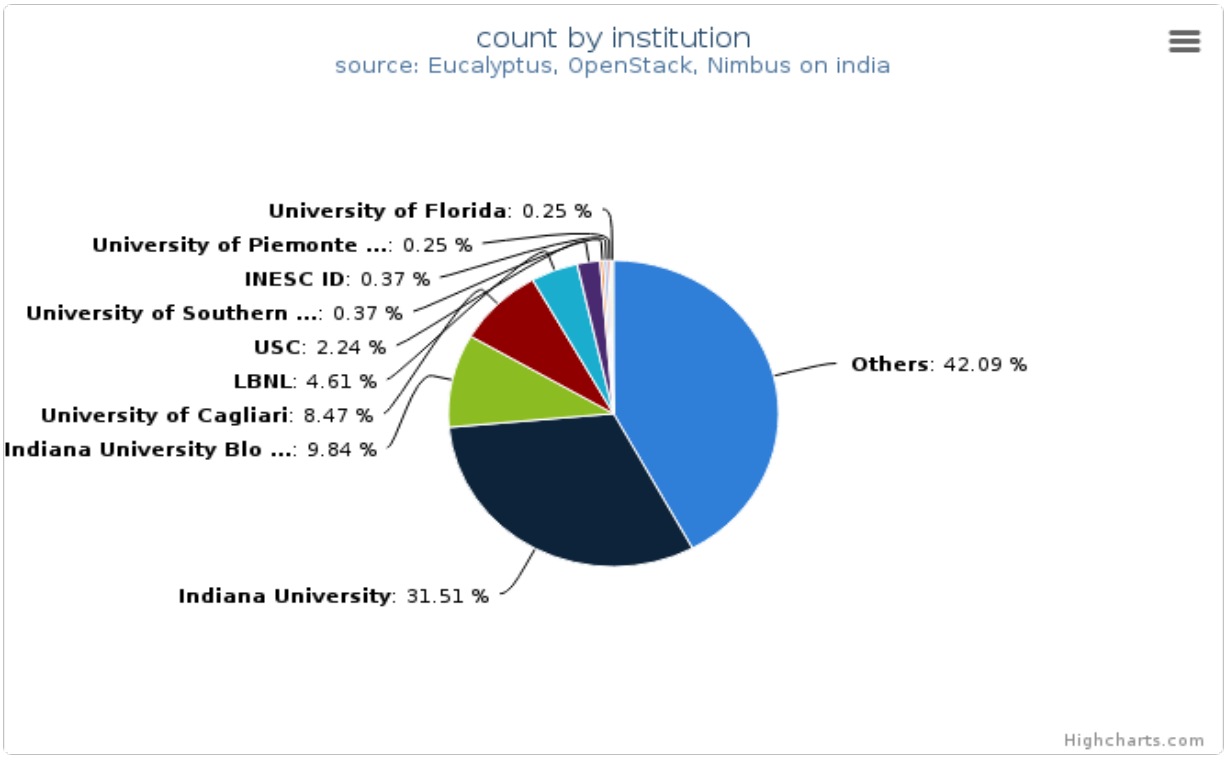

Figure 8: VMs count by institution

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

Table 3.3: VMs count by institution

Institution	Value
Others	338
Indiana University	253
Indiana University Bloomington	79
University of Cagliari	68
LBNL	37
USC	18
University of Southern California	3
INESC ID	3
University of Piemonte Orientale	2
University of Florida	2

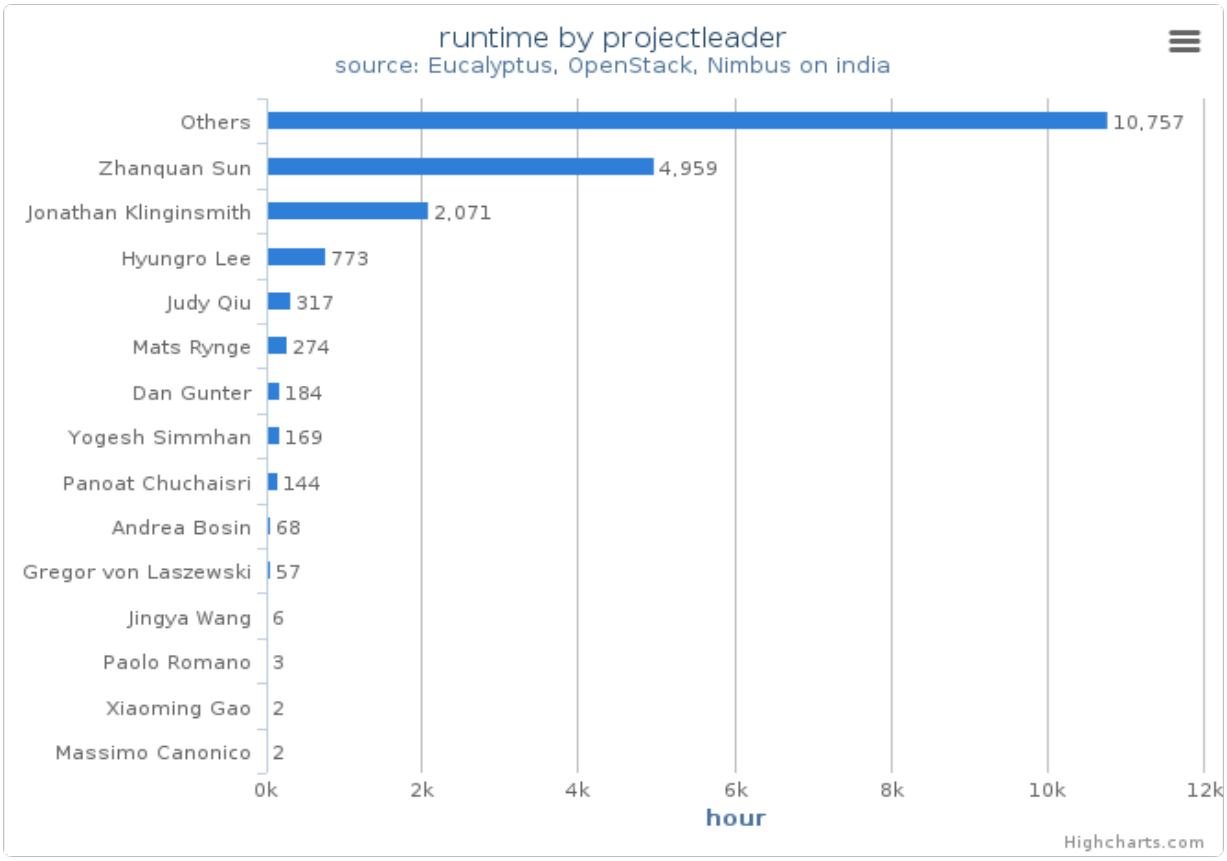

Figure 9: Wall time (hours) by project leader
This chart illustrates proportionate total run times by project leader.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): openstack, eucalyptus

- Hostname: india

3.3 System information

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

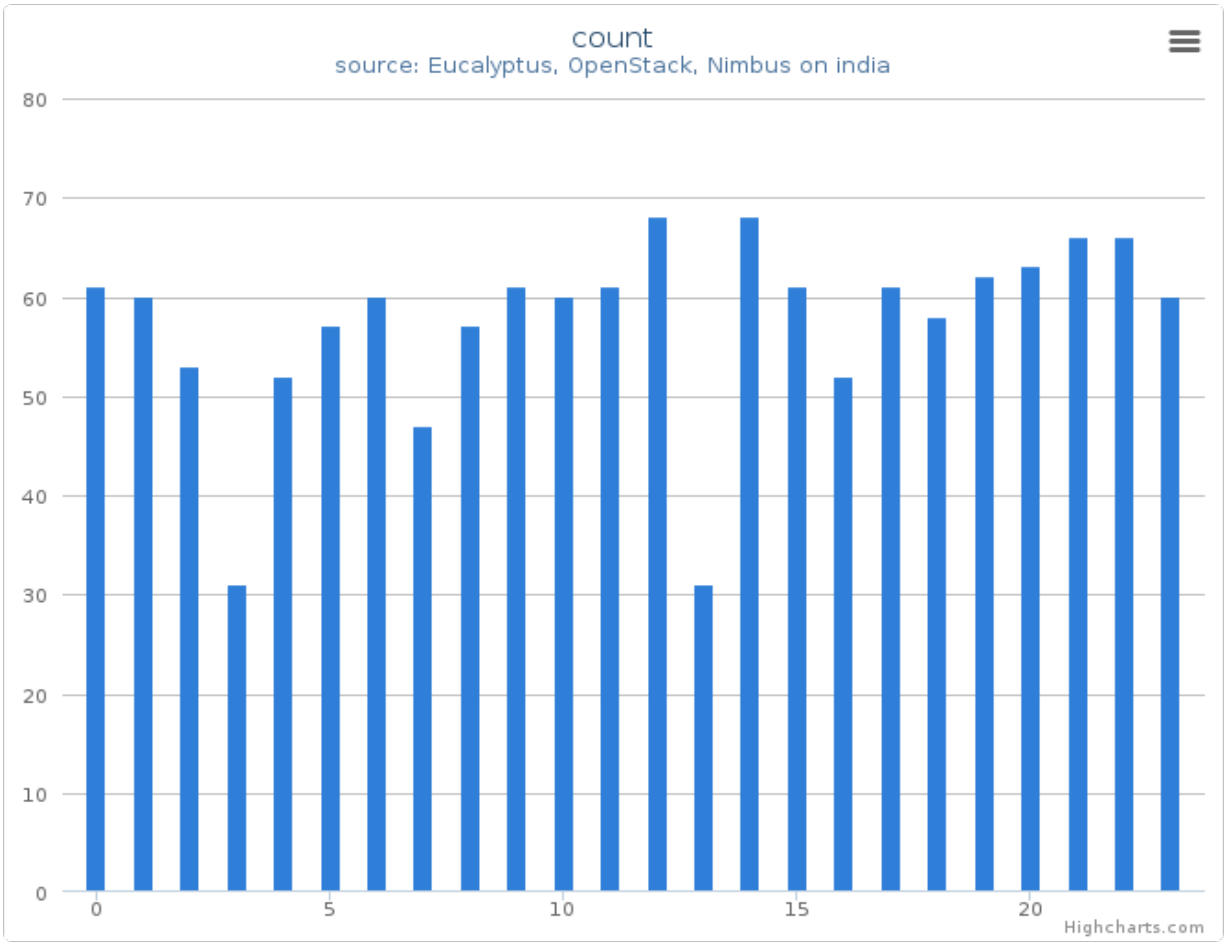

Figure 10: VMs count by systems (compute nodes) in Cluster (india)
This column chart represents VMs count among systems.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

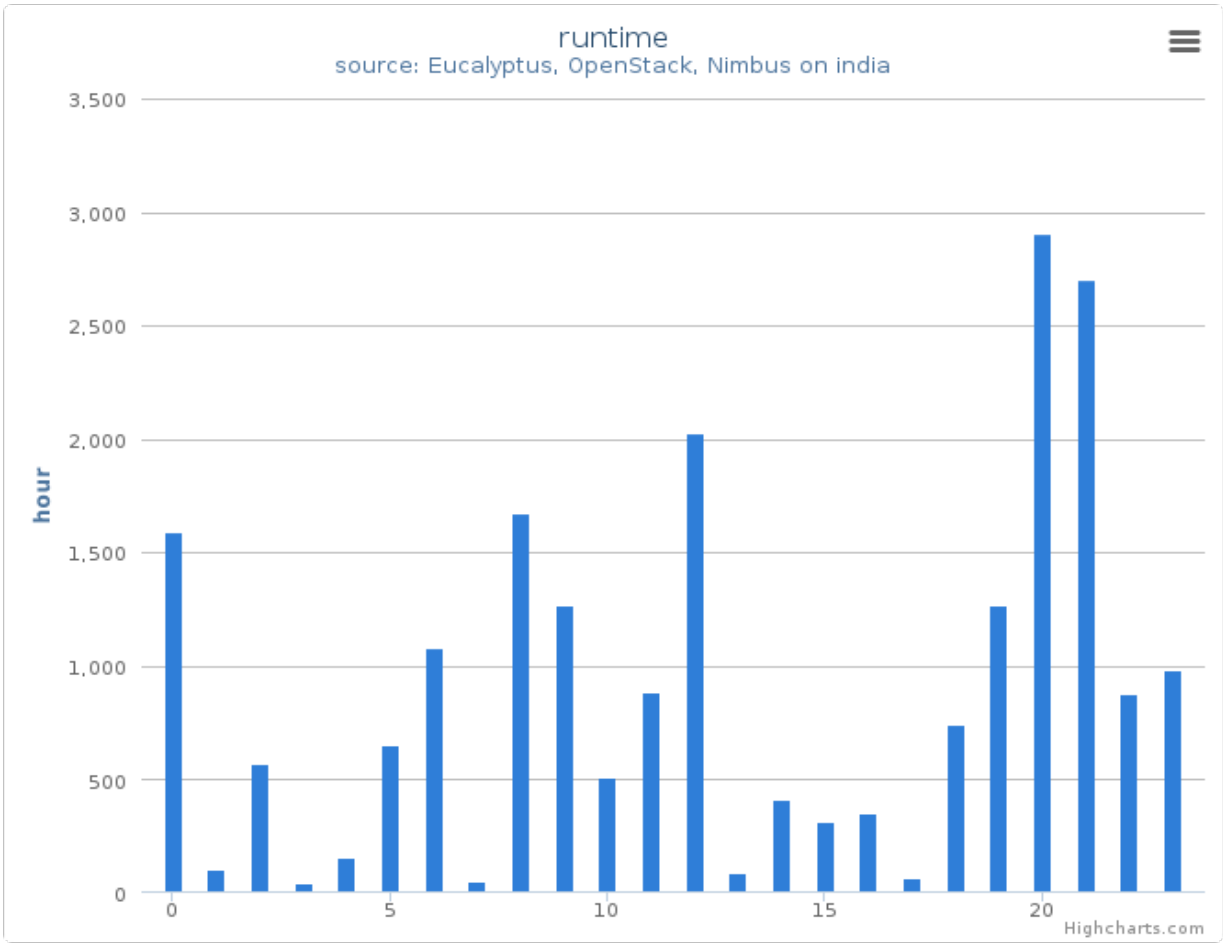

Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (india)
This column chart represents wall time among systems.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

CHAPTER

FOUR

USAGE REPORT HOTEL

- Period: January 01 – March 31, 2012
- Hostname: hotel.futuregrid.org
- Services: nimbus
- Metrics: VMs count, Users count, Wall time (hours), Distribution by wall time, project, project leader, and institution, and systems

4.1 Histogram

4.1.1 Summary (Monthly)

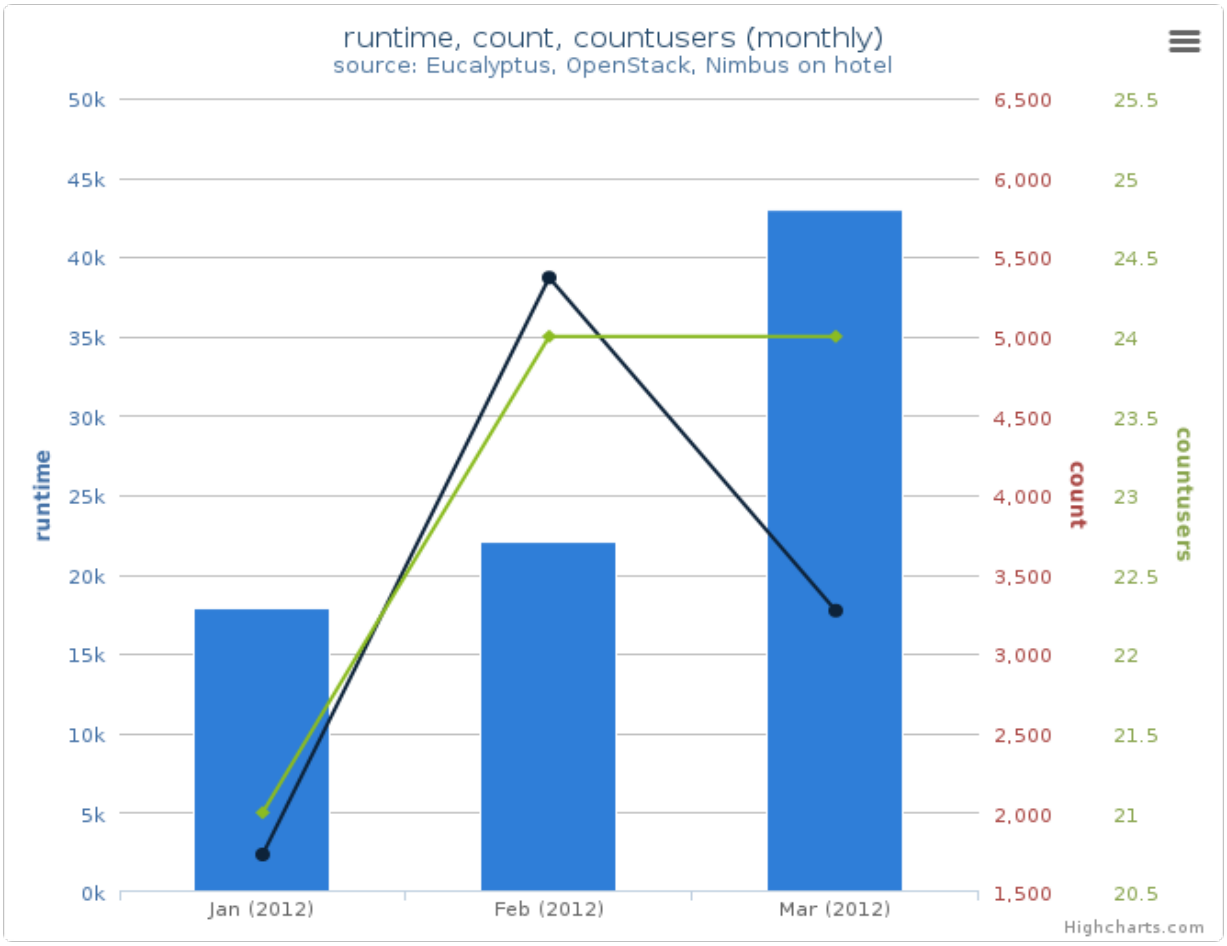

Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)
This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: January 01 – March 31, 2012
- 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)

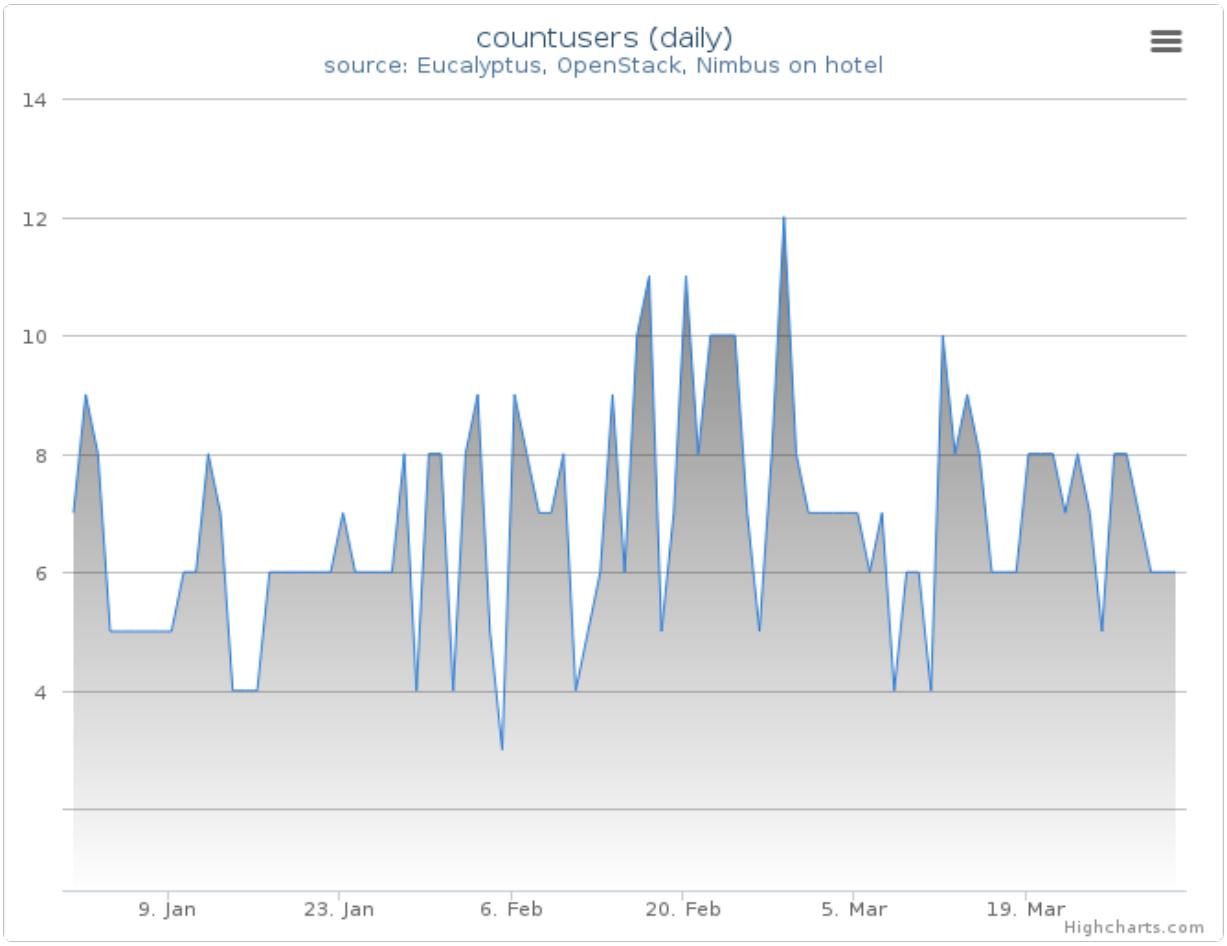

Figure 2: Users count

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: hotel

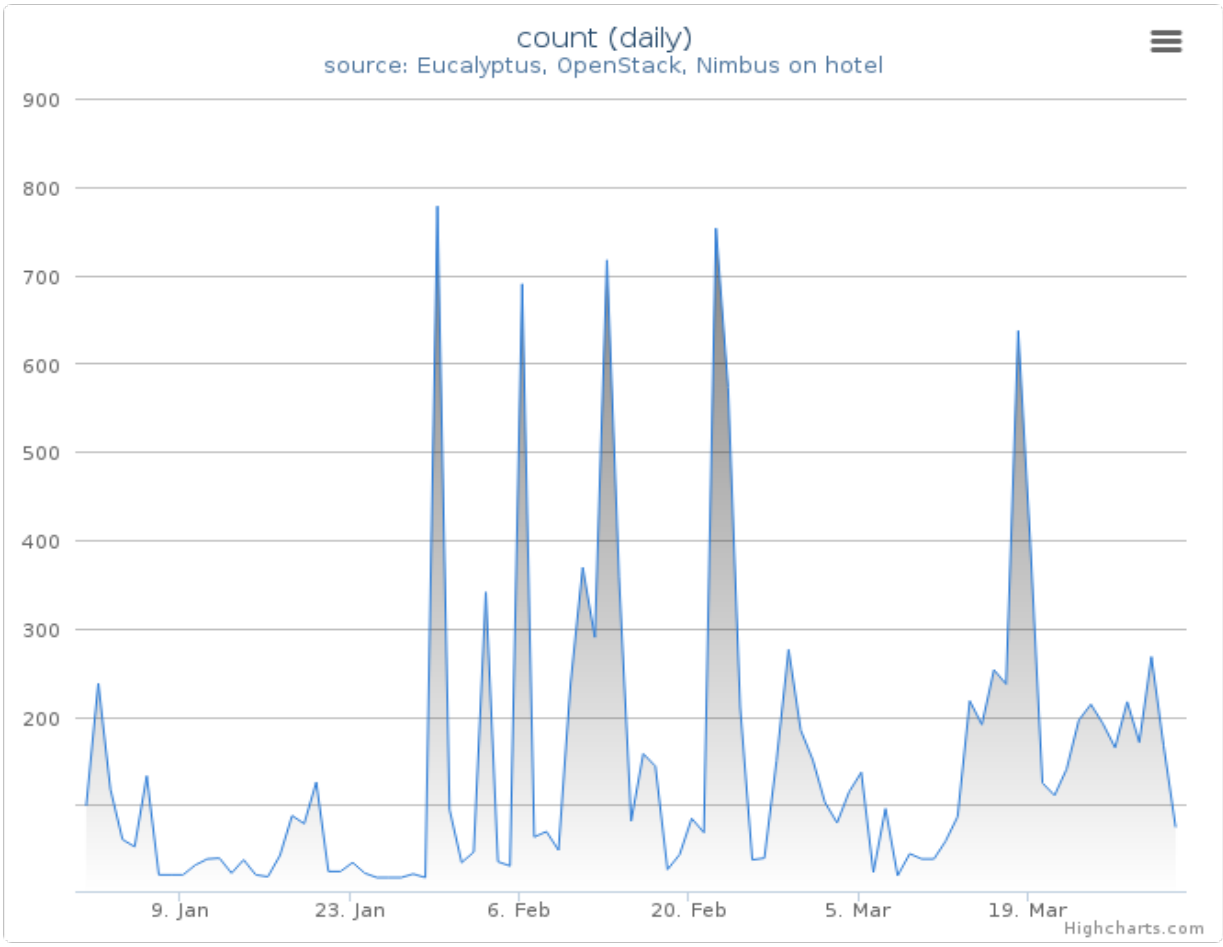

Figure 3: VMs count

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: hotel

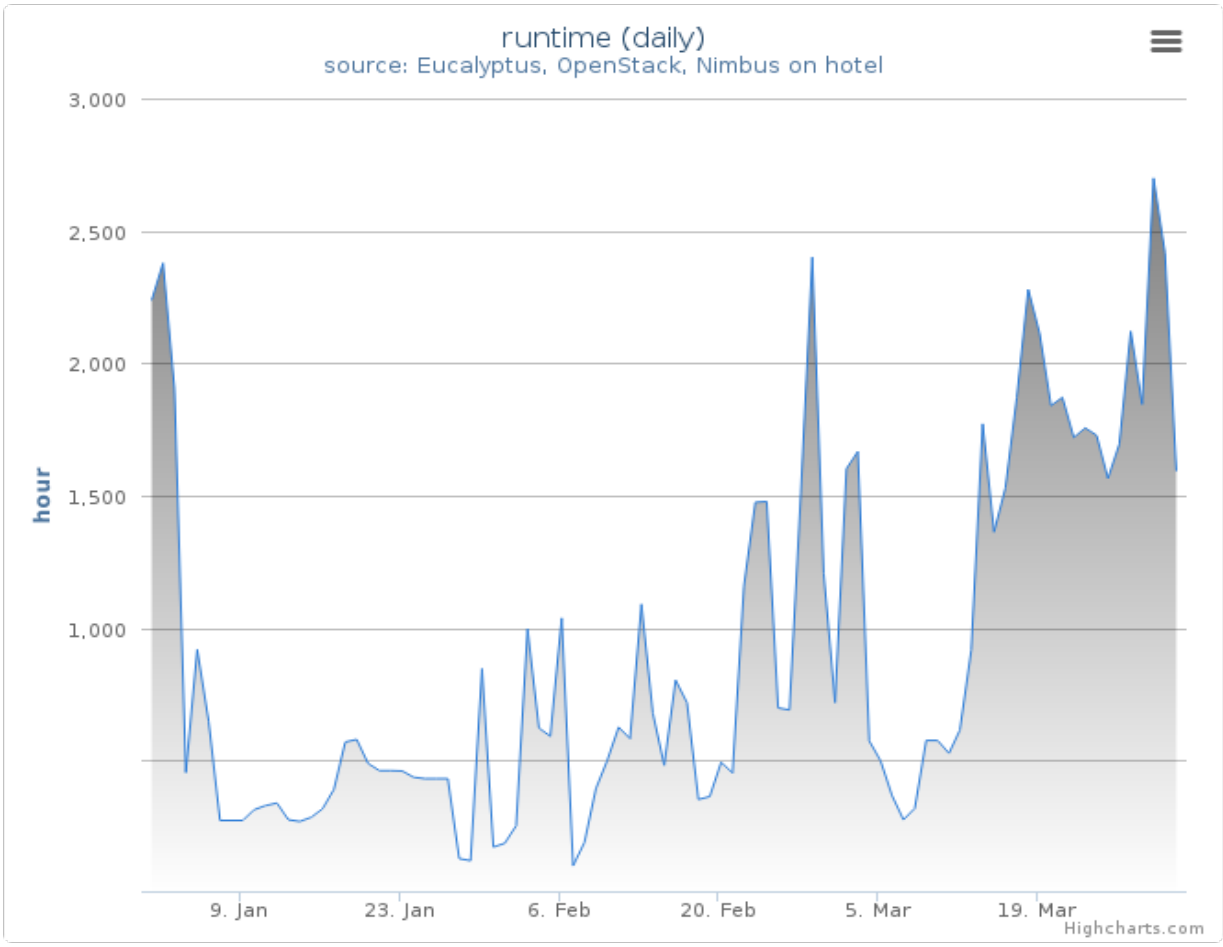

Figure 4: Wall time (hours)

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: hotel

4.2 Distribution

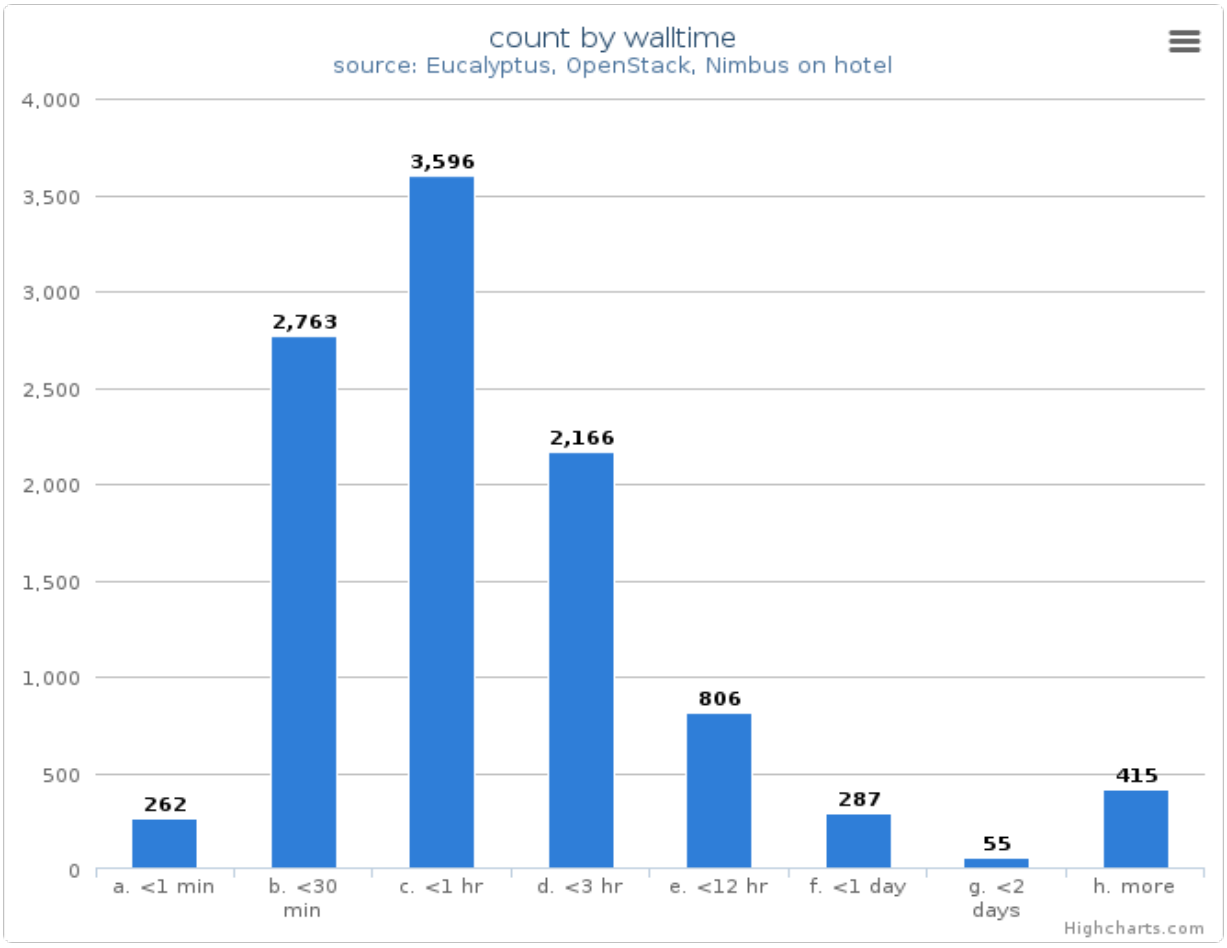

Figure 5: VM count by wall time
This chart illustrates usage patterns of VM instances in terms of running wall time.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: hotel

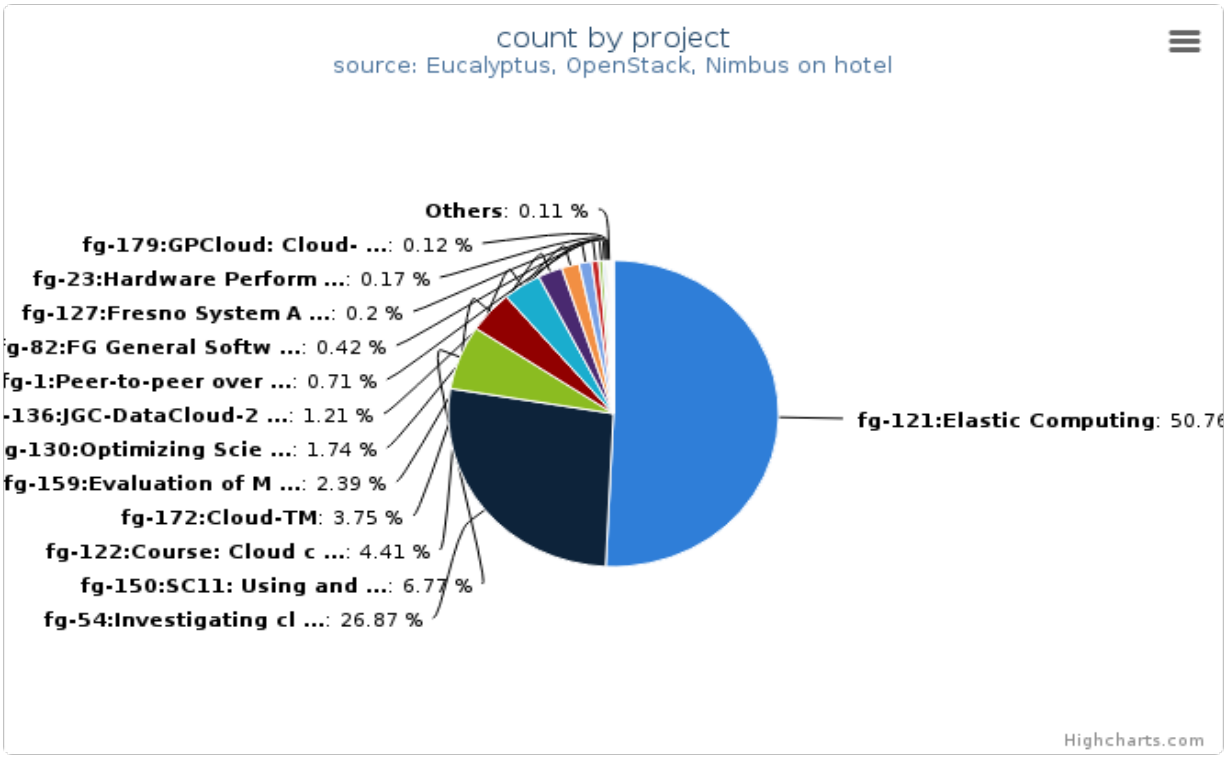

Figure 6: VMs count by project
This chart illustrates the proportion of launched VM instances by project groups. The same data in tabular form follows.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: hotel

Table 4.1: VMs count by project

Project	Value
fg-121:Elastic Computing	4939
fg-54:Investigating cloud computing as a solution for analyzing particle physics data	2614
fg-150:SC11: Using and Building Infrastructure Clouds for Science	659
fg-122:Course: Cloud computing class	429
fg-172:Cloud-TM	365
fg-159:Evaluation of MPI Collectives for HPC Applications on Distributed Virtualized Environments	233
fg-130:Optimizing Scientific Workflows on Clouds	169
fg-136:JGC-DataCloud-2012 paper experiments	118
fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters	69
fg-82:FG General Software Development	41
fg-127:Fresno System Architecture and Cloud Computing Class	19
fg-23:Hardware Performance Monitoring in the Clouds	17
fg-179:GPCloud: Cloud-based Automatic Repair of Real-World Software Bugs	12
Others	11
fg-176:Cloud Interoperability Testbed	9
fg-47:Parallel scripting using cloud resources	9
fg-213:Course: Cloud Computing class - second edition	6
fg-97:FutureGrid and Grid‘5000 Collaboration	4
fg-154:STS Server 2011	2
fg-191:Course: UCF EEL6938 Data-intensive computing and Cloud Class	2
fg-214:Mining Interactions between Network Community Structure and Information Diffusion	1
fg-133:Supply Chain Network Simulator Using Cloud Computing	1
fg-31:Integrating High Performance Computing in Research and Education for Simulation, Visualization and RealTime Prediction	1

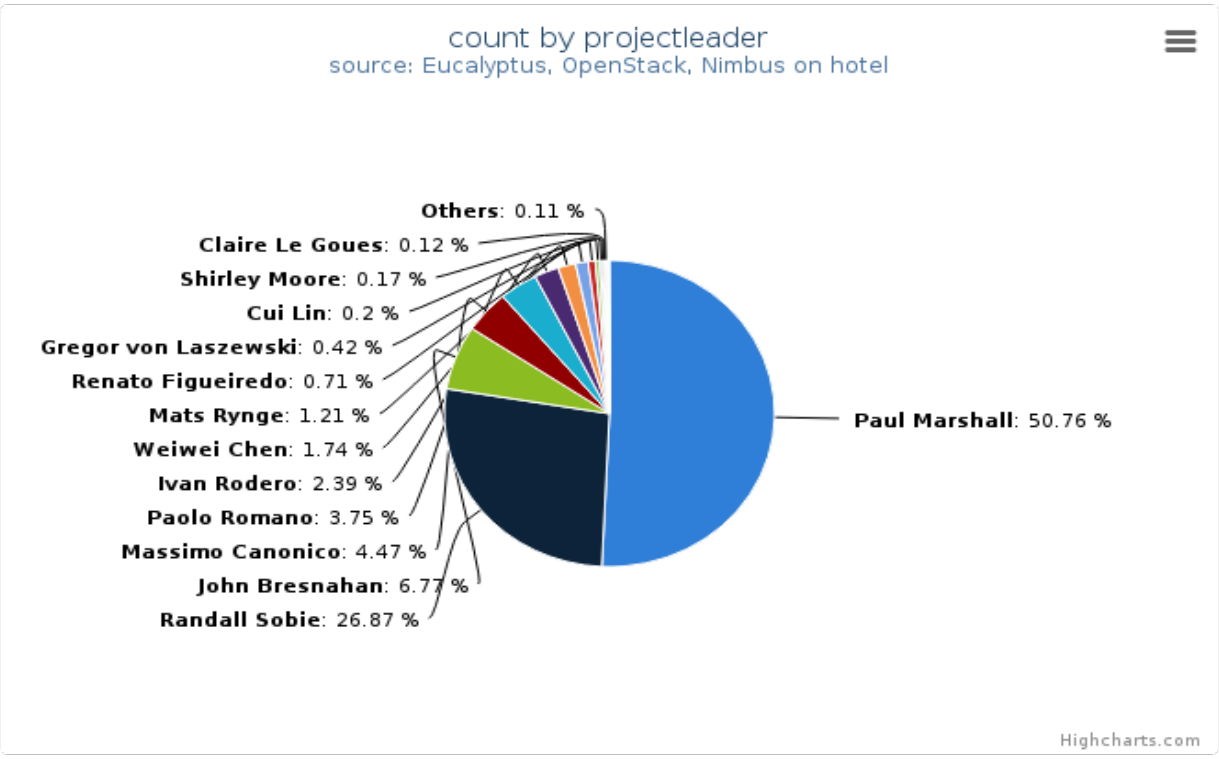

Figure 7: VMs count by project leader

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: hotel

Table 4.2: VMs count by project leader

Projectleader	Value
Paul Marshall	4939
Randall Sobie	2614
John Bresnahan	659
Massimo Canonico	435
Paolo Romano	365
Ivan Rodero	233
Weiwei Chen	169
Mats Rynge	118
Renato Figueiredo	69
Gregor von Laszewski	41
Cui Lin	19
Shirley Moore	17
Claire Le Goues	12
Others	11
Michael Wilde	9
Alan Sill	9
Mauricio Tsugawa	4
John Latifis	2
Prof. Jun Wang	2
Manuel Rossetti	1
Yong-Yeol Ahn	1
Anthony Chronopoulos	1

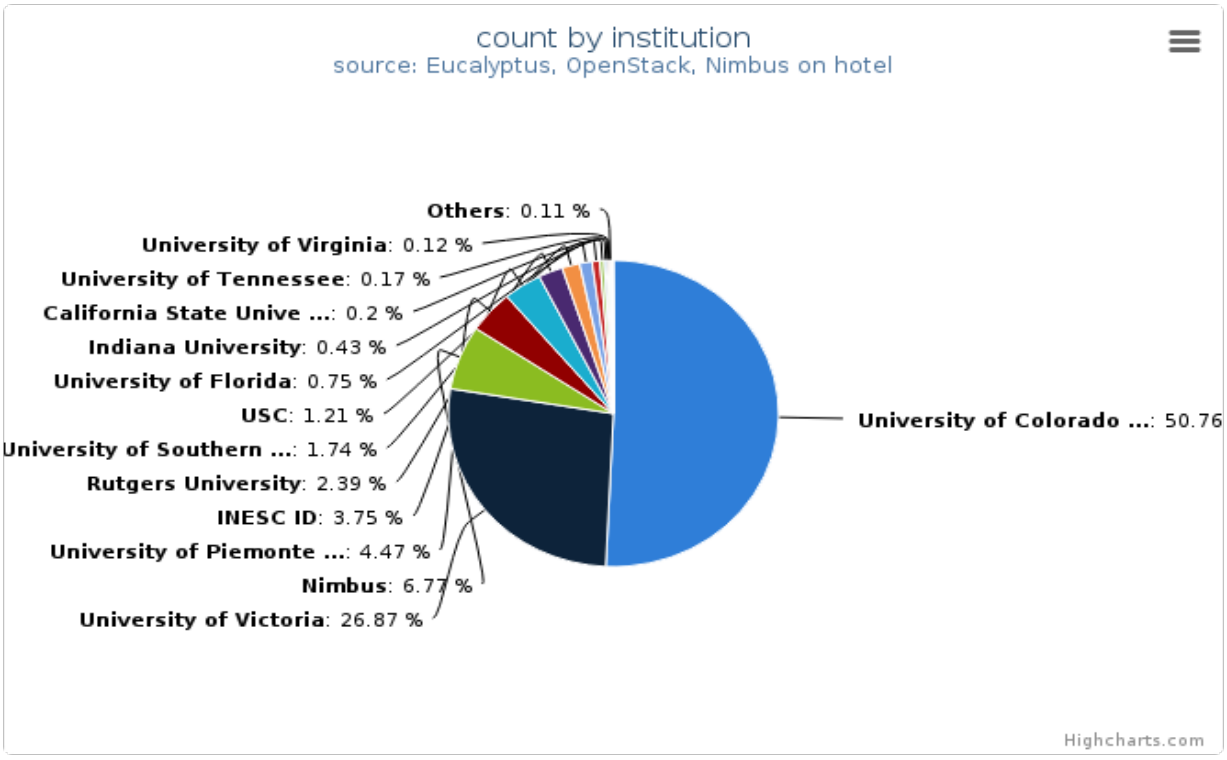

Figure 8: VMs count by institution
This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: hotel

Table 4.3: VMs count by institution

Institution	Value
University of Colorado at Boulder	4939
University of Victoria	2614
Nimbus	659
University of Piemonte Orientale	435
INESC ID	365
Rutgers University	233
University of Southern California	169
USC	118
University of Florida	73
Indiana University	42
California State University	19
University of Tennessee	17
University of Virginia	12
Others	11
Argonne National Laboratory	9
Texas Tech University	9
ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS	2
University of Central Florida	2
Unvirsity of Texas San Antonio	1
University of Arkansas	1

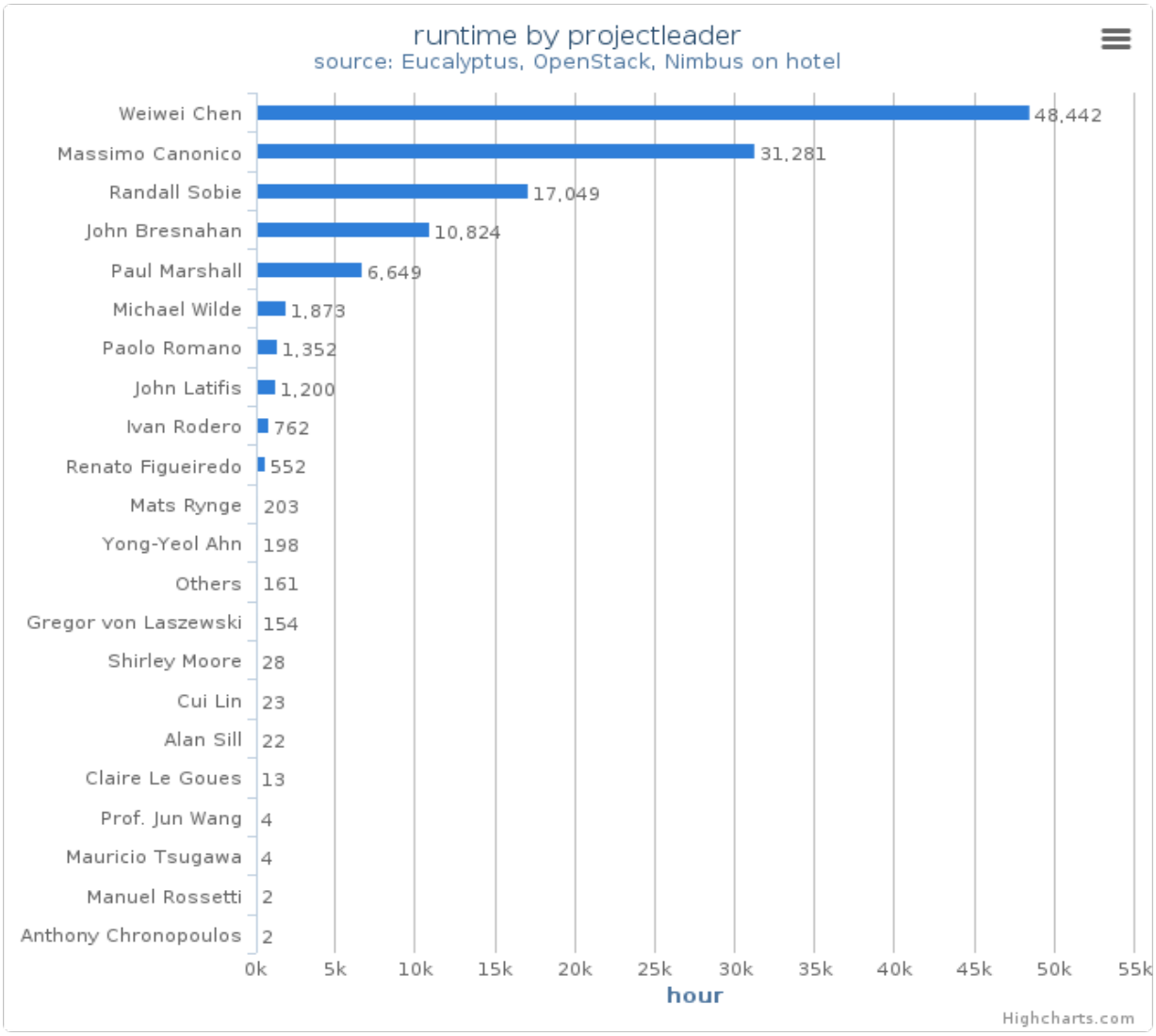

Figure 9: Wall time (hours) by project leader
This chart illustrates proportionate total run times by project leader.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: hotel

4.3 System information

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

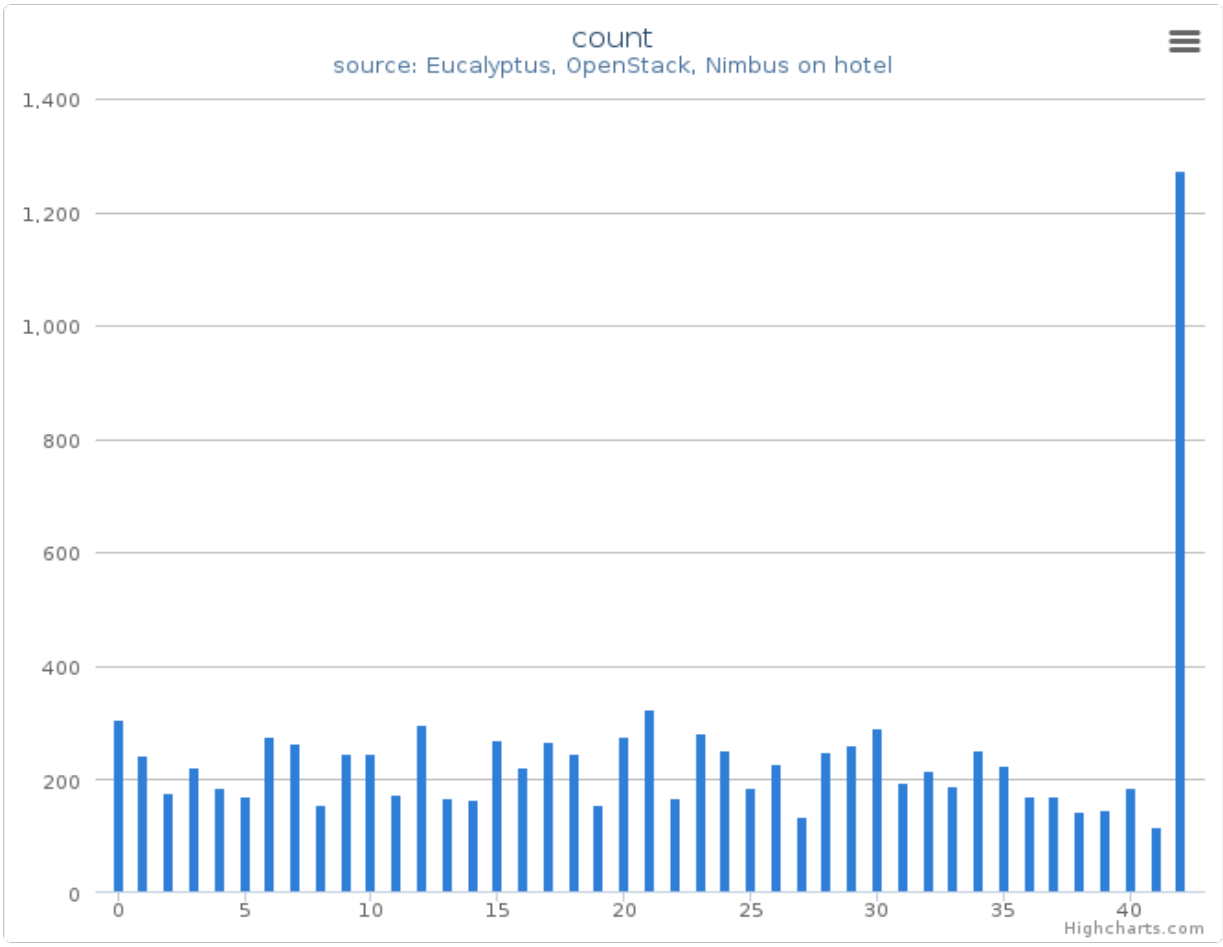

Figure 10: VMs count by systems (compute nodes) in Cluster (hotel)
This column chart represents VMs count among systems.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: hotel

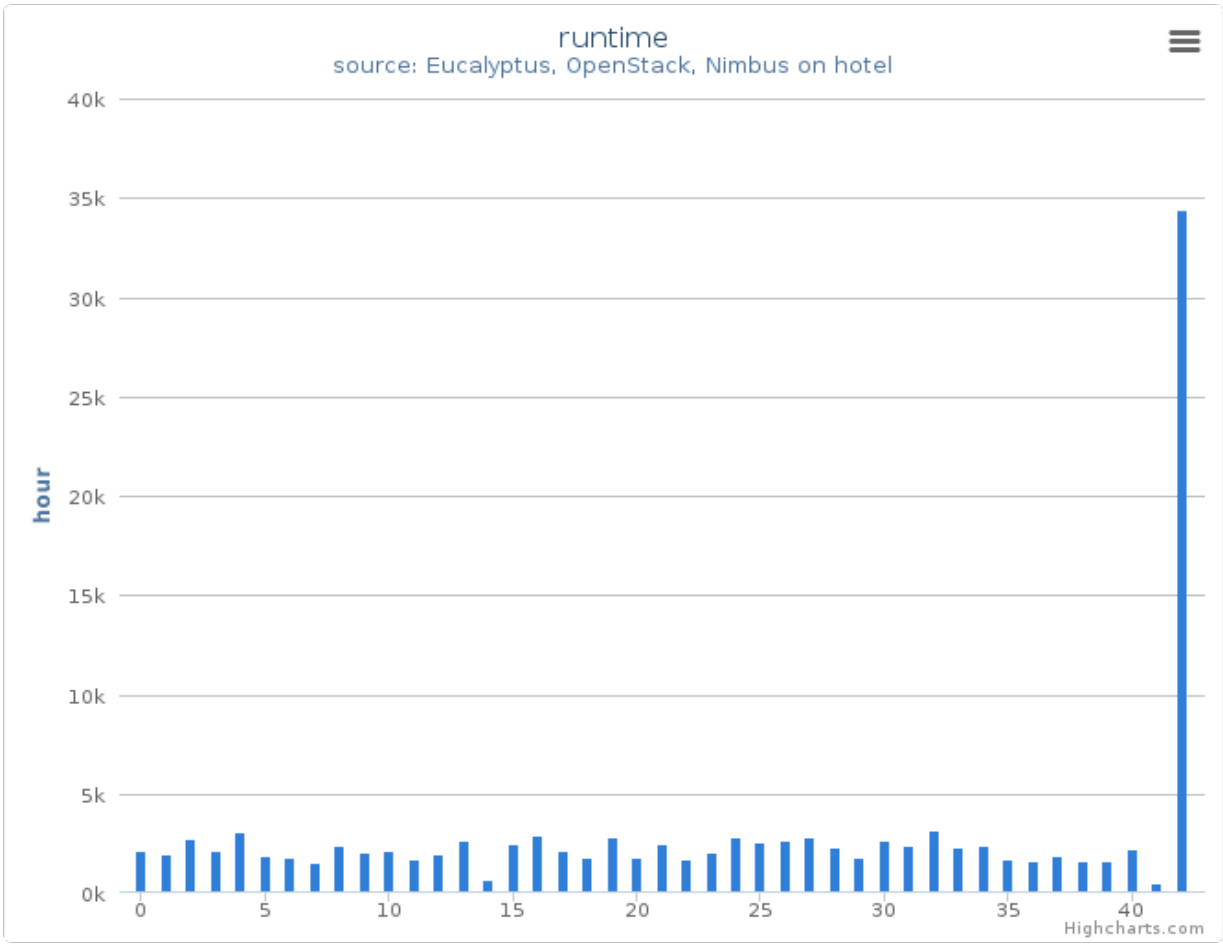

Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (hotel)
This column chart represents wall time among systems.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: hotel

CHAPTER

FIVE

USAGE REPORT ALAMO

- Period: January 01 – March 31, 2012
- Hostname: alamo.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)

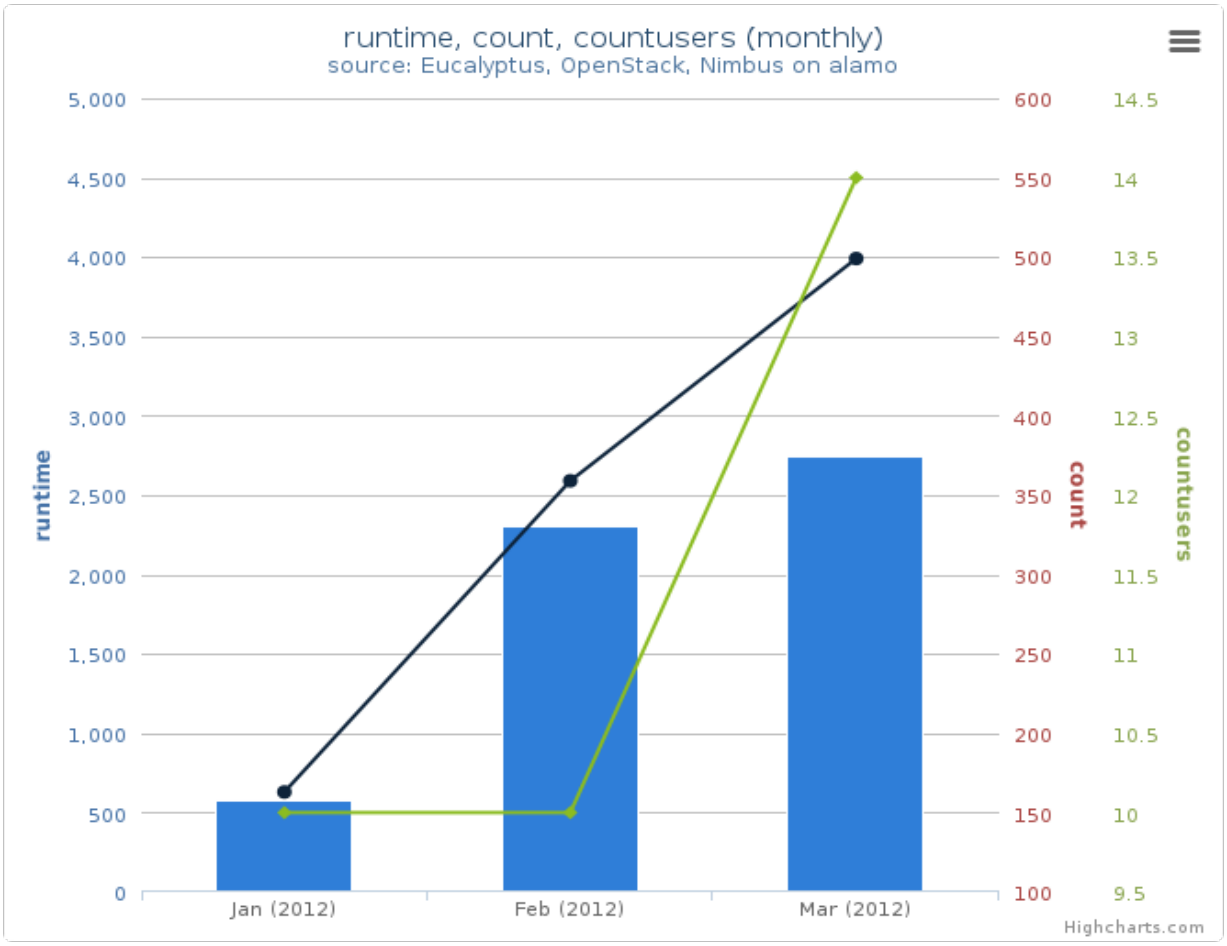

Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)
This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: alamo
- **Metric:**
  - Runtime (Wall time hours): Sum of time elapsed from launch to termination of VM instances
  - Count (VM count): The number of launched VM instances
  - User count (Active): The number of users who launched VMs

5.1.2 Summary (Daily)

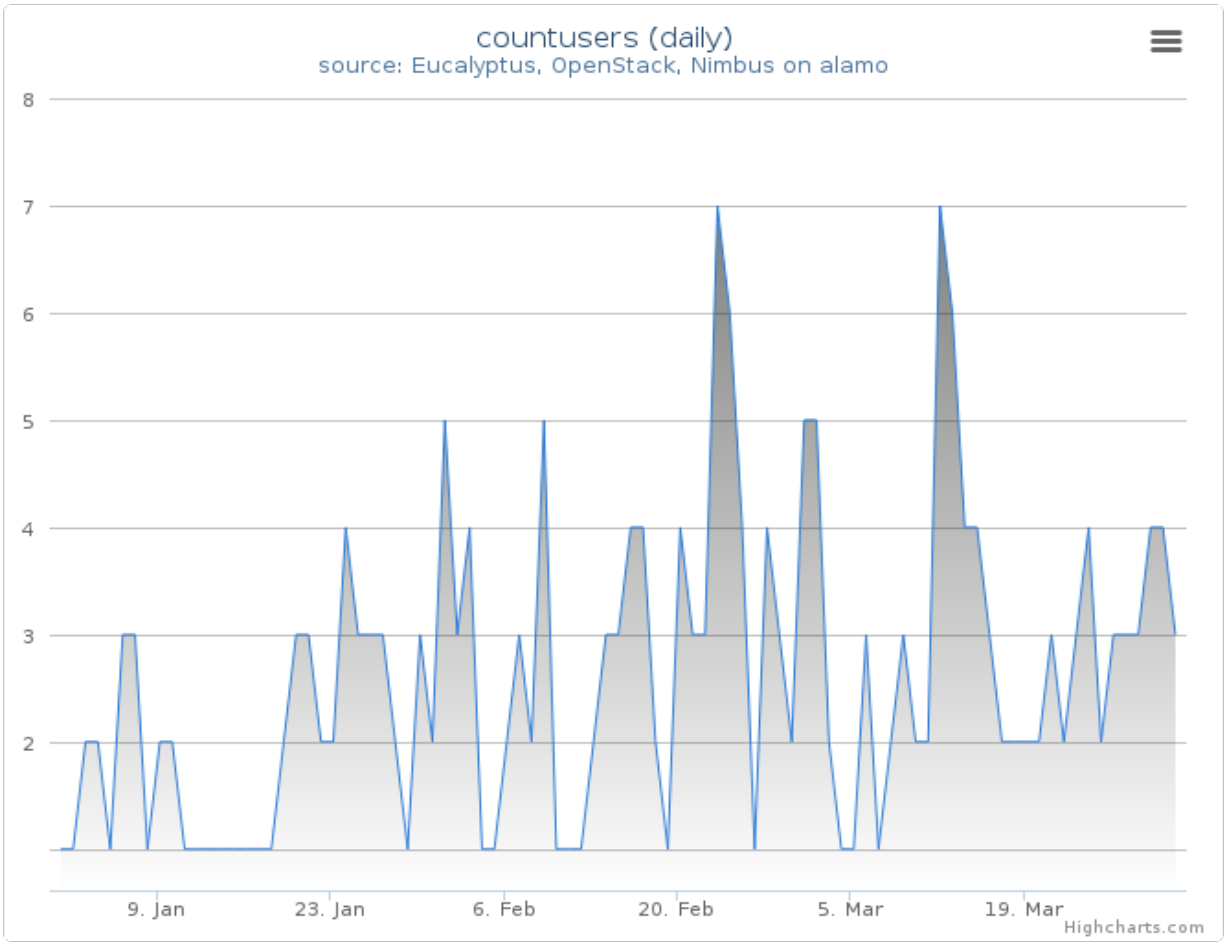

Figure 2: Users count

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: alamo

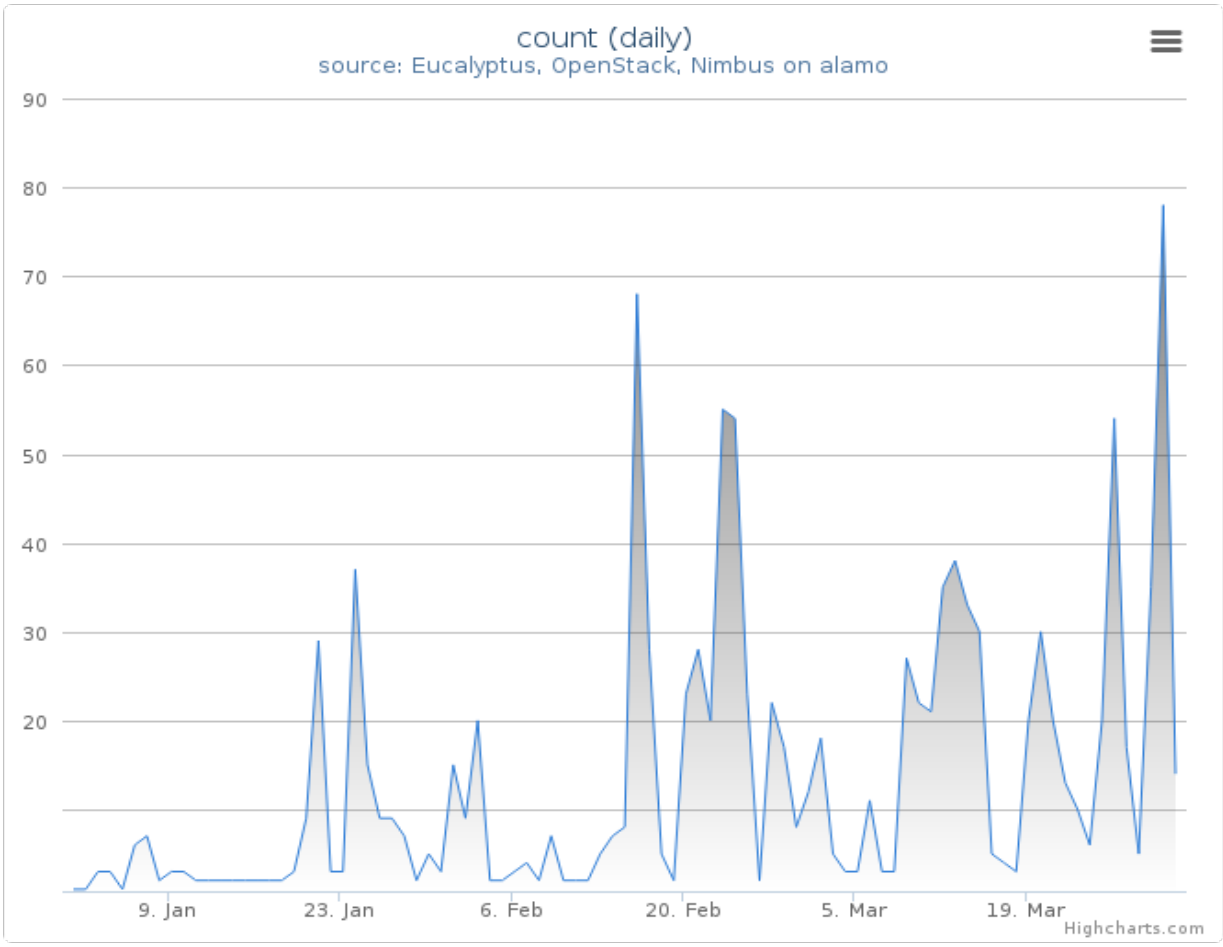

Figure 3: VMs count

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: alamo

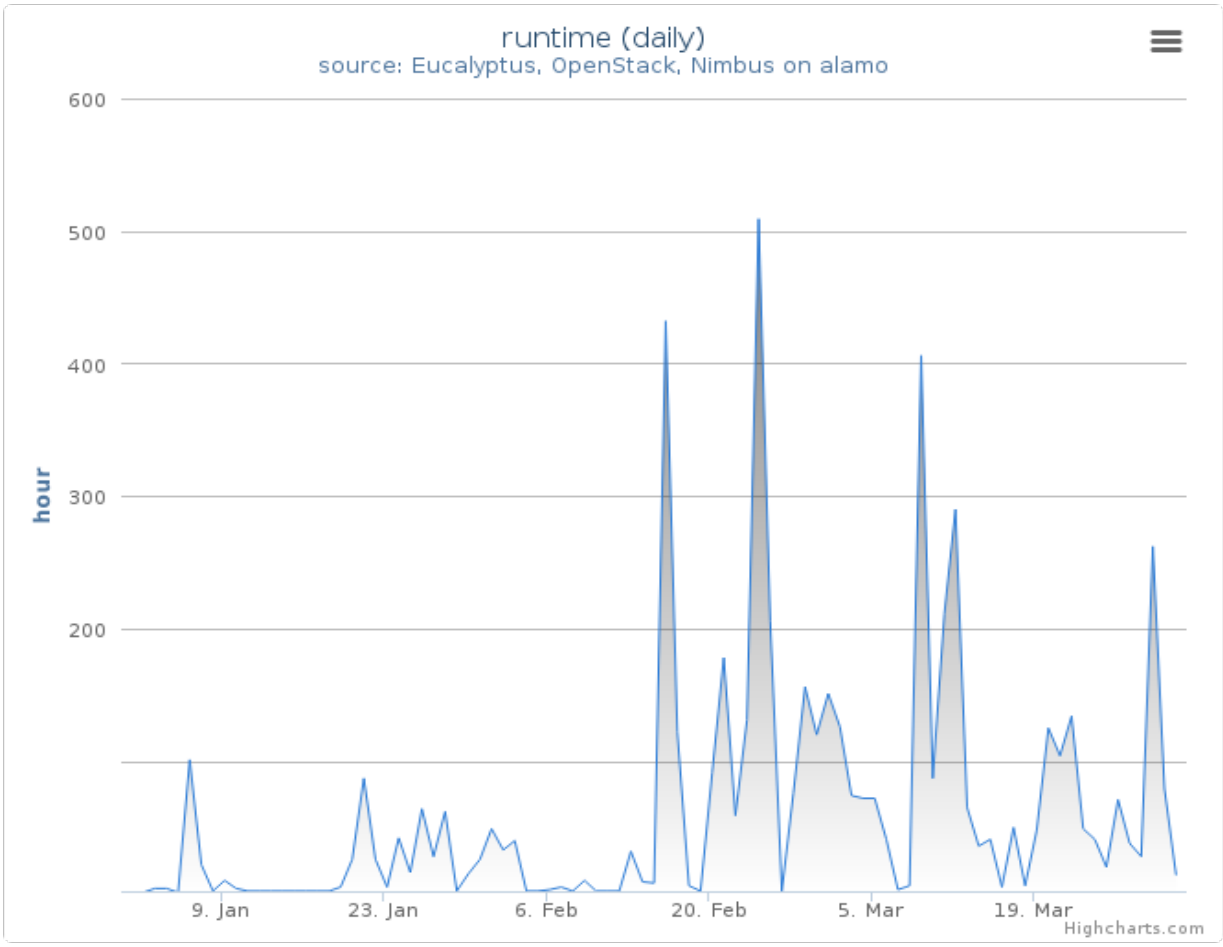

Figure 4: Wall time (hours)

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: alamo

5.2 Distribution

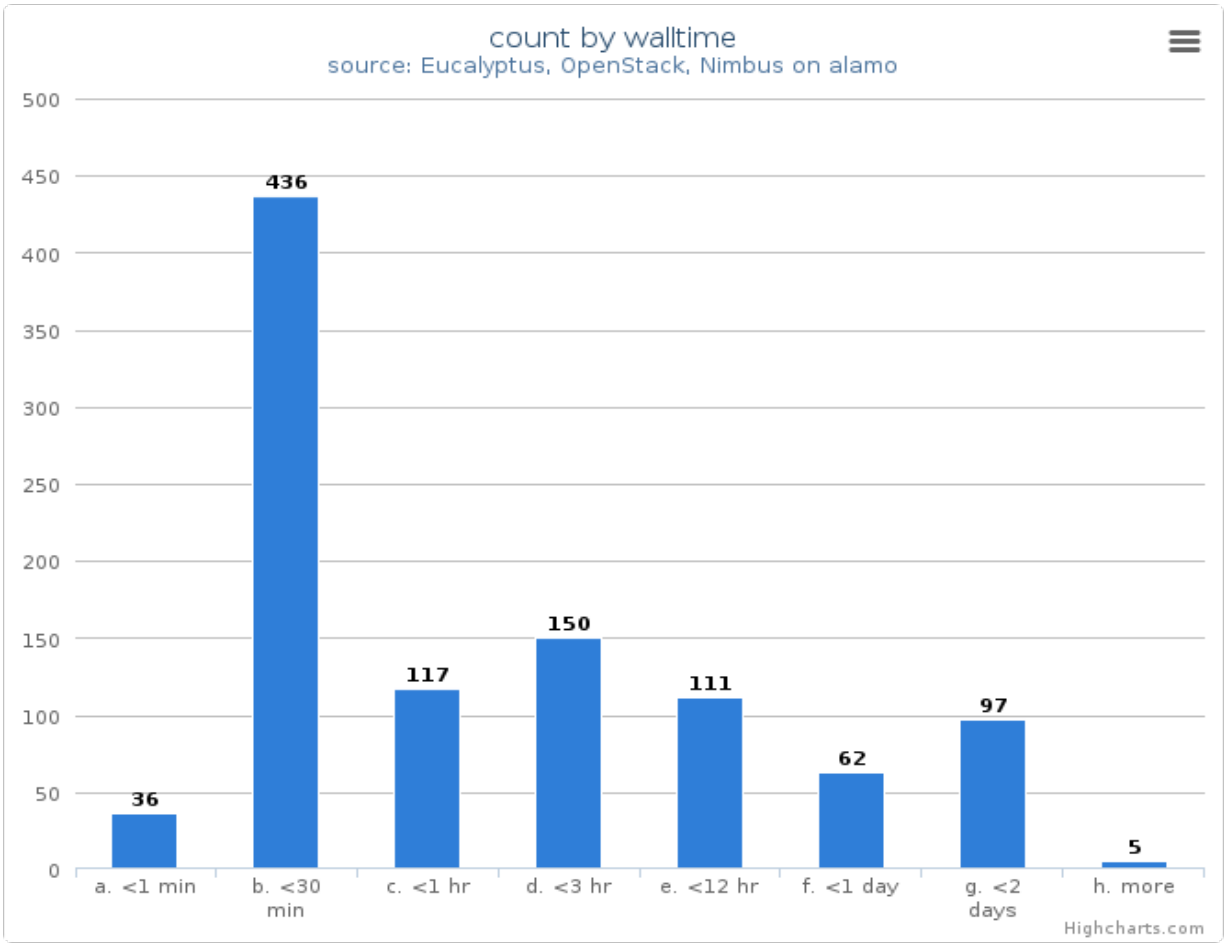

Figure 5: VM count by wall time
This chart illustrates usage patterns of VM instances in terms of running wall time.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: alamo

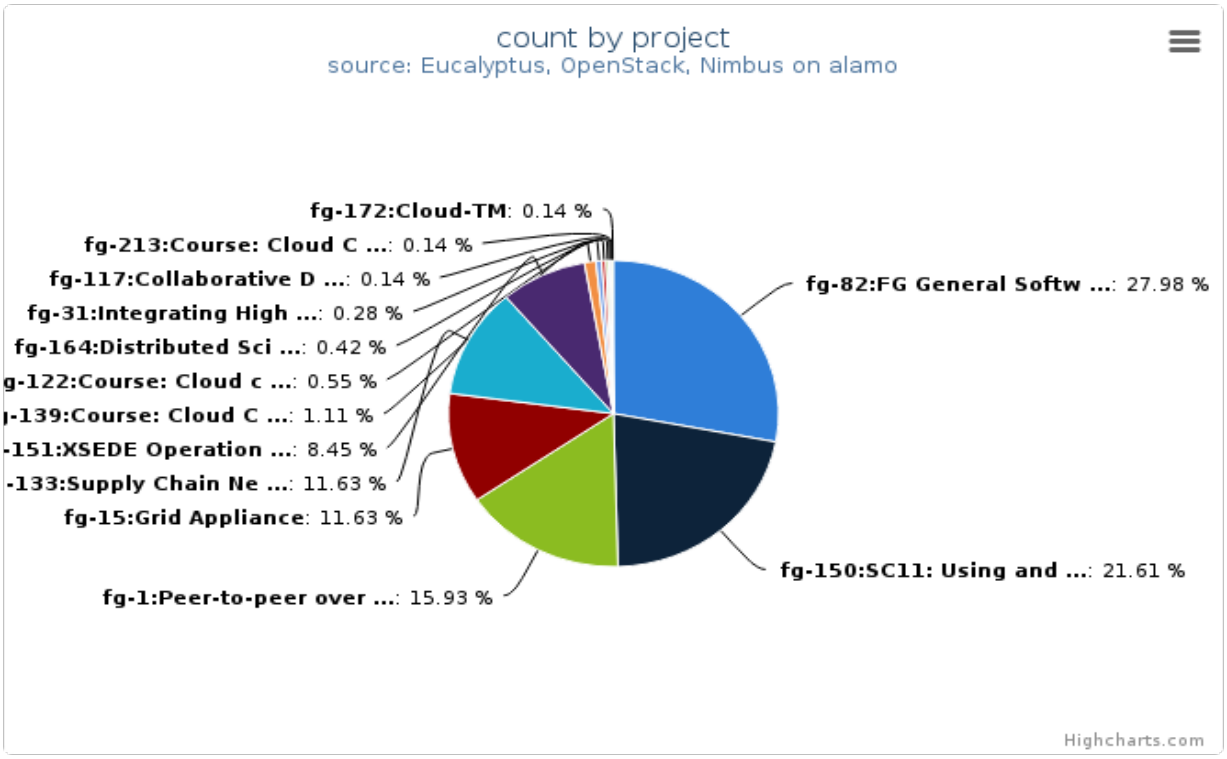

Figure 6: VMs count by project

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: alamo

Table 5.1: VMs count by project

Project	Value
fg-82:FG General Software Development	202
fg-150:SC11: Using and Building Infrastructure Clouds for Science	156
fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters	115
fg-15:Grid Appliance	84
fg-133:Supply Chain Network Simulator Using Cloud Computing	84
fg-151:XSEDE Operations Group	61
fg-139:Course: Cloud Computing and Storage Class	8
fg-122:Course: Cloud computing class	4
fg-164:Distributed Scientific Computing Class	3
fg-31:Integrating High Performance Computing in Research and Education for Simulation, Visualization and RealTime Prediction	2
fg-117:Collaborative Data Distribution and VM Provisioning	1
fg-213:Course: Cloud Computing class - second edition	1
fg-172:Cloud-TM	1

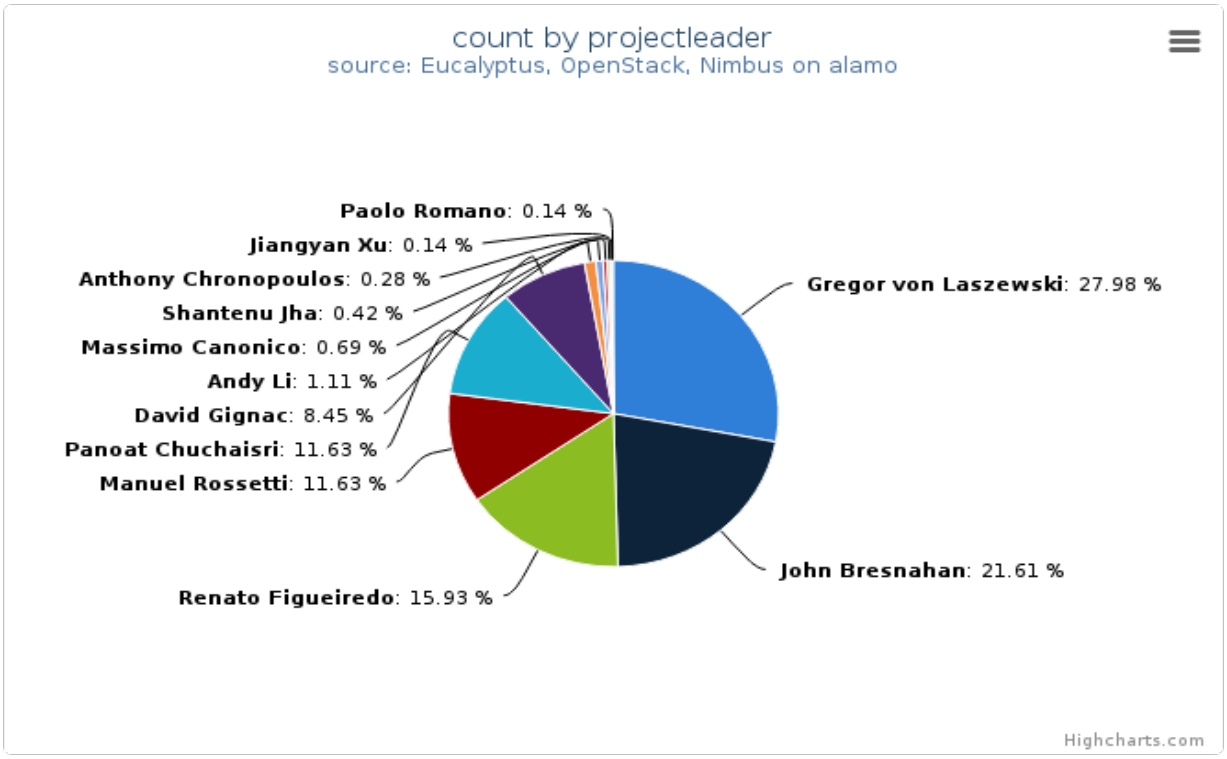

Figure 7: VMs count by project leader

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus

- Hostname: alamo

Table 5.2: VMs count by project leader

Projectleader	Value
Gregor von Laszewski	202
John Bresnahan	156
Renato Figueiredo	115
Manuel Rossetti	84
Panoat Chuchaisri	84
David Gignac	61
Andy Li	8
Massimo Canonico	5
Shantenu Jha	3
Anthony Chronopoulos	2
Jiangyan Xu	1
Paolo Romano	1

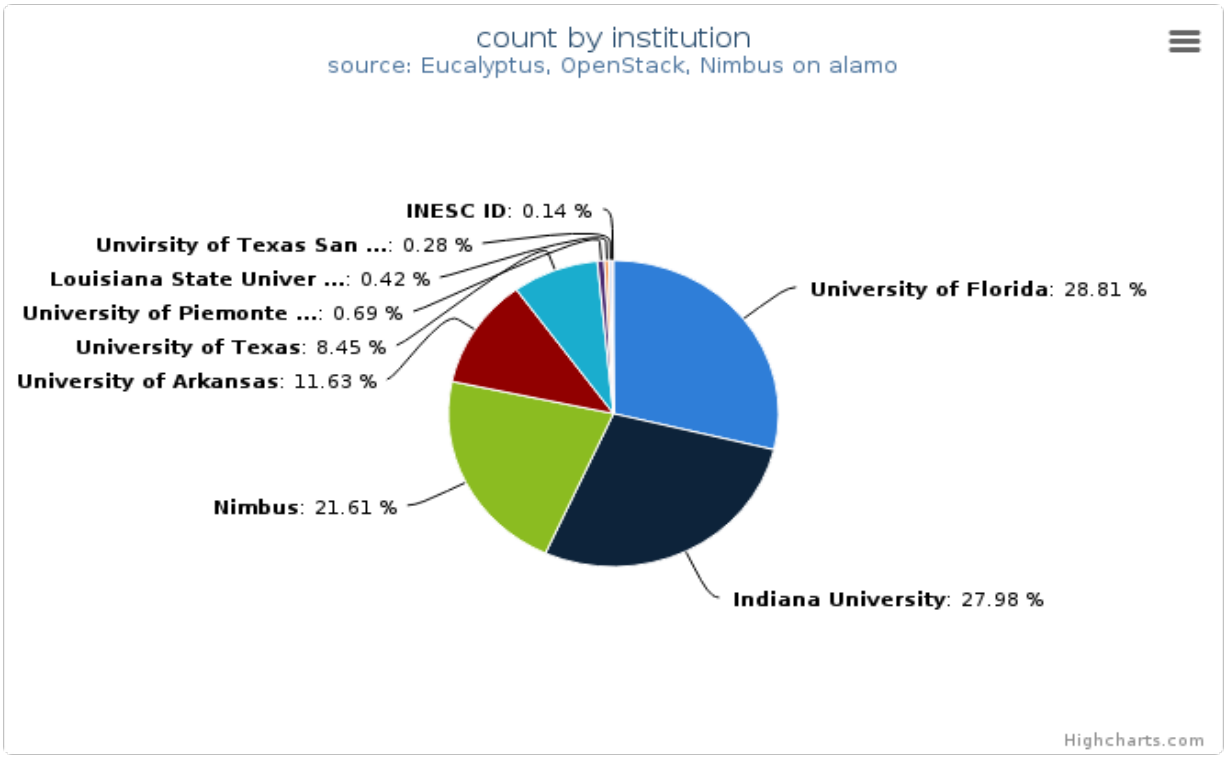

Figure 8: VMs count by institution
This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus

- Hostname: alamo

Table 5.3: VMs count by institution

Institution	Value
University of Florida	208
Indiana University	202
Nimbus	156
University of Arkansas	84
University of Texas	61
University of Piemonte Orientale	5
Louisiana State University	3
Unvirsity of Texas San Antonio	2
INESC ID	1

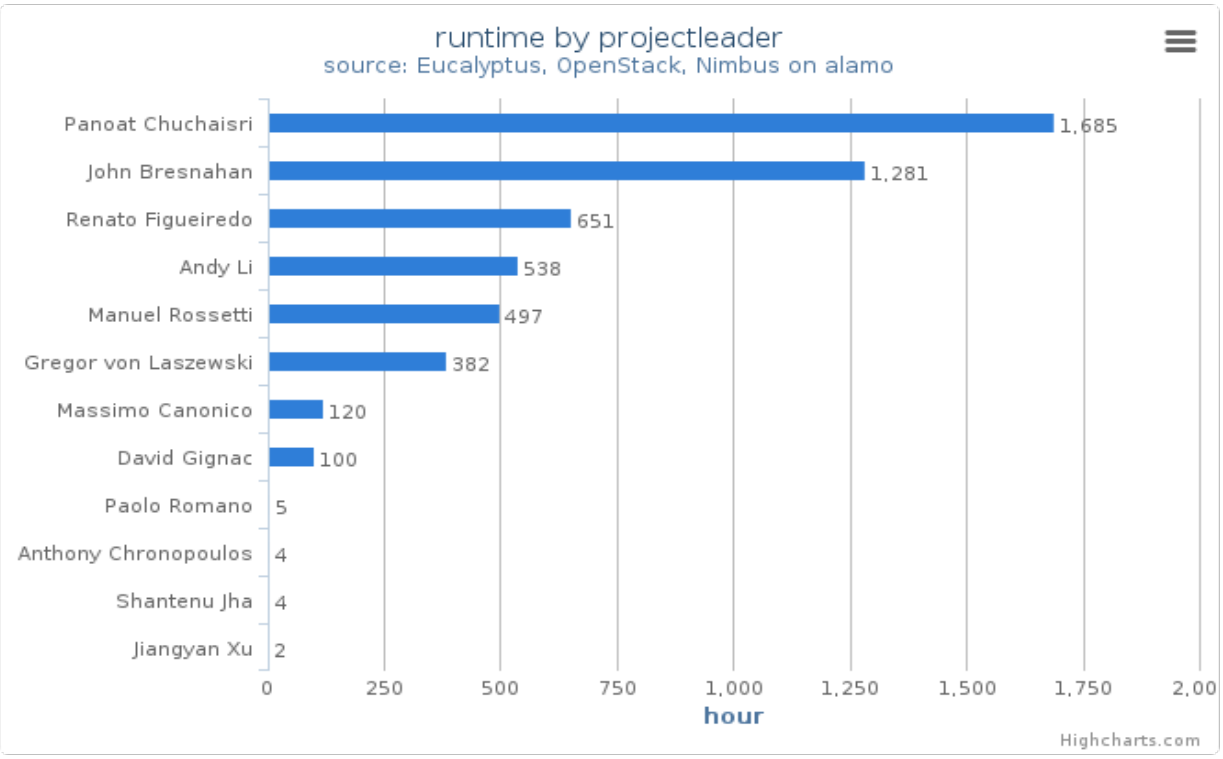

Figure 9: Wall time (hours) by project leader
This chart illustrates proportionate total run times by project leader.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: alamo

5.3 System information

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

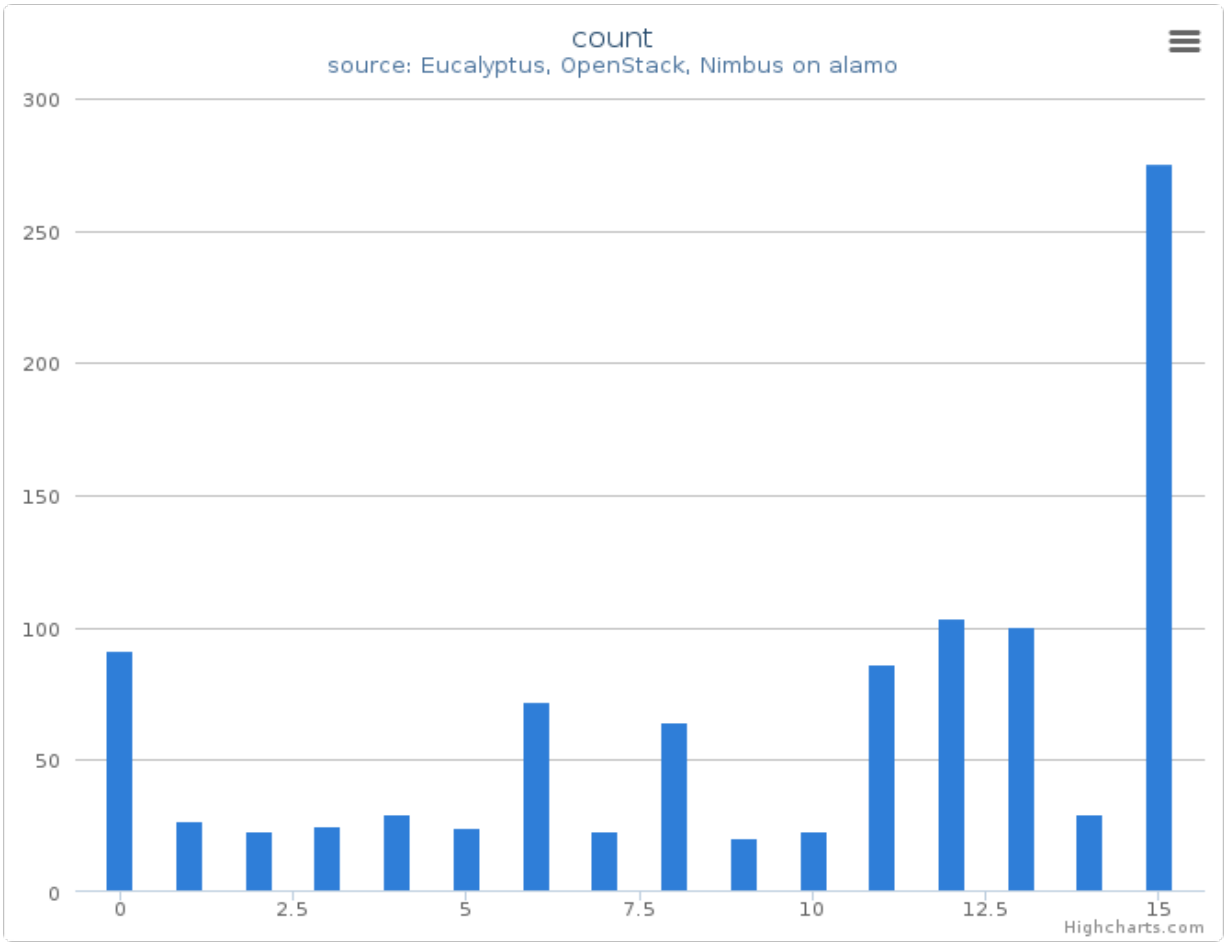

Figure 10: VMs count by systems (compute nodes) in Cluster (alamo)
This column chart represents VMs count among systems.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: alamo

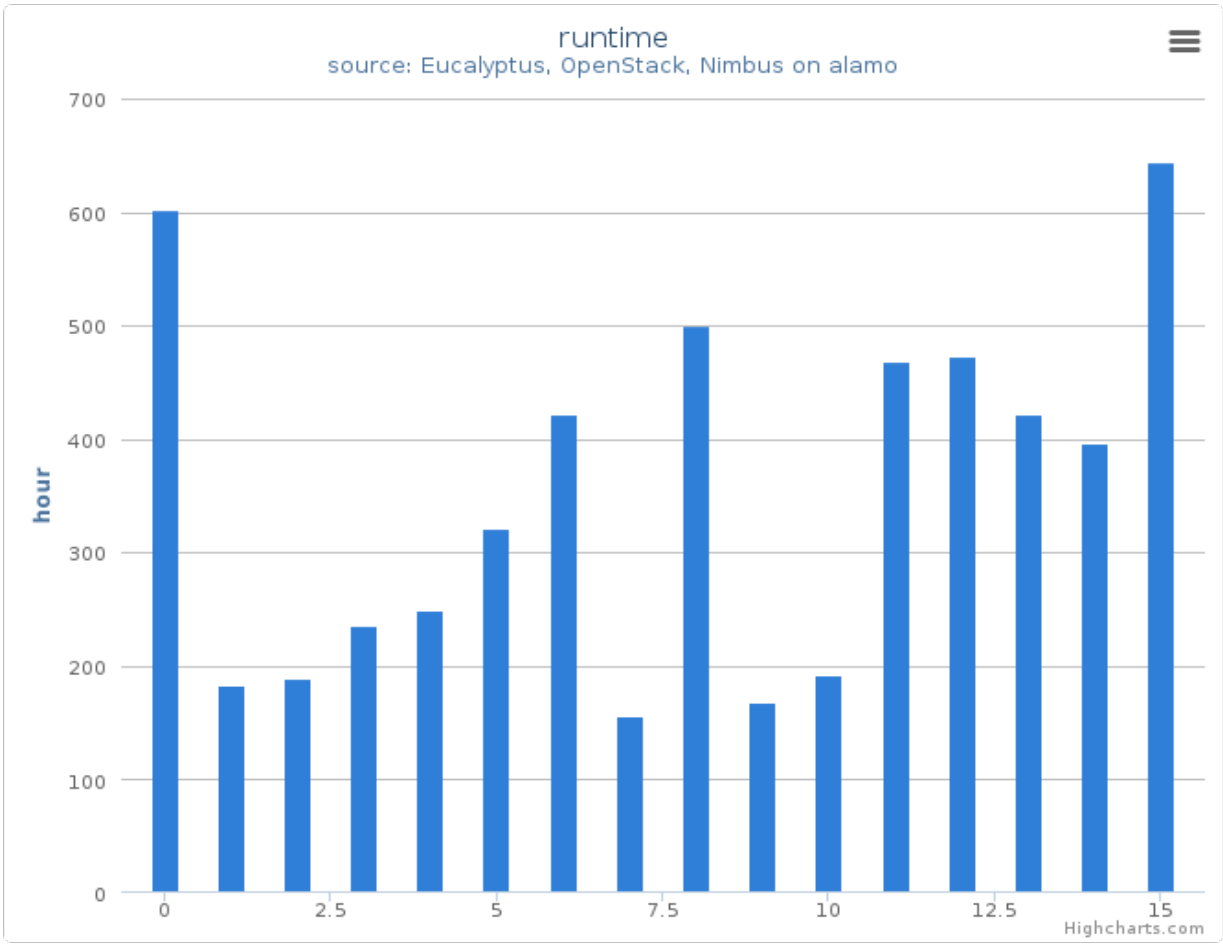

Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (alamo)
This column chart represents wall time among systems.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: alamo

CHAPTER

SIX

USAGE REPORT FOXTROT

- Period: January 01 – March 31, 2012
- Hostname: foxtrot.futuregrid.org
- Services: nimbus
- Metrics: VMs count, Users count, Wall time (hours), Distribution by wall time, project, project leader, and institution, and systems

6.1 Histogram

6.1.1 Summary (Monthly)

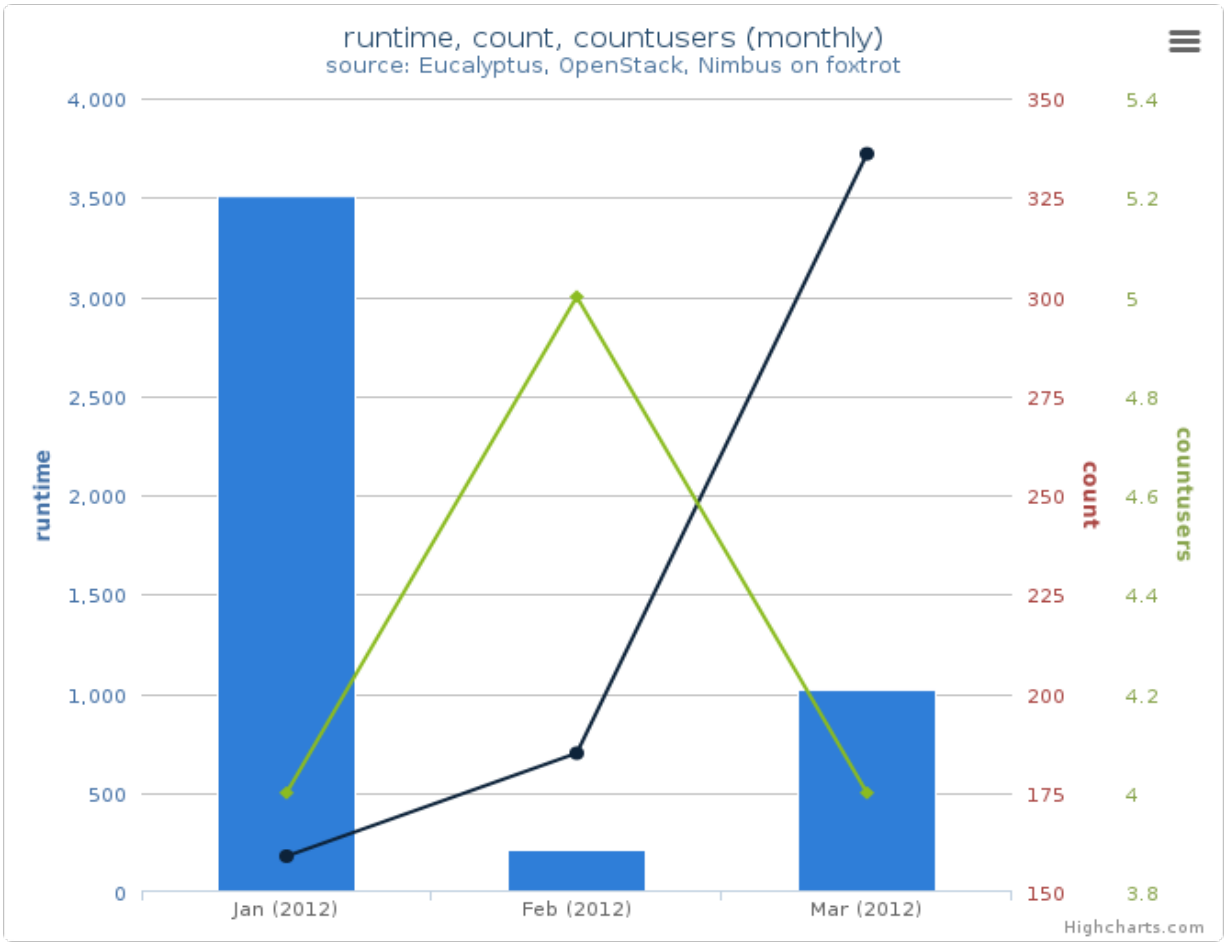

Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)
This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: foxtrot
- **Metric:**
  - Runtime (Wall time hours): Sum of time elapsed from launch to termination of VM instances
  - Count (VM count): The number of launched VM instances
  - User count (Active): The number of users who launched VMs

6.1.2 Summary (Daily)

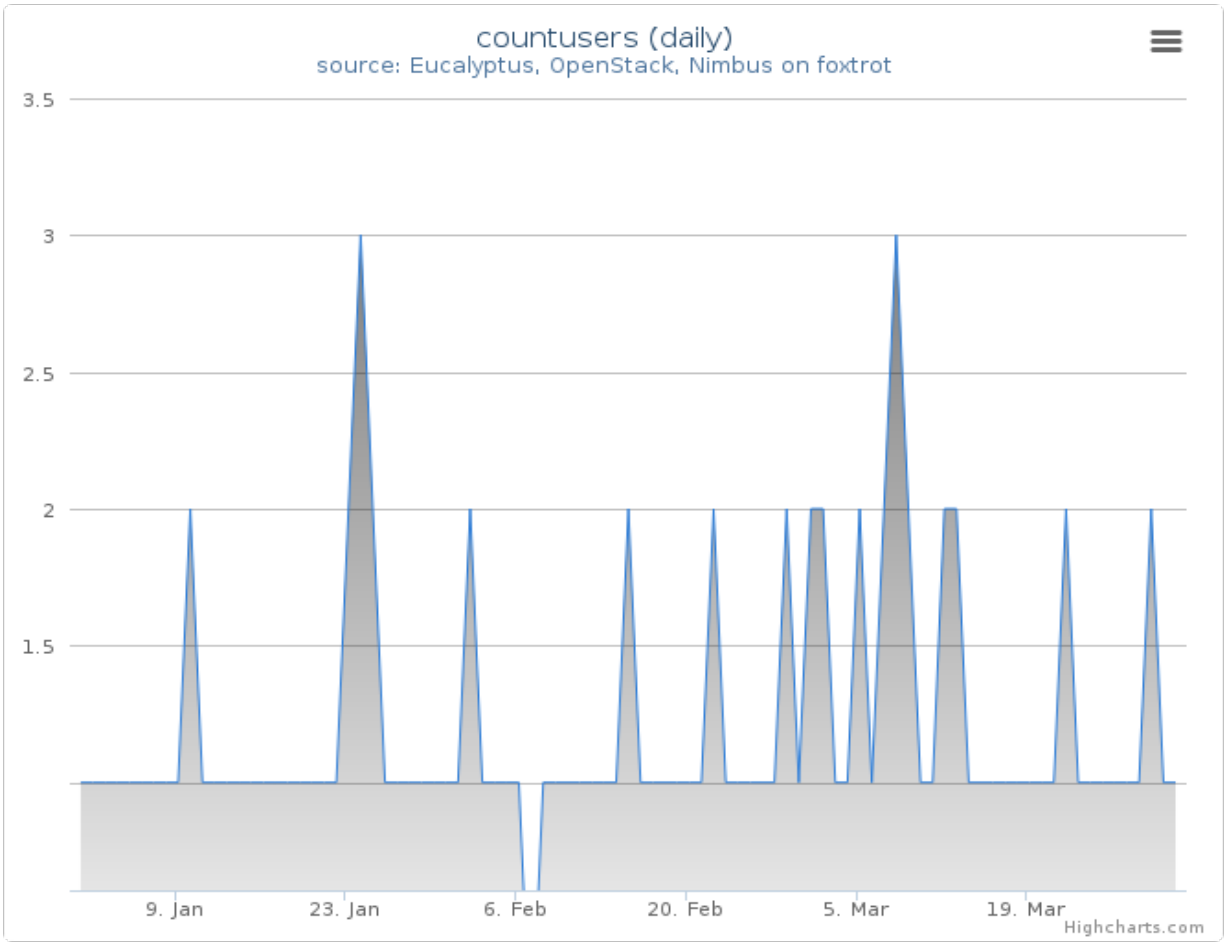

Figure 2: Users count

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: foxtrot

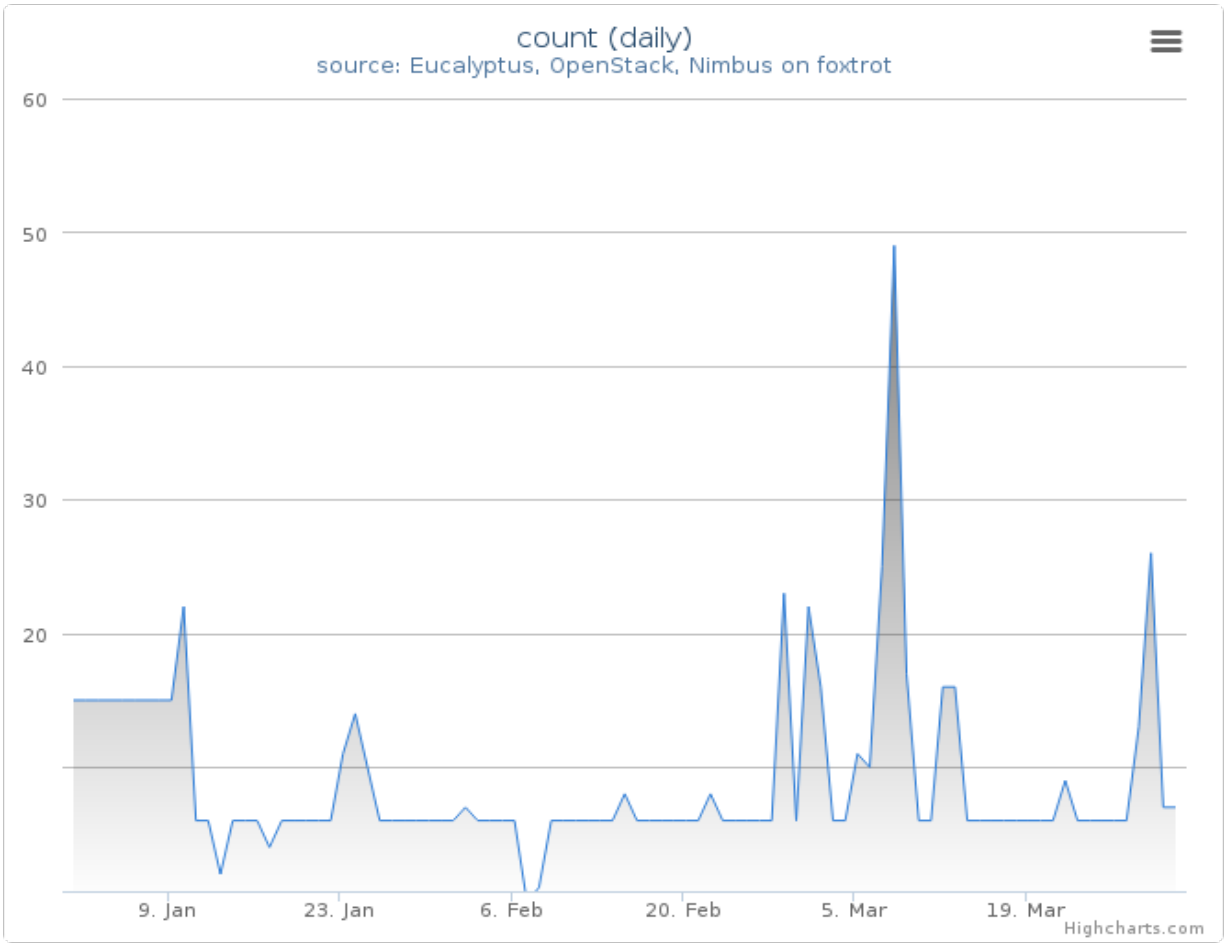

Figure 3: VMs count

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: foxtrot

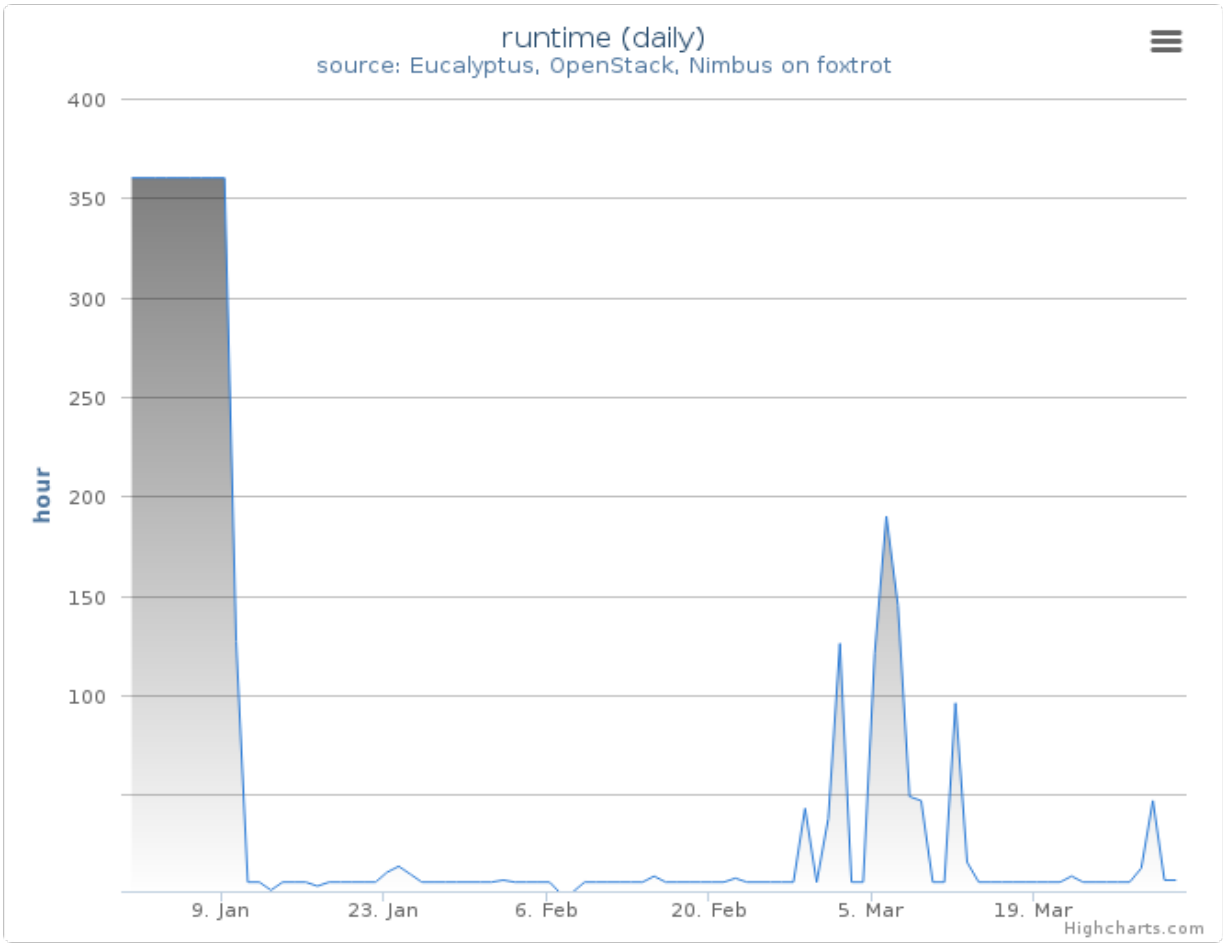

Figure 4: Wall time (hours)
This time series chart represents daily wall time (hours) for cloud services and shows historical changes during the period.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: foxtrot

6.2 Distribution

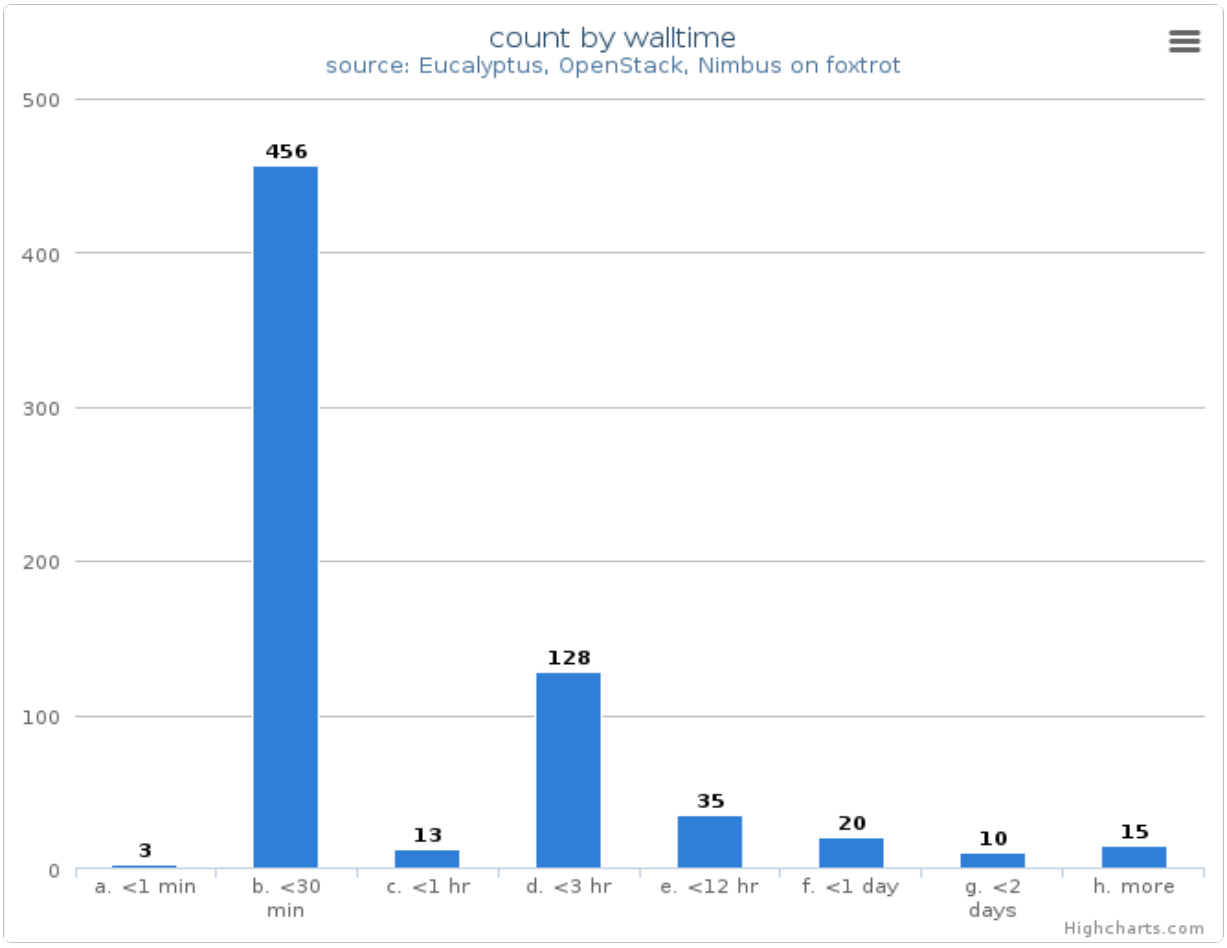

Figure 5: VM count by wall time
This chart illustrates usage patterns of VM instances in terms of running wall time.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: foxtrot

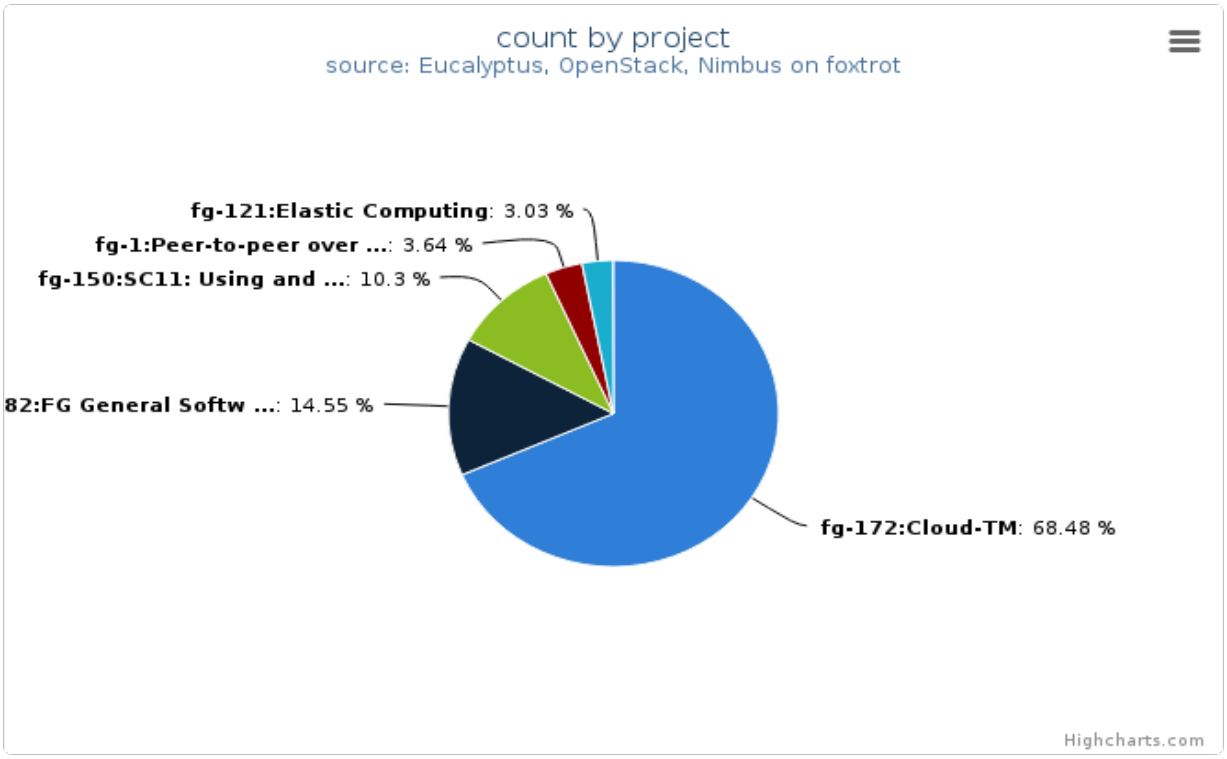

Figure 6: VMs count by project
This chart illustrates the proportion of launched VM instances by project groups. The same data in tabular form follows.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: foxtrot

Table 6.1: VMs count by project

Project	Value
fg-172:Cloud-TM	113
fg-82:FG General Software Development	24
fg-150:SC11: Using and Building Infrastructure Clouds for Science	17
fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters	6
fg-121:Elastic Computing	5

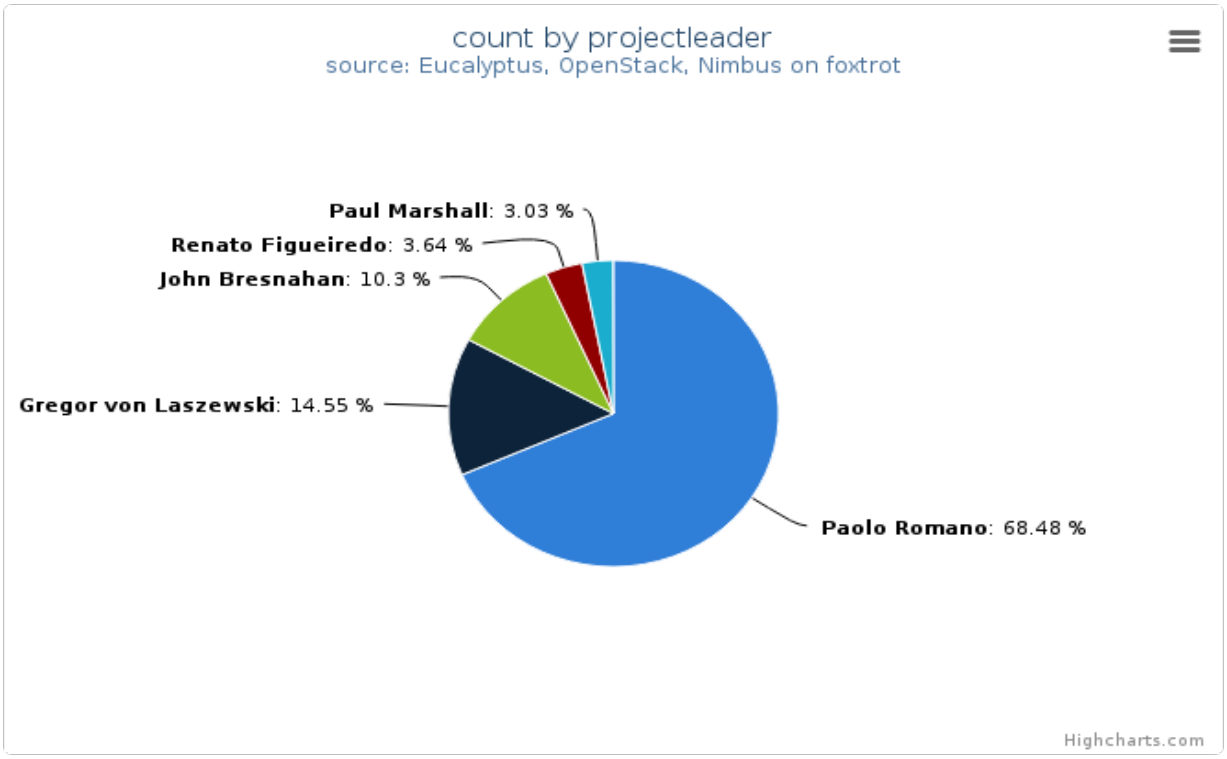

Figure 7: VMs count by project leader

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

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: foxtrot

Table 6.2: VMs count by project leader

Projectleader	Value
Paolo Romano	113
Gregor von Laszewski	24
John Bresnahan	17
Renato Figueiredo	6
Paul Marshall	5

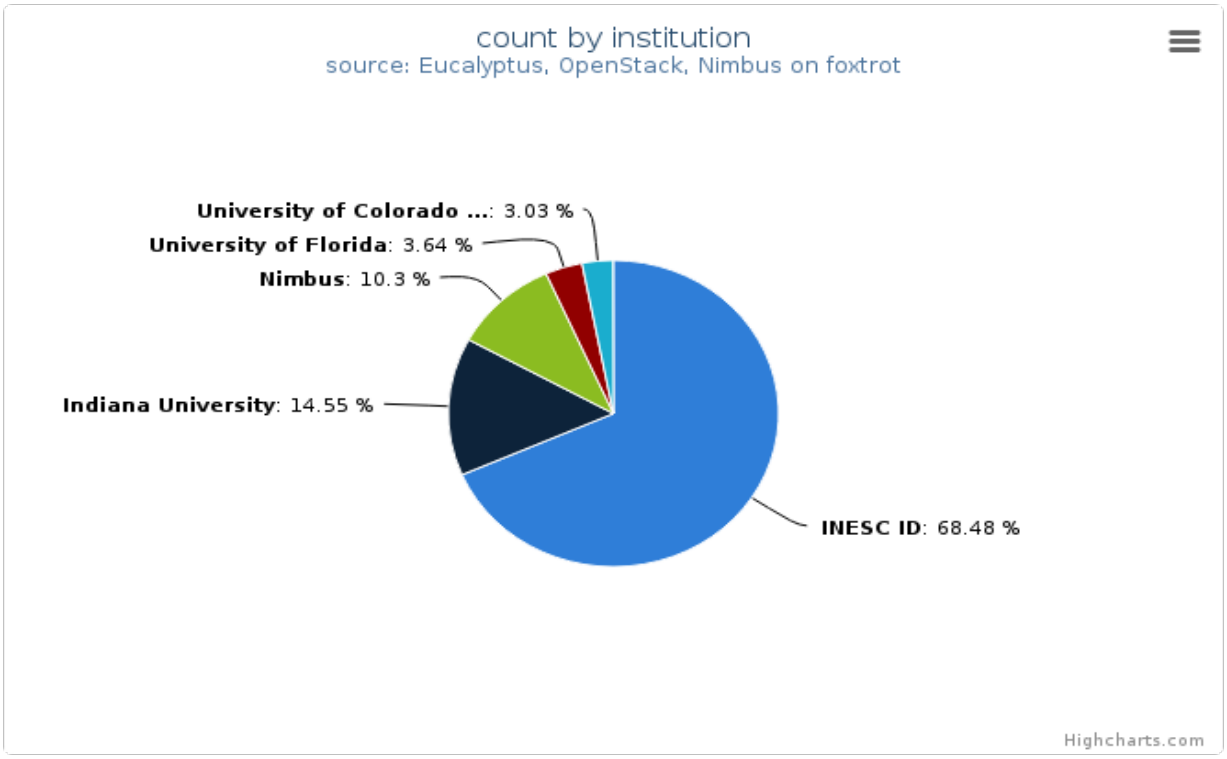

Figure 8: VMs count by institution
This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: foxtrot

Table 6.3: VMs count by institution

Institution	Value
INESC ID	113
Indiana University	24
Nimbus	17
University of Florida	6
University of Colorado at Boulder	5

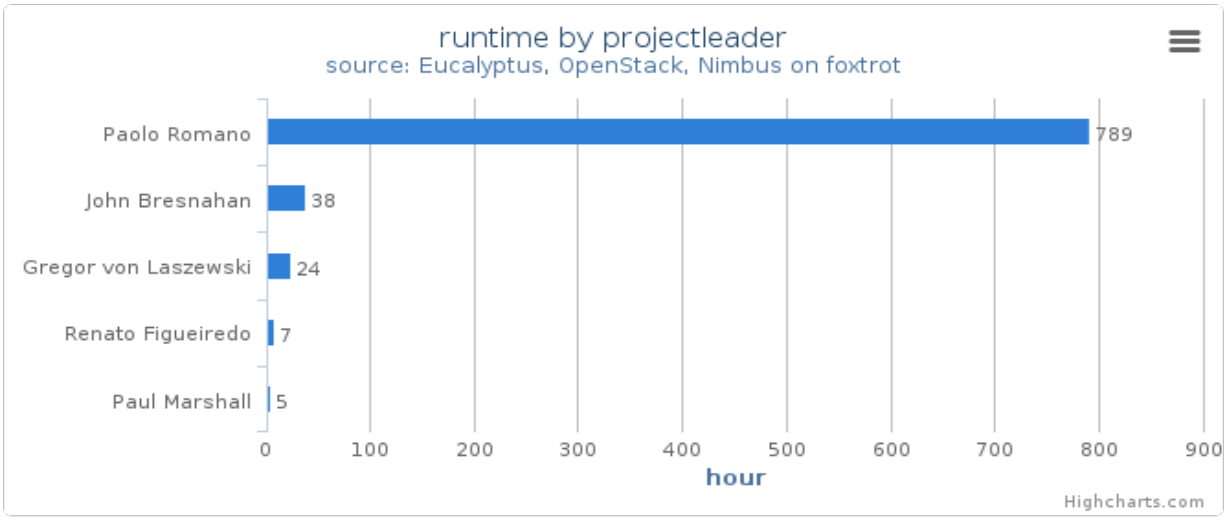

Figure 9: Wall time (hours) by project leader
This chart illustrates proportionate total run times by project leader.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: foxtrot

6.3 System information

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

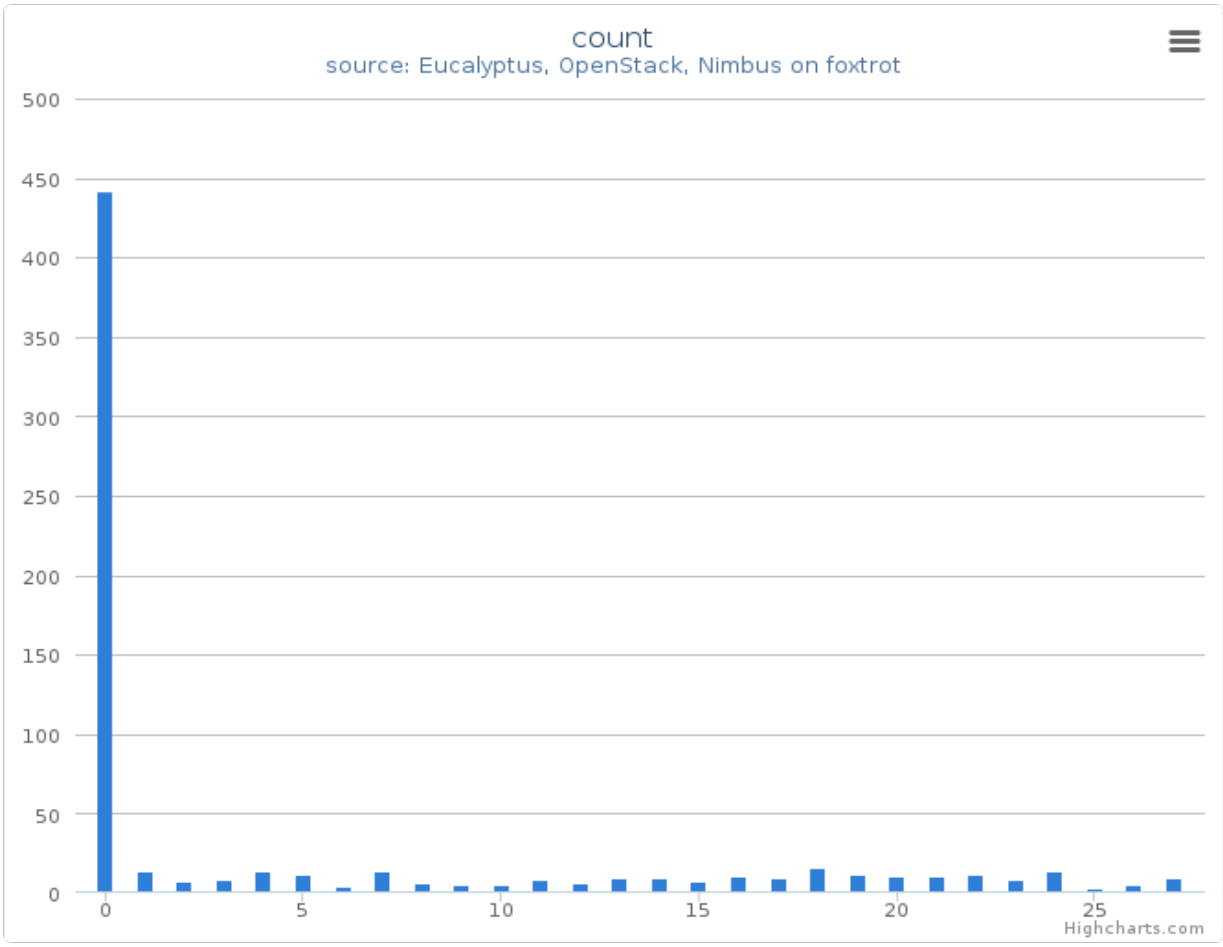

Figure 10: VMs count by systems (compute nodes) in Cluster (foxtrot)
This column chart represents VMs count among systems.

- Period: January 01 – March 31, 2012
- Cloud(IaaS): nimbus
- Hostname: foxtrot

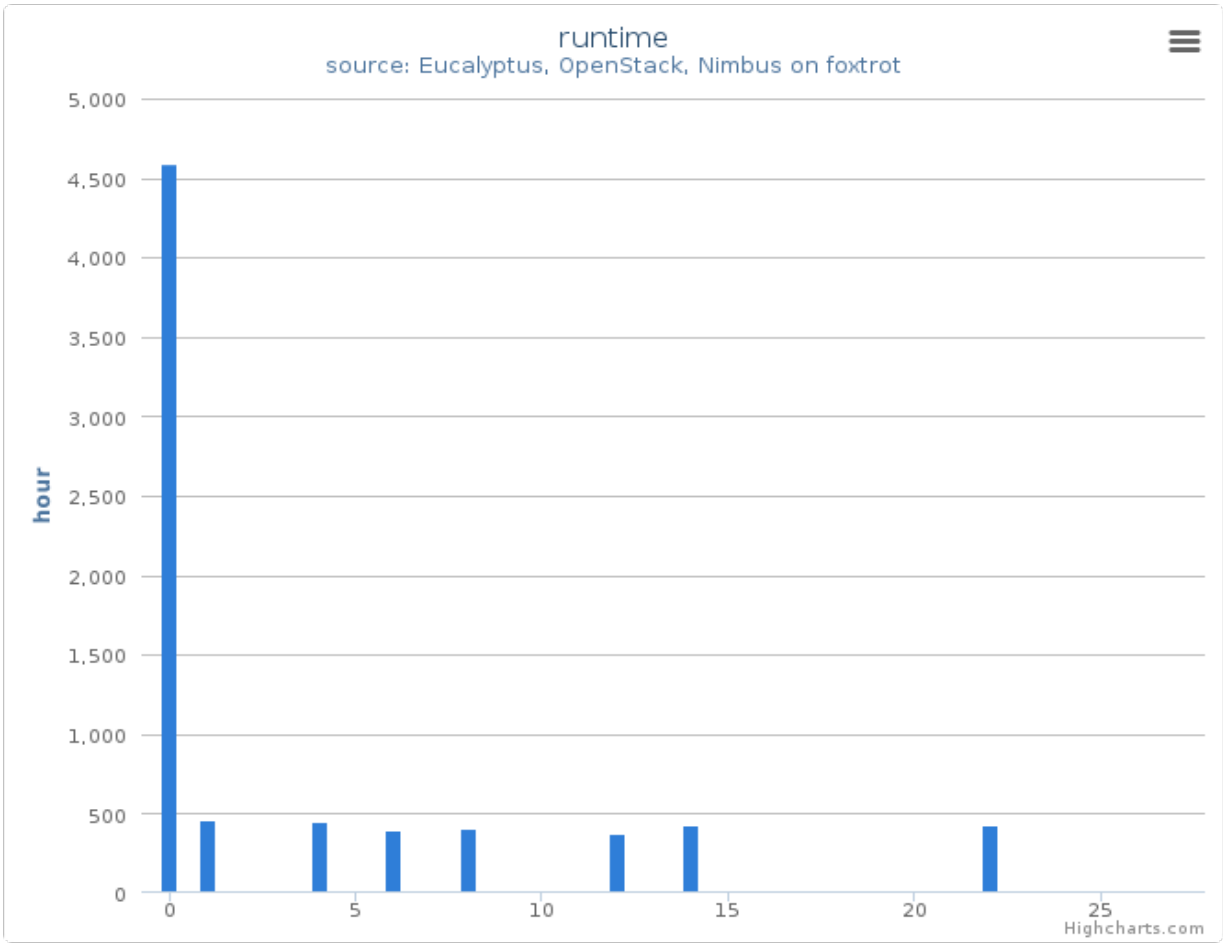

Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (foxtrot)
This column chart represents wall time among systems.

- Period: January 01 – March 31, 2012
- 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.