# FG Resource Report

***Release 0.4***

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# CONTENTS

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CHAPTER

ONE

# SUMMARY REPORT (ALL)

- Period: October 01 – December 23, 2013
- Cloud(india.futuregrid.org): eucalyptus, openstack
- Cloud(sierra.futuregrid.org): eucalyptus, nimbus
- Cloud(hotel.futuregrid.org): nimbus
- Cloud(alamo.futuregrid.org): nimbus
- Cloud(foxtrot.futuregrid.org): nimbus
- Metrics: VMs count, Users count, Wall hours, Distribution by Wall Hours, Project, Project Leader, and Institution, and Systems

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

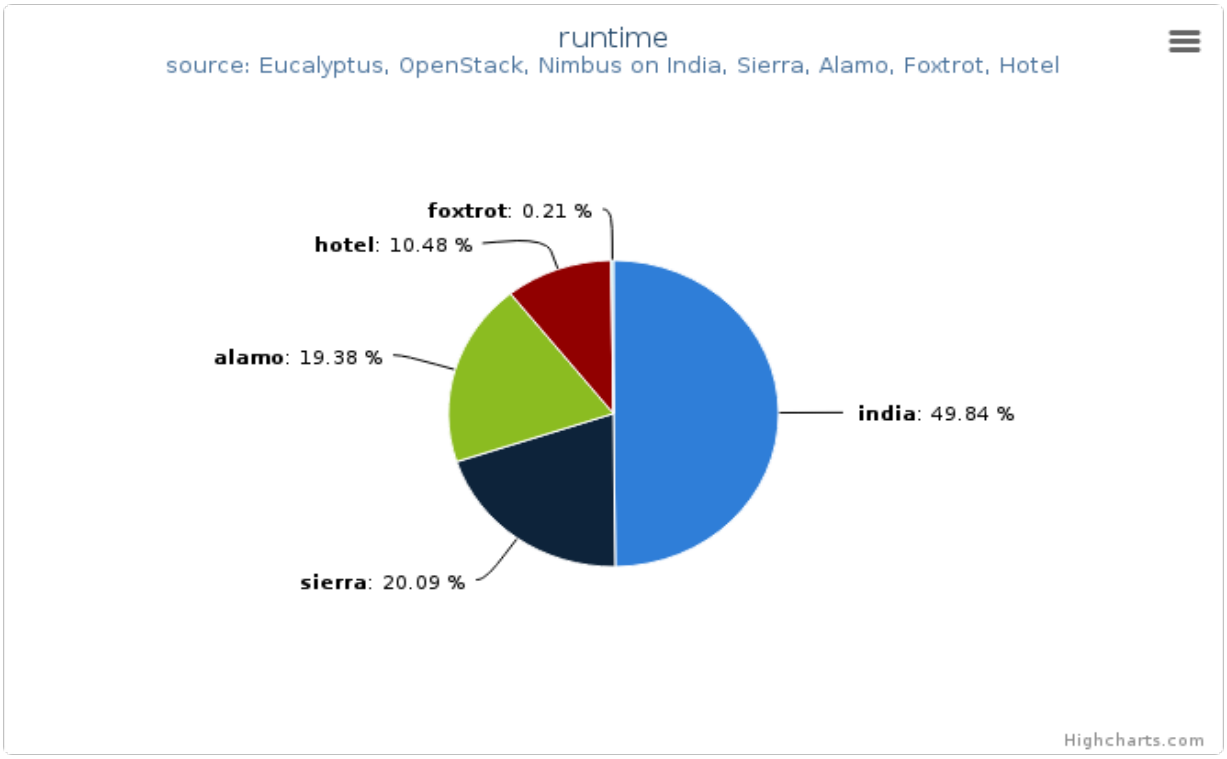


Figure 1. Wall time (hours) by Clusters
This chart represents overall usage of wall time (hours).

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

Table 1.1: Wall time (hours) by Clusters

| Total | Value |
|---|---|
| india | 176226.0 |
| sierra | 71044.0 |
| alamo | 68534.0 |
| hotel | 37051.0 |
| foxtrot | 746.0 |

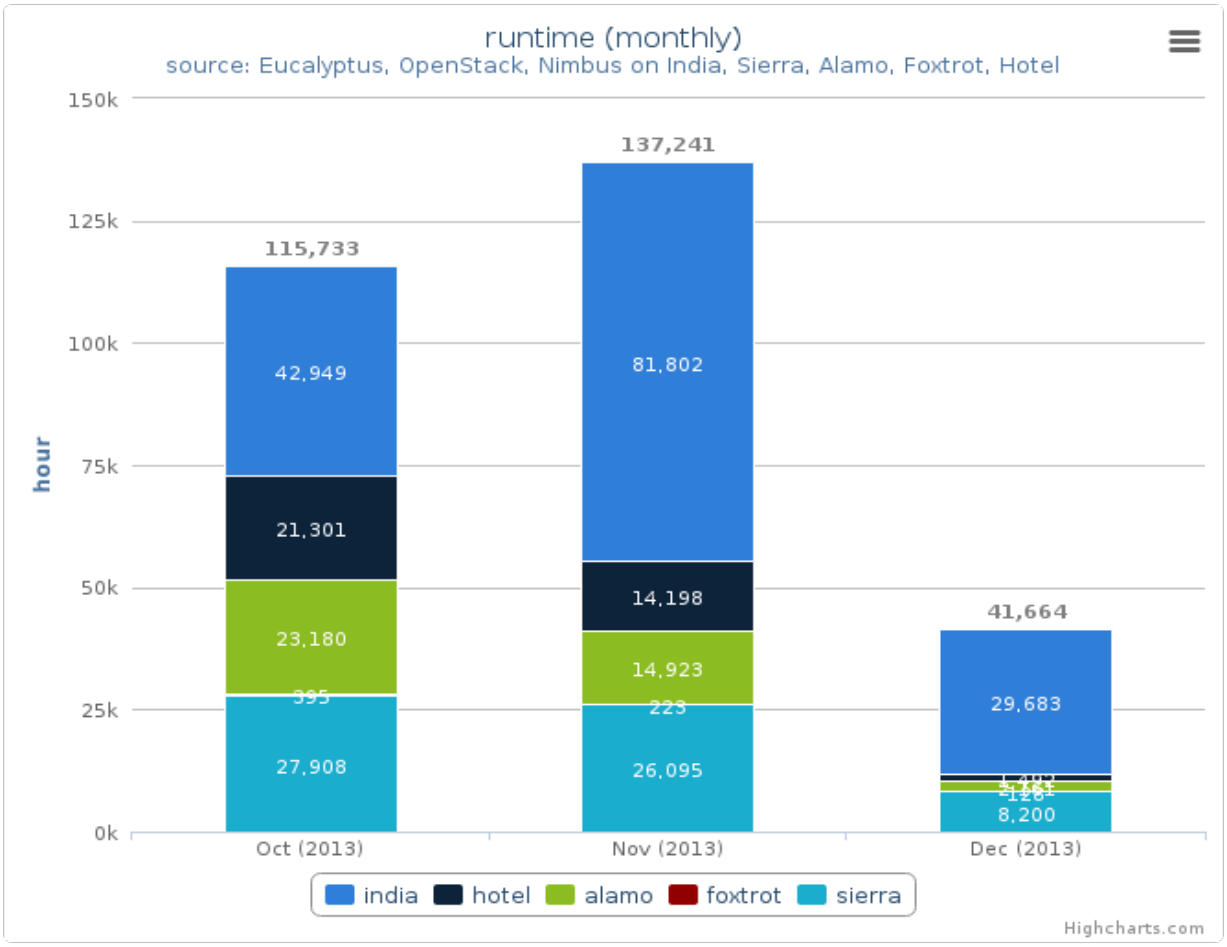


Figure 2. Wall time (hours) by Clusters (monthly)
This stacked column chart represents average monthly usage of wall time (hours).

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

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

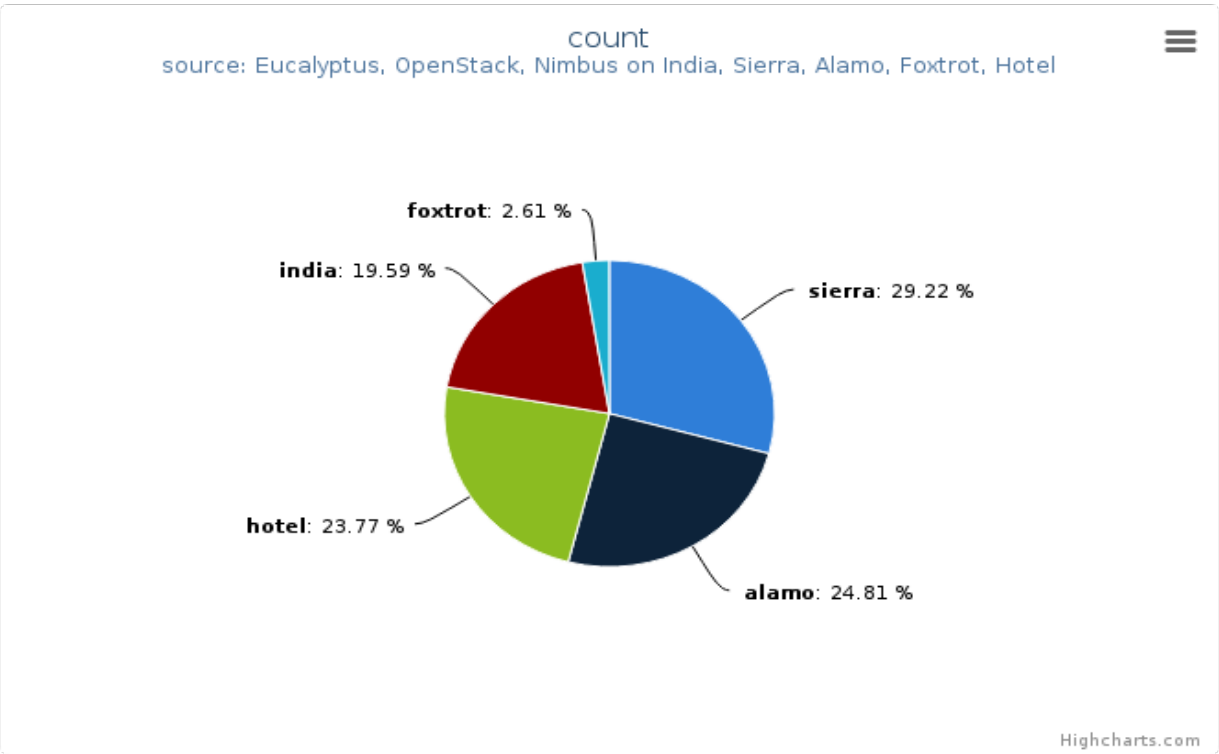


Figure 3. VMs count by Clusters
This chart represents overall VM instances count during the period.

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

Table 1.2: VM instance count by Clusters

| Total | Value |
|---|---|
| sierra | 5242 |
| alamo | 4452 |
| hotel | 4264 |
| india | 3514 |
| foxtrot | 469 |

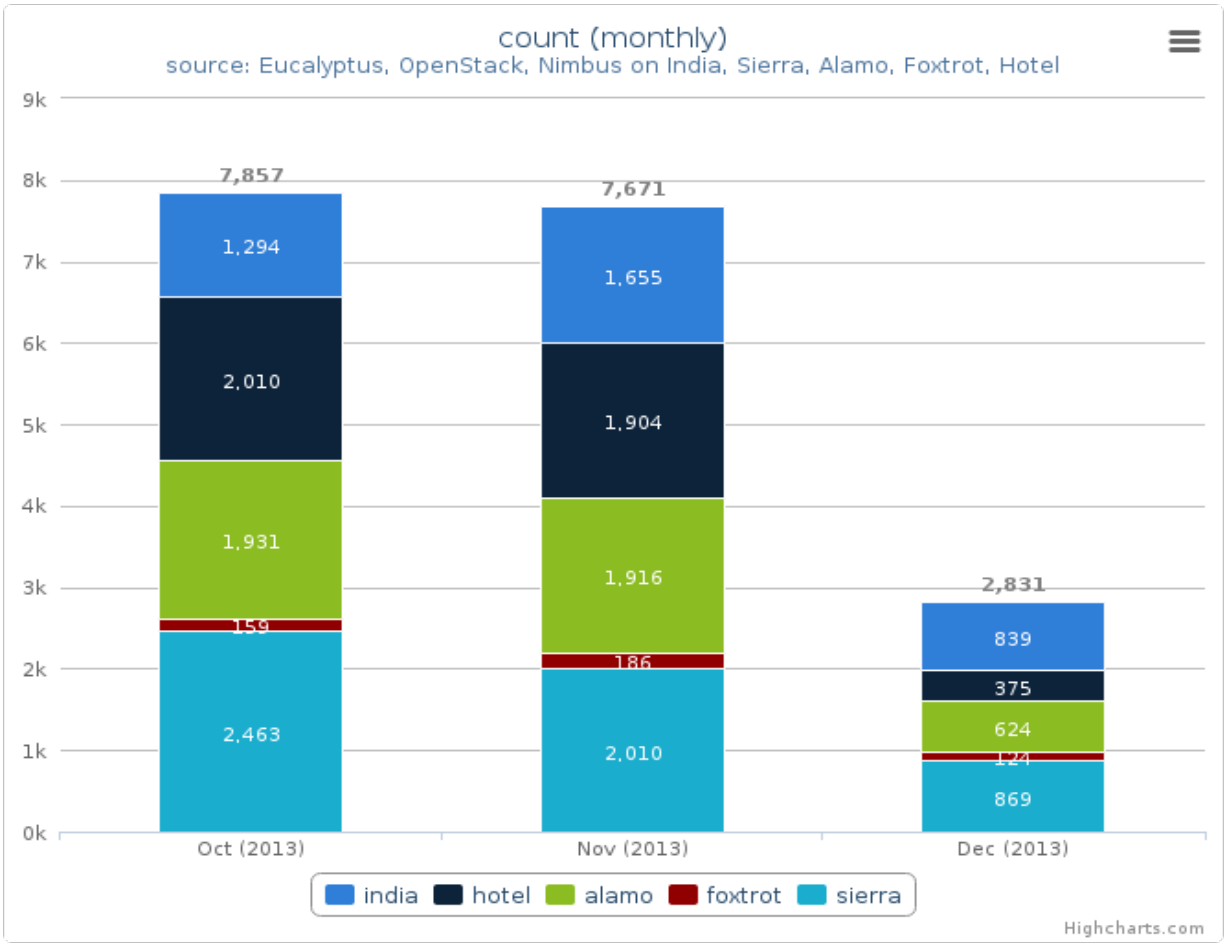


Figure 4. VMs count by Clusters (monthly)
This stacked column chart represents average VM instances count per month.

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

## 1.3 Users Count by Clusters (Total, monthly)

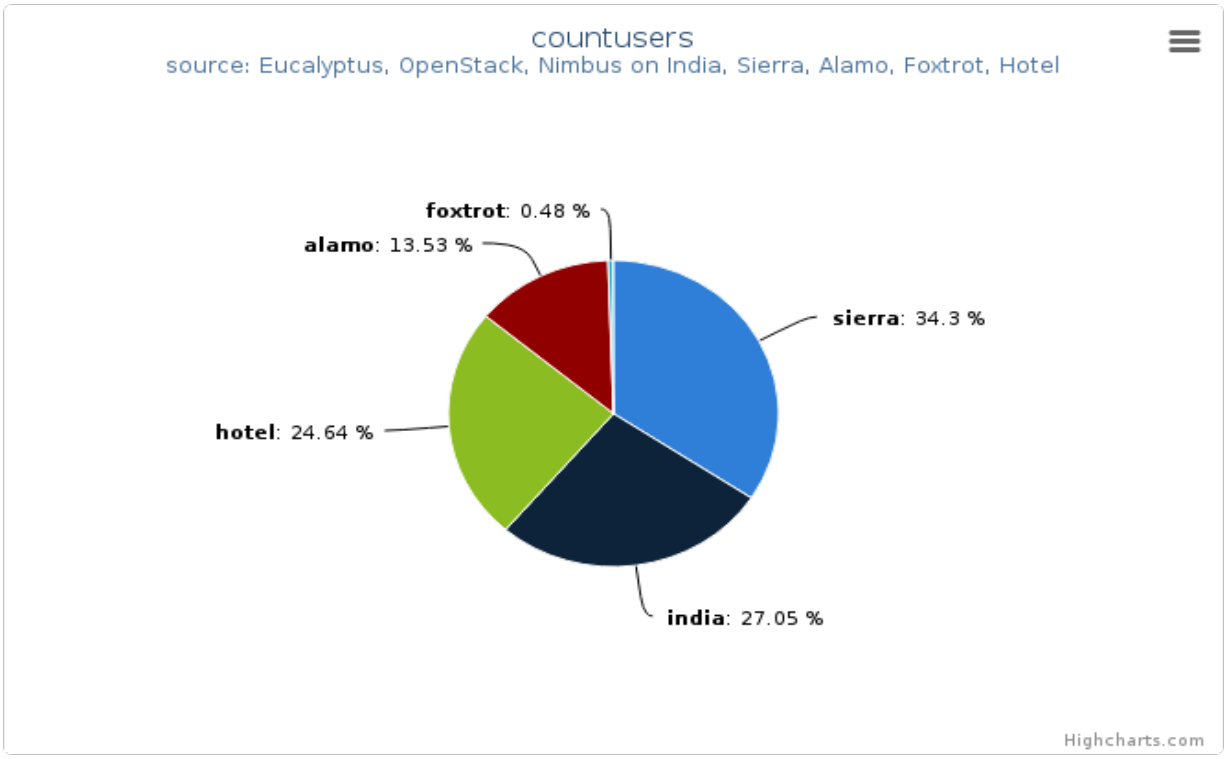


Figure 5. Unique User count by Clusters
This chart represents total number of unique active users.

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

Table 1.3: Unique User count by Clusters

| Total | Value |
|---|---|
| sierra | 71 |
| india | 56 |
| hotel | 51 |
| alamo | 28 |
| foxtrot | 1 |

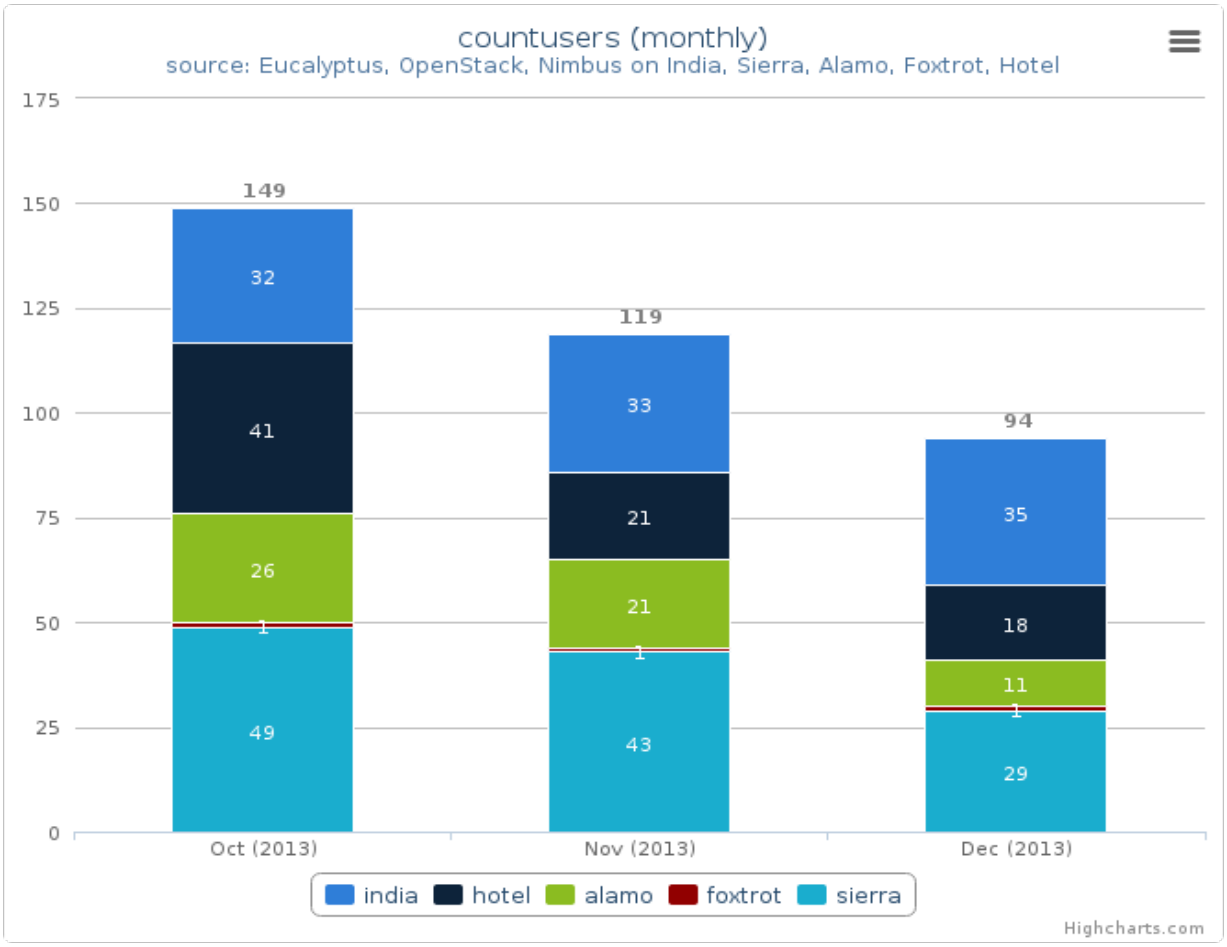


Figure 6. Users count by Clusters (Monthly)
This stacked column chart represents average count of active users per month.

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

CHAPTER

TWO

# USAGE REPORT INDIA

- Period: October 01 – December 23, 2013
- Hostname: india.futuregrid.org
- Services: openstack, eucalyptus
- Metrics: VMs count, Users count, Wall time (hours), Distribution by wall time, project, project leader, and institution, and systems

## 2.1 Histogram

### 2.1.1 Summary (Monthly)

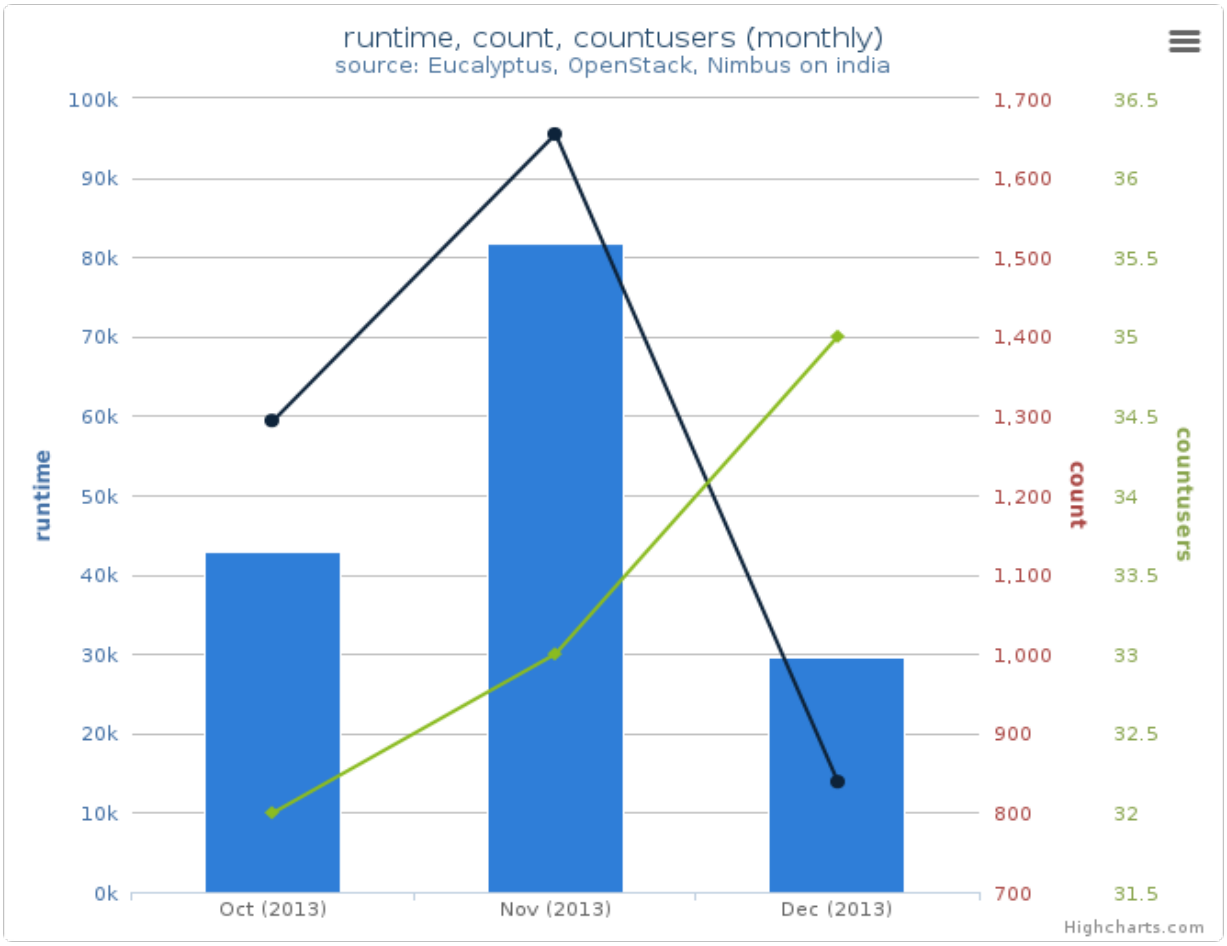


Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)
This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: October 01 – December 23, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india
- **Metric:**
  - Runtime (Wall time hours): Sum of time elapsed from launch to termination of VM instances
  - Count (VM count): The number of launched VM instances
  - User count (Active): The number of users who launched VMs

### 2.1.2 Summary (Daily)

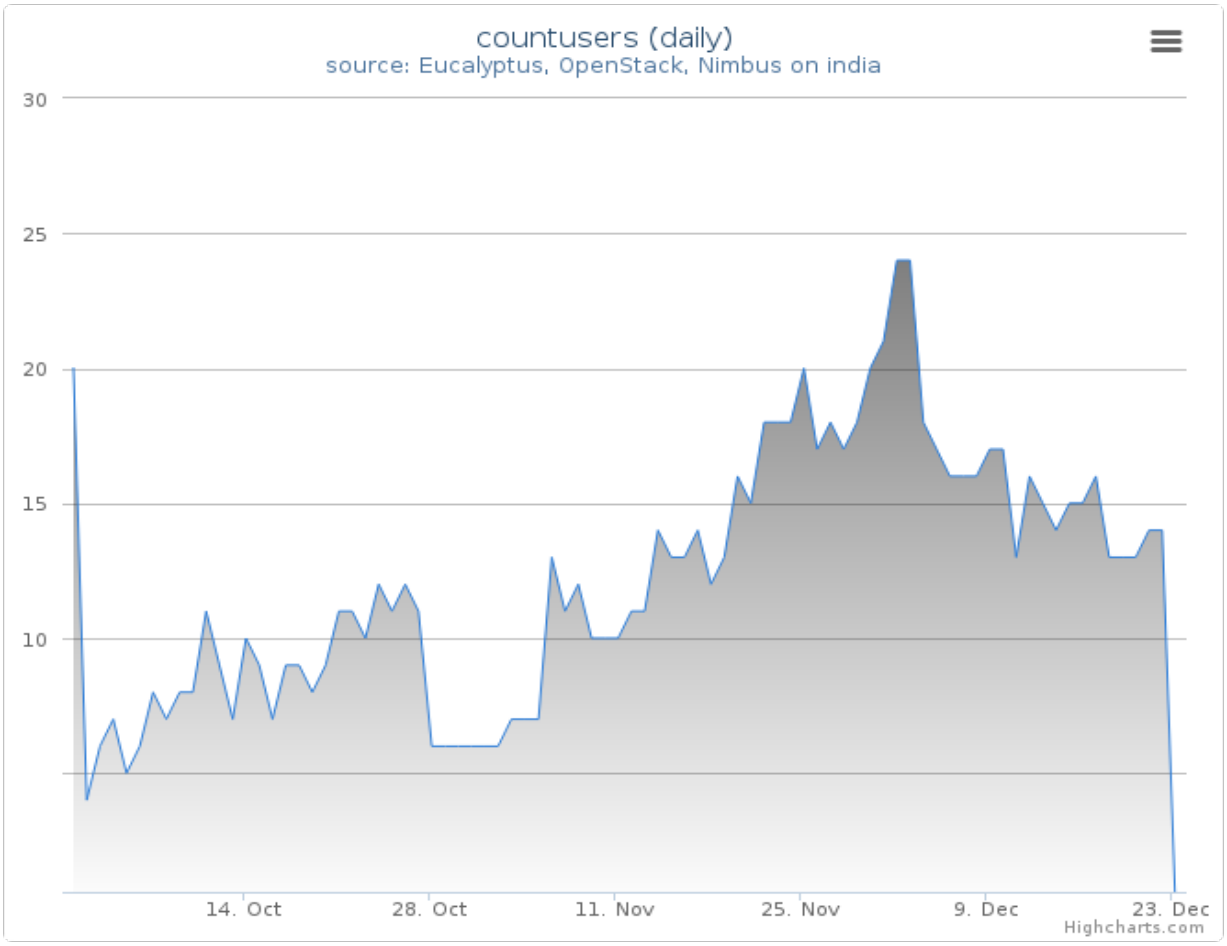


Figure 2: Users count

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

- Period: October 01 – December 23, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

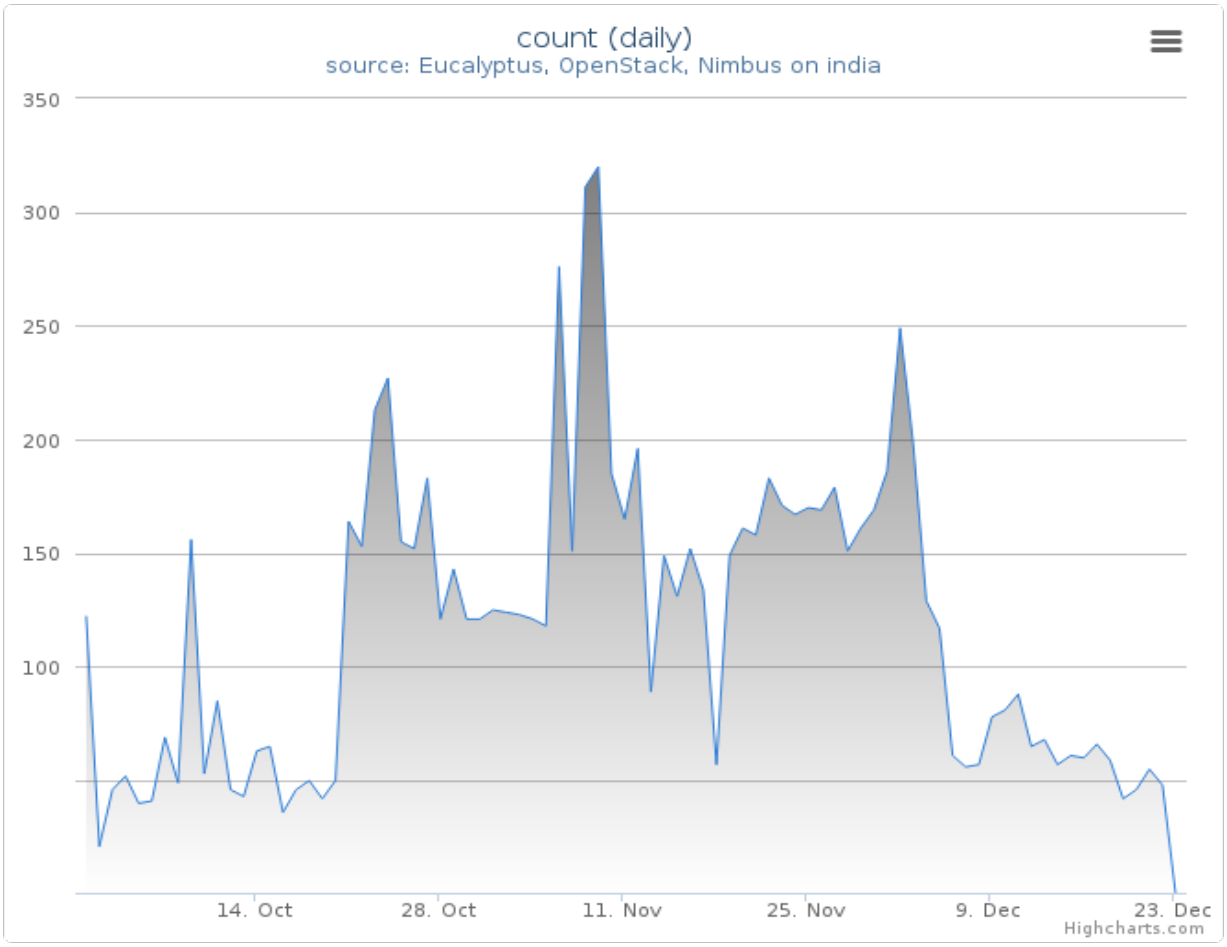


Figure 3: VMs count

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

- Period: October 01 – December 23, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

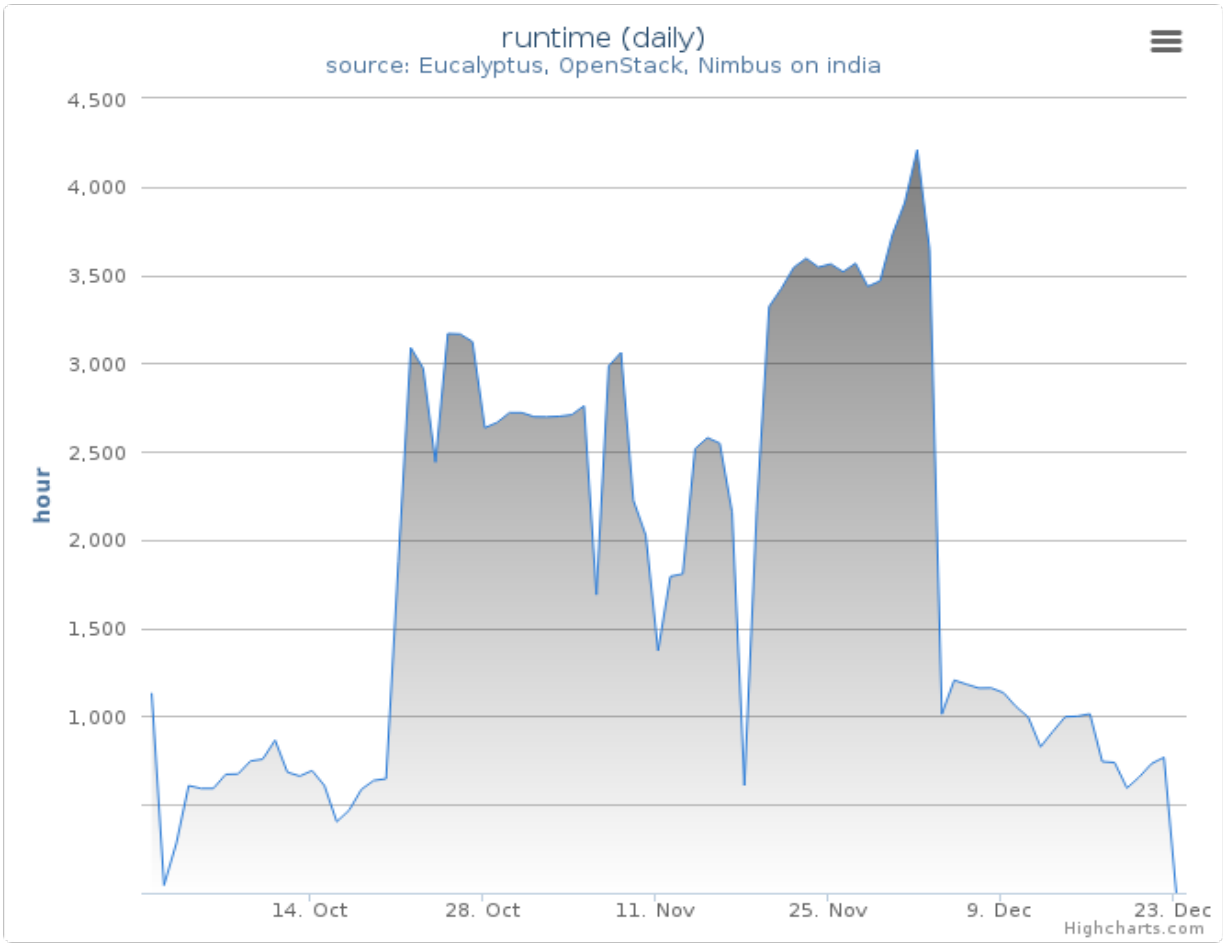


Figure 4: Wall time (hours)

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

- Period: October 01 – December 23, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

## 2.2 Distribution

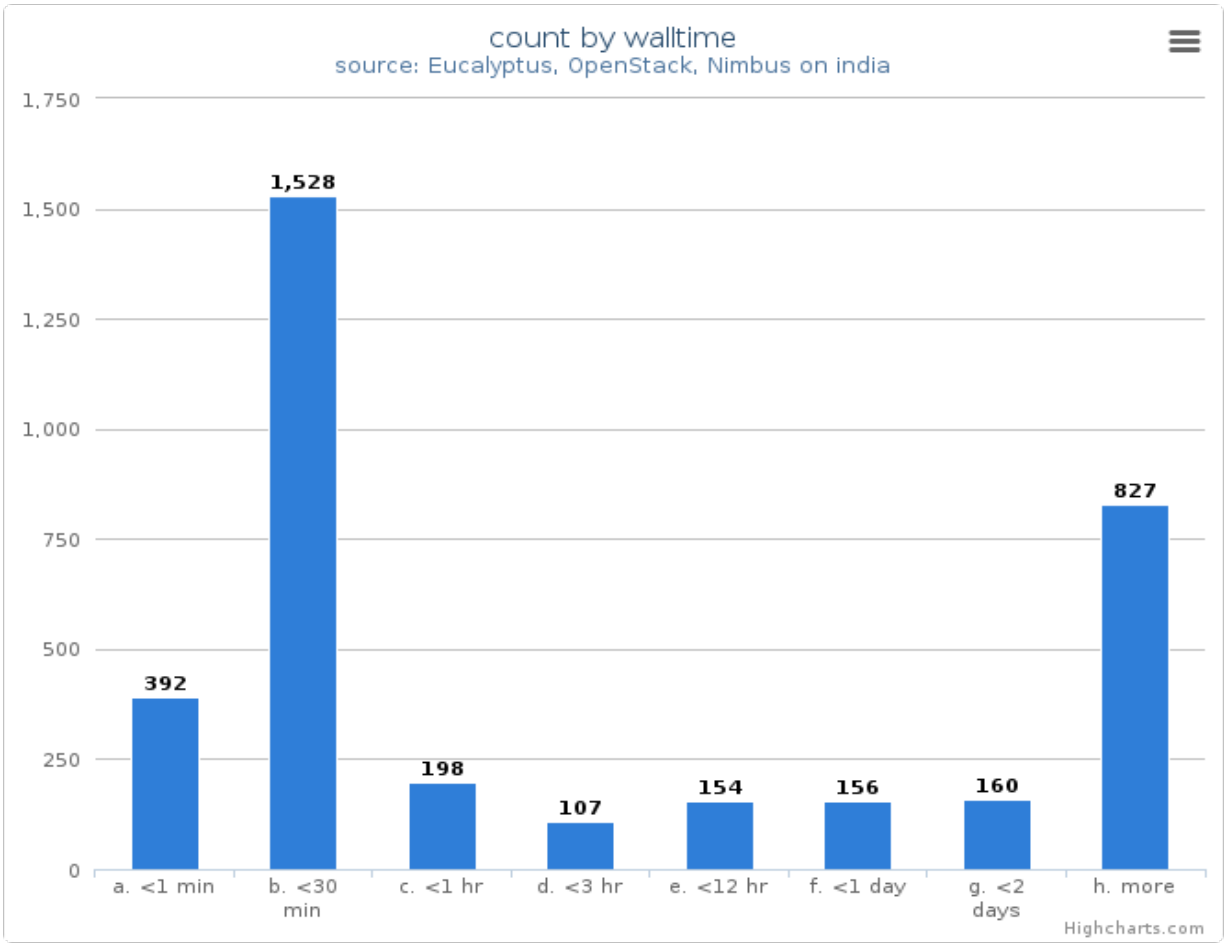


Figure 5: VM count by wall time
This chart illustrates usage patterns of VM instances in terms of running wall time.

- Period: October 01 – December 23, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

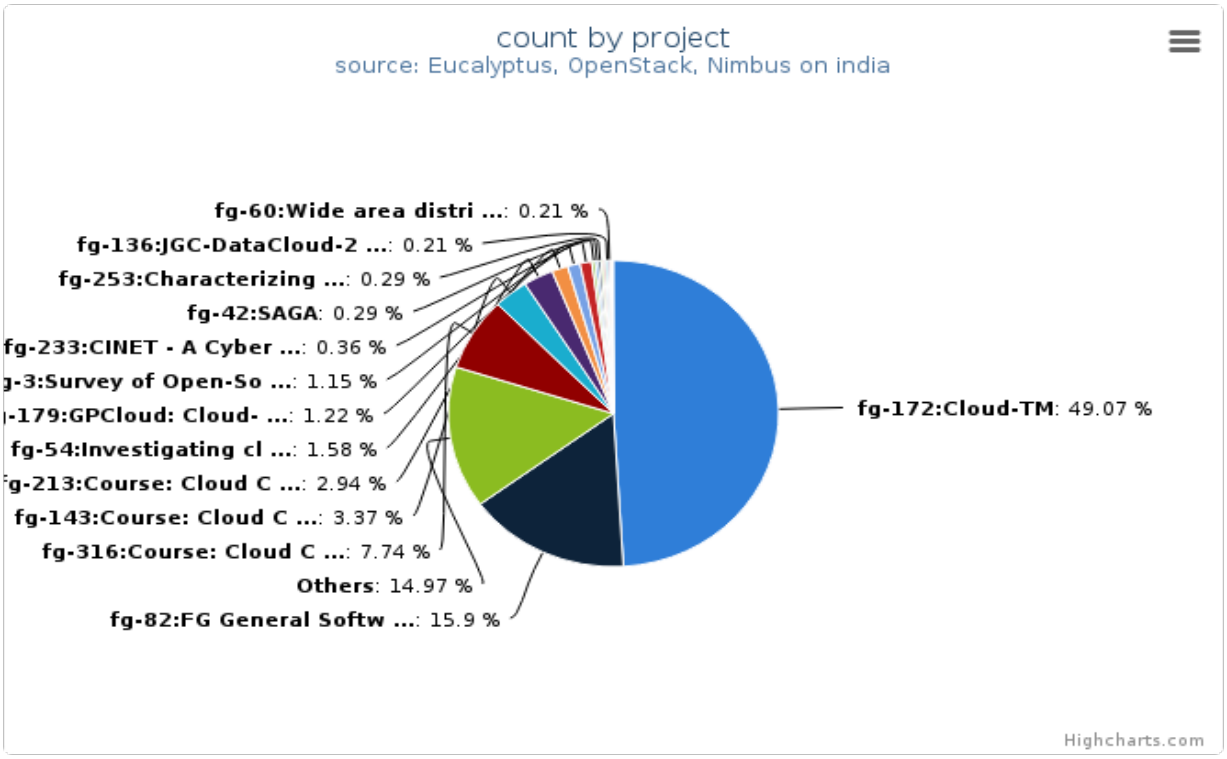


Figure 6: VMs count by project

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

- Period: October 01 – December 23, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

Table 2.1: VMs count by project

| Project | Value |
|---|---|
| fg-172:Cloud-TM | 685 |
| fg-82:FG General Software Development | 222 |
| Others | 209 |
| fg-316:Course: Cloud Computing Class - third edition | 108 |
| fg-143:Course: Cloud Computing for Data Intensive Science Class | 47 |
| fg-213:Course: Cloud Computing class - second edition | 41 |
| fg-54:Investigating cloud computing as a solution for analyzing particle physics data | 22 |
| fg-179:GPCloud: Cloud-based Automatic Repair of Real-World Software Bugs | 17 |
| fg-3:Survey of Open-Source Cloud Infrastructure using FutureGrid Testbed | 16 |
| fg-233:CINET - A Cyber-Infrastructure for Network Science | 5 |
| fg-42:SAGA | 4 |
| fg-253:Characterizing Performance of Infrastructure Clouds | 4 |
| fg-201:ExTENCI Testing, Validation, and Performance | 3 |
| fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters | 3 |
| fg-136:JGC-DataCloud-2012 paper experiments | 3 |
| fg-60:Wide area distributed file system for MapReduce applications on FutureGrid platform | 3 |
| fg-149:Metagenome analysis of benthic marine invertebrates | 2 |
| fg-189:Pegasus development and improvement platform | 1 |
| fg-20:Development of an information service for FutureGrid | 1 |

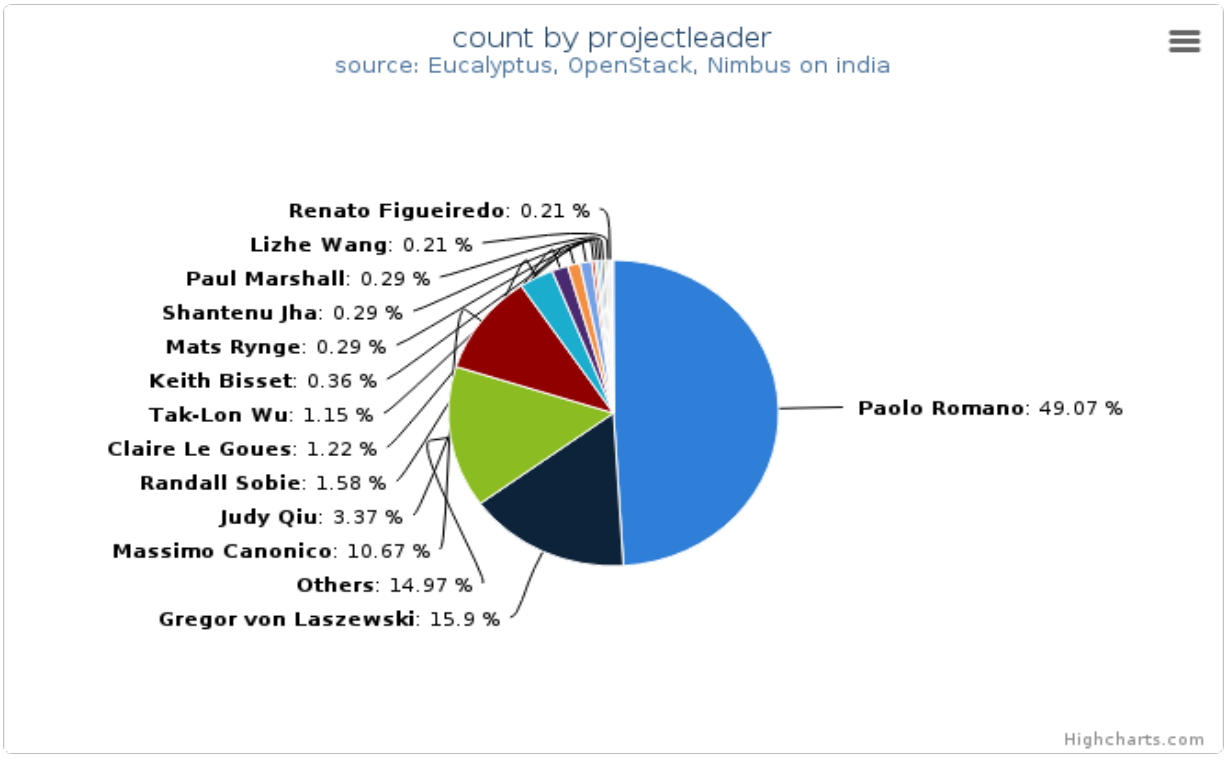


Figure 7: VMs count by project leader

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

follows.

- Period: October 01 – December 23, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

Table 2.2: VMs count by project leader

| Projectleader | Value |
|---|---|
| Paolo Romano | 685 |
| Gregor von Laszewski | 222 |
| Others | 209 |
| Massimo Canonico | 149 |
| Judy Qiu | 47 |
| Randall Sobie | 22 |
| Claire Le Goues | 17 |
| Tak-Lon Wu | 16 |
| Keith Bisset | 5 |
| Mats Rynge | 4 |
| Shantenu Jha | 4 |
| Paul Marshall | 4 |
| Preston Smith | 3 |
| Lizhe Wang | 3 |
| Renato Figueiredo | 3 |
| Jason Kwan | 2 |
| Hyungro Lee | 1 |

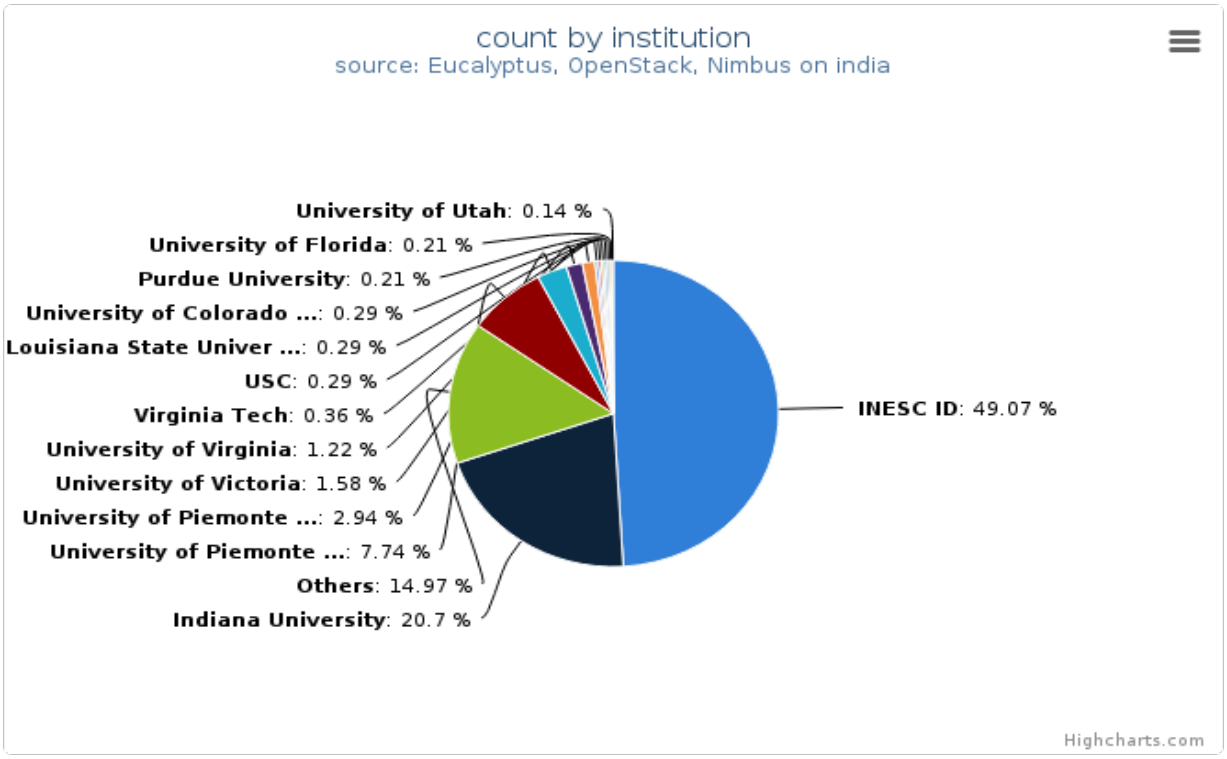


Figure 8: VMs count by institution
This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

- Period: October 01 – December 23, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

Table 2.3: VMs count by institution

| Institution | Value |
|---|---|
| INESC ID | 685 |
| Indiana University | 289 |
| Others | 209 |
| University of Piemonte Orientale, Computer Science Department | 108 |
| University of Piemonte Orientale | 41 |
| University of Victoria | 22 |
| University of Virginia | 17 |
| Virginia Tech | 5 |
| USC | 4 |
| Louisiana State University | 4 |
| University of Colorado at Boulder | 4 |
| Purdue University | 3 |
| University of Florida | 3 |
| University of Utah | 2 |

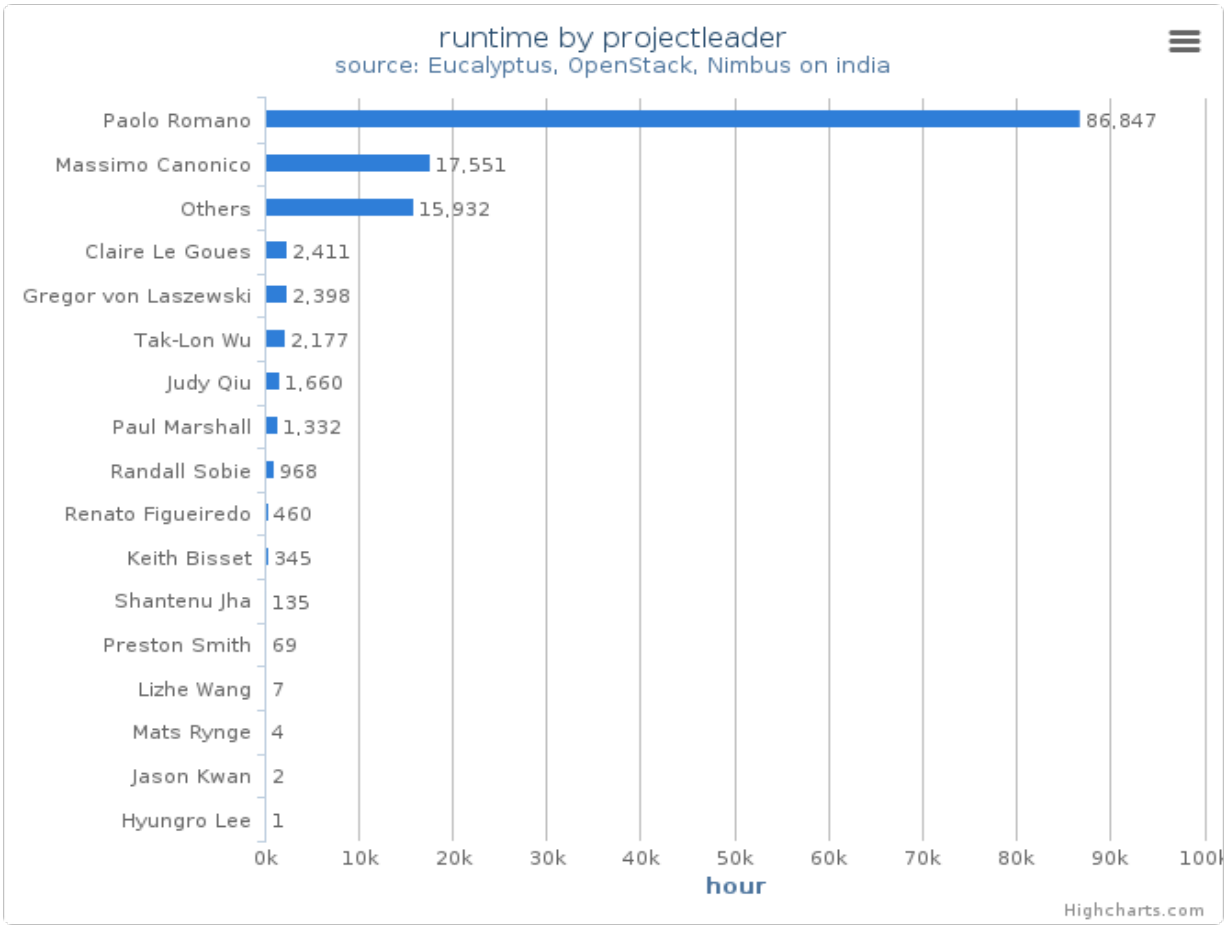


Figure 9: Wall time (hours) by project leader
This chart illustrates proportionate total run times by project leader.

- Period: October 01 – December 23, 2013

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

## 2.3 System information

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

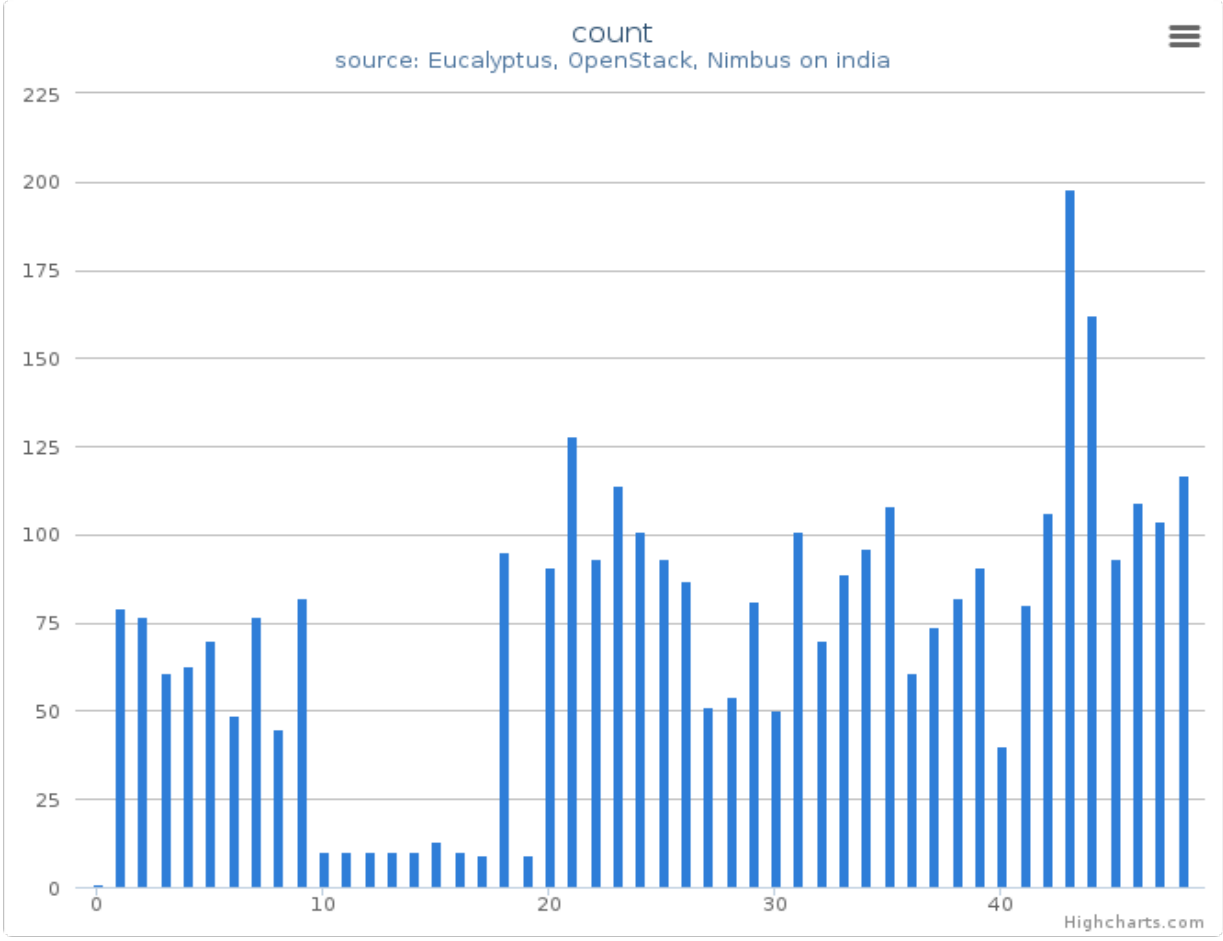


Figure 10: VMs count by systems (compute nodes) in Cluster (india)
This column chart represents VMs count among systems.

- Period: October 01 – December 23, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

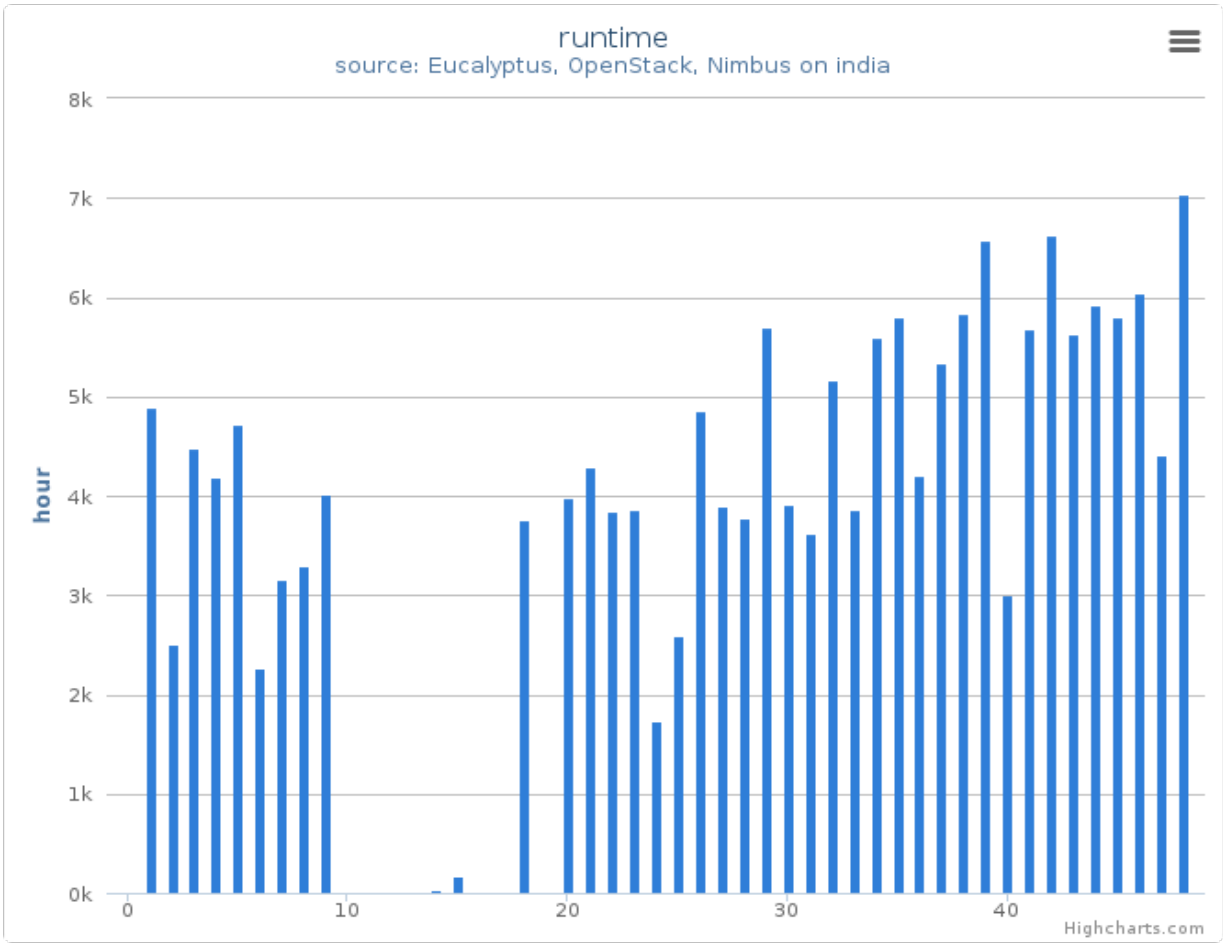


Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (india)
This column chart represents wall time among systems.

- Period: October 01 – December 23, 2013
- Cloud(IaaS): openstack, eucalyptus
- Hostname: india

CHAPTER

THREE

# USAGE REPORT SIERRA

- Period: October 01 – December 23, 2013
- Hostname: sierra.futuregrid.org
- Services: nimbus, openstack, eucalyptus
- Metrics: VMs count, Users count, Wall time (hours), Distribution by wall time, project, project leader, and institution, and systems

## 3.1 Histogram

### 3.1.1 Summary (Monthly)

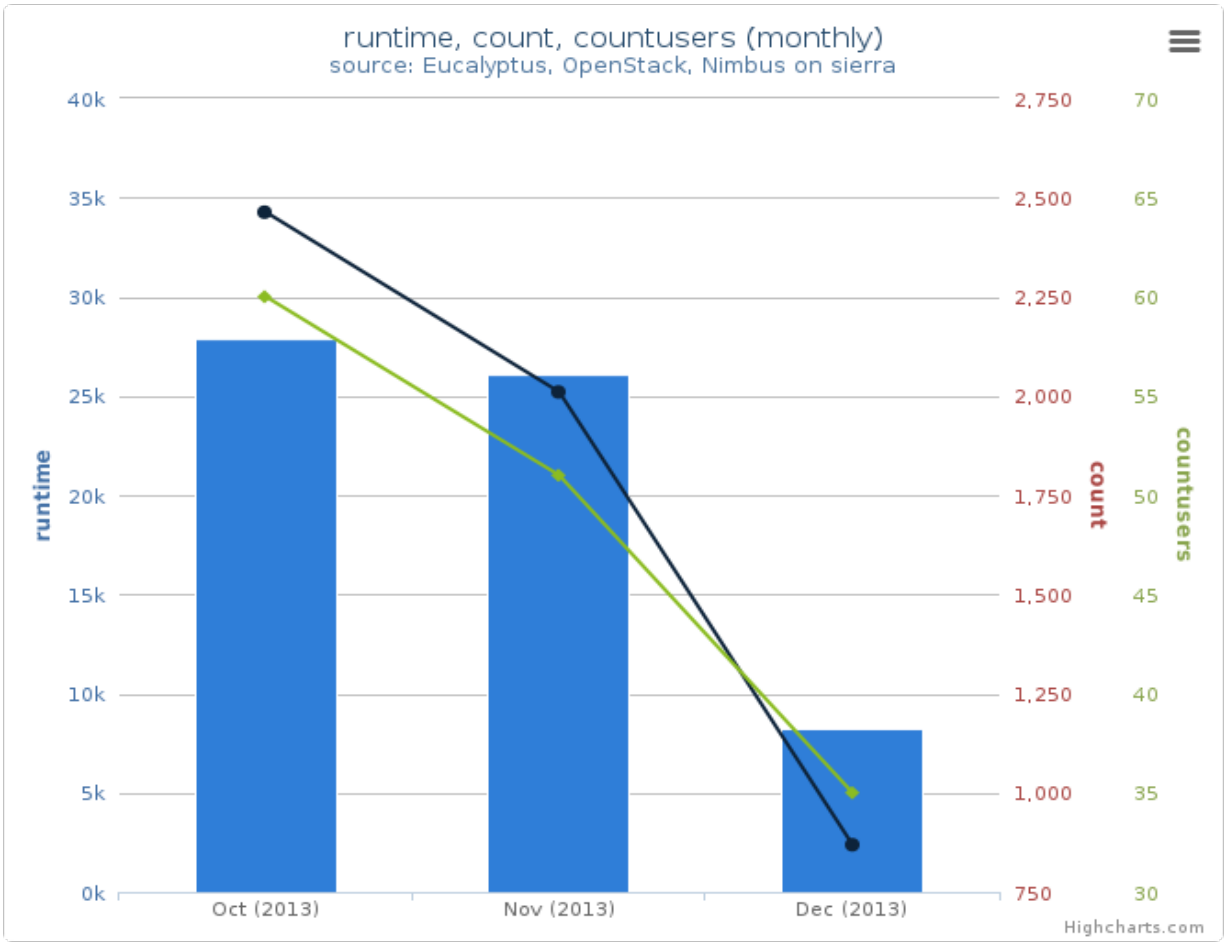


Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)
This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: October 01 – December 23, 2013
- Cloud(IaaS): nimbus, openstack, eucalyptus
- Hostname: sierra
- **Metric:**
  - Runtime (Wall time hours): Sum of time elapsed from launch to termination of VM instances
  - Count (VM count): The number of launched VM instances
  - User count (Active): The number of users who launched VMs

### 3.1.2 Summary (Daily)

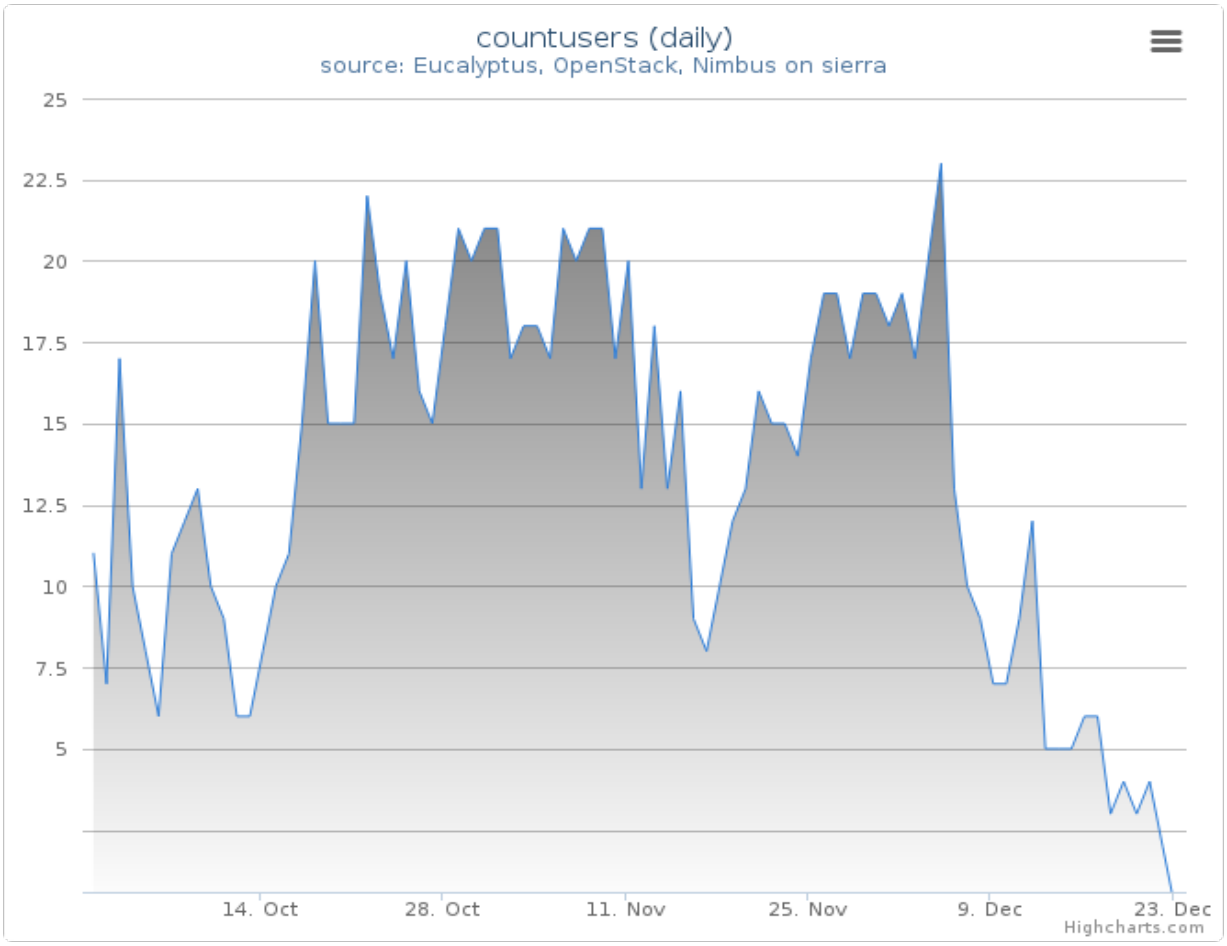


Figure 2: Users count

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

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

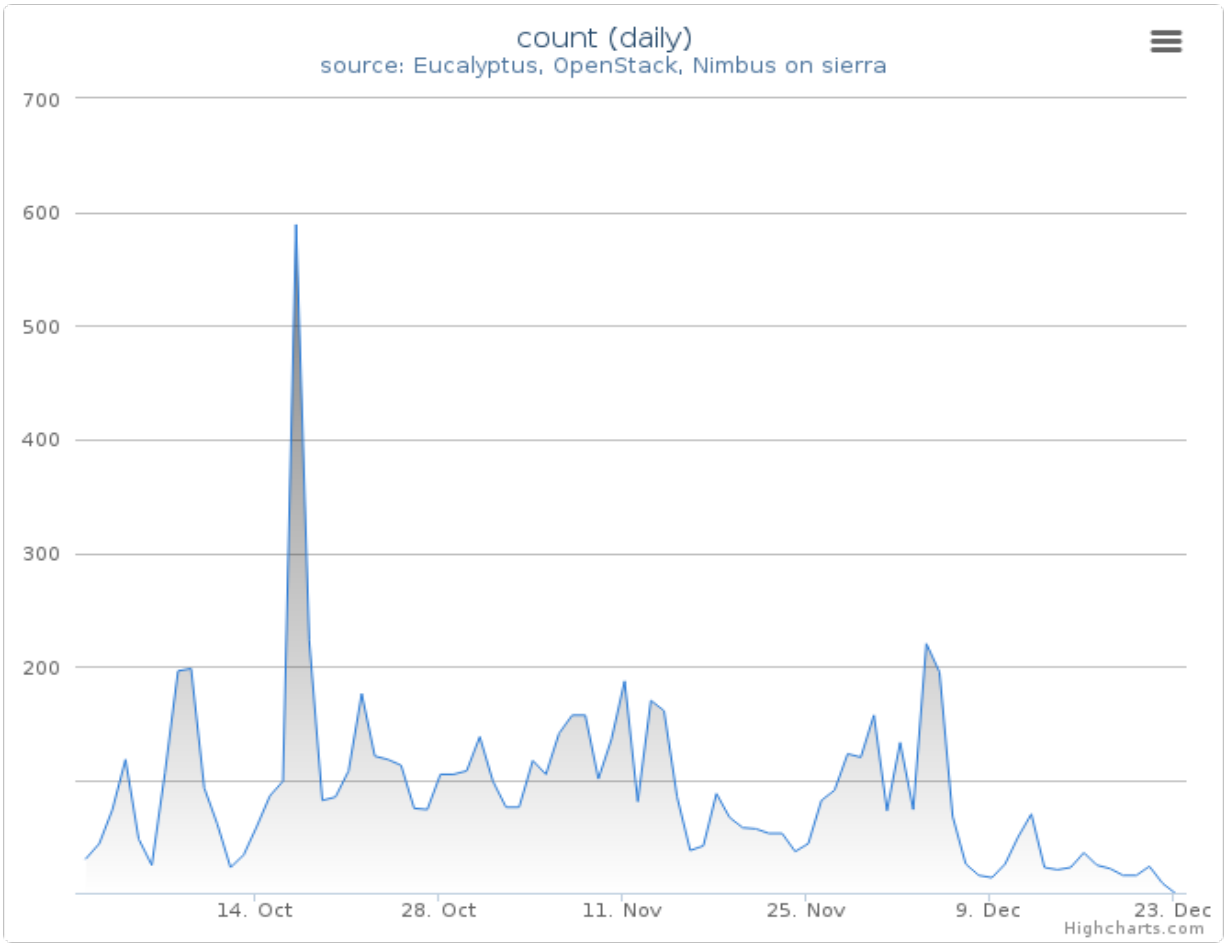


Figure 3: VMs count

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

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

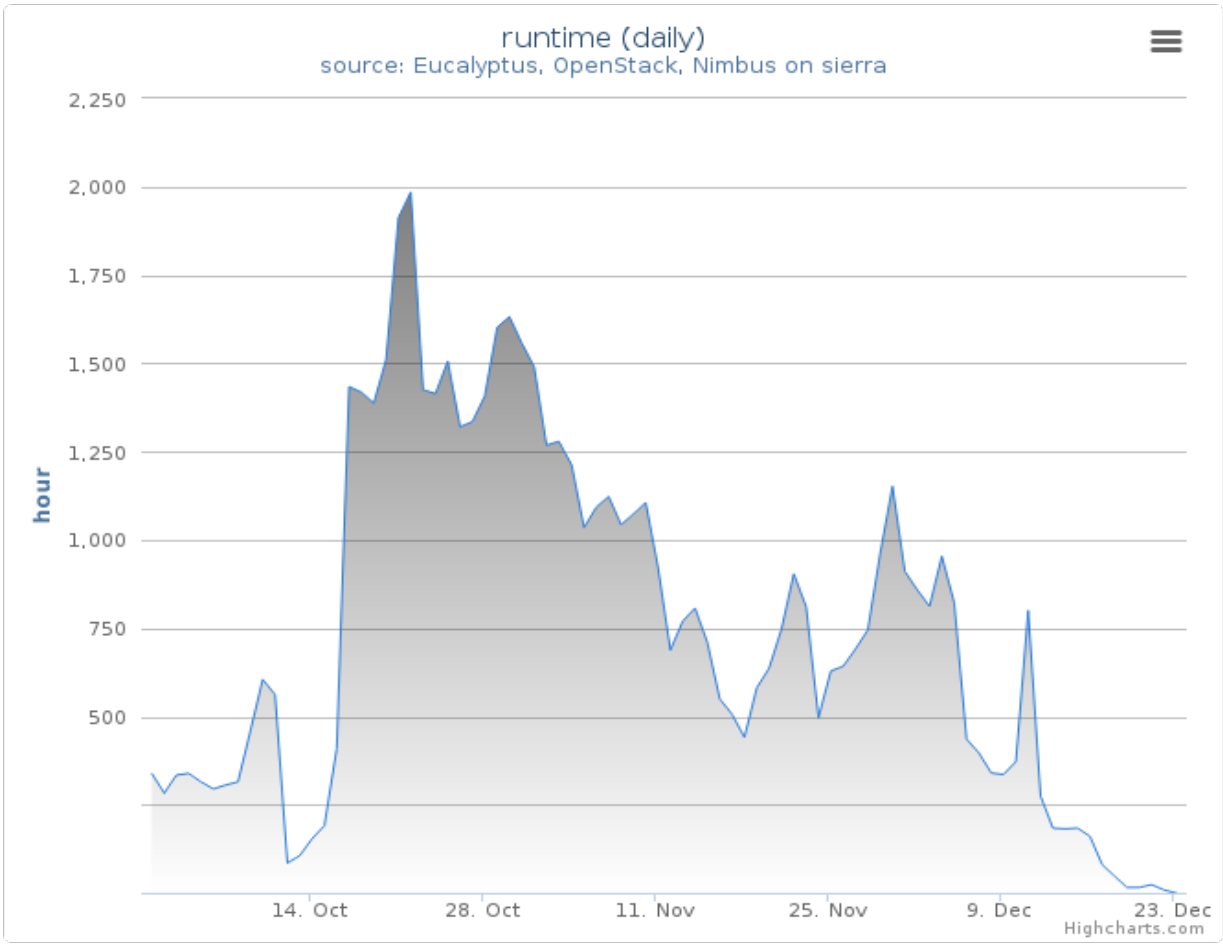


Figure 4: Wall time (hours)

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

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

## 3.2 Distribution

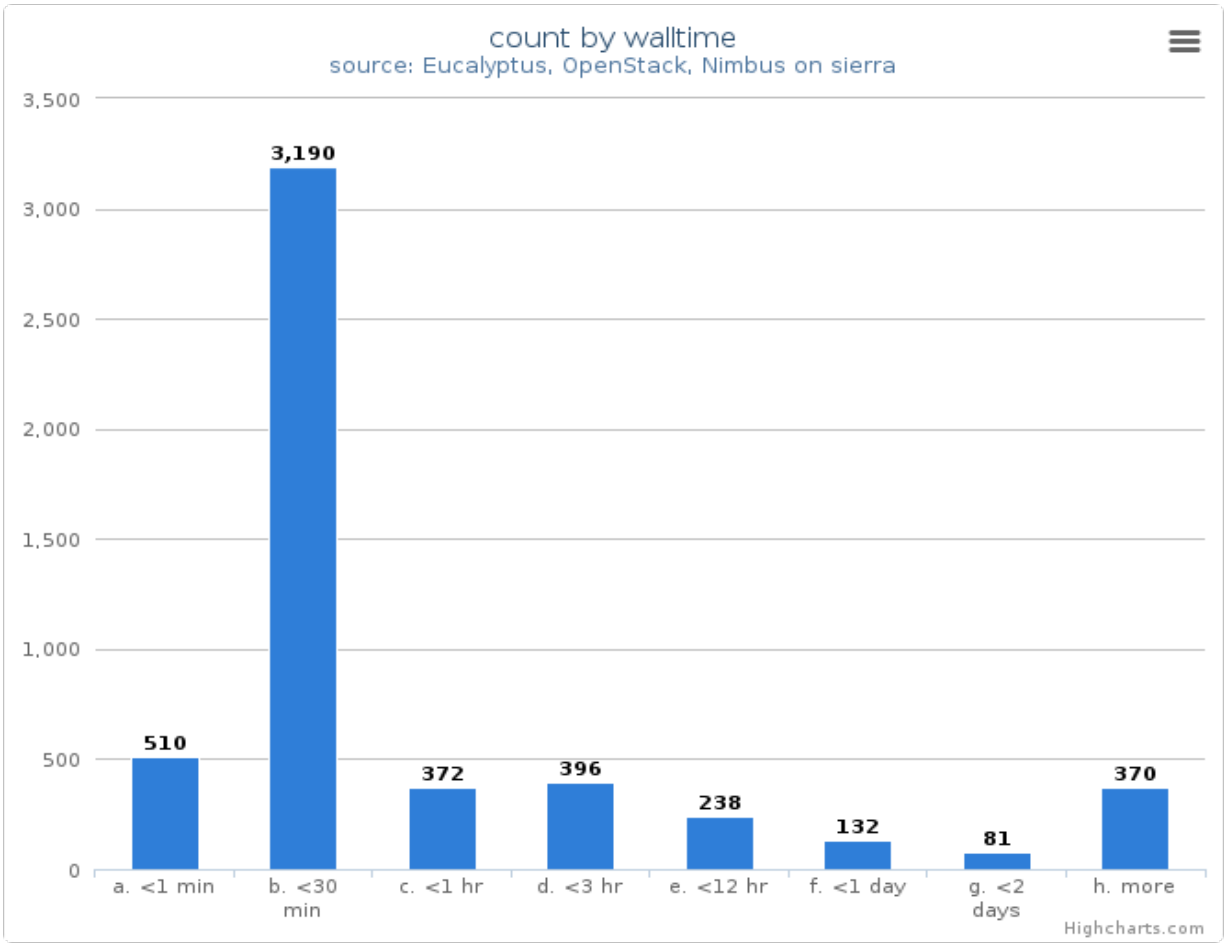


Figure 5: VM count by wall time
This chart illustrates usage patterns of VM instances in terms of running wall time.

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

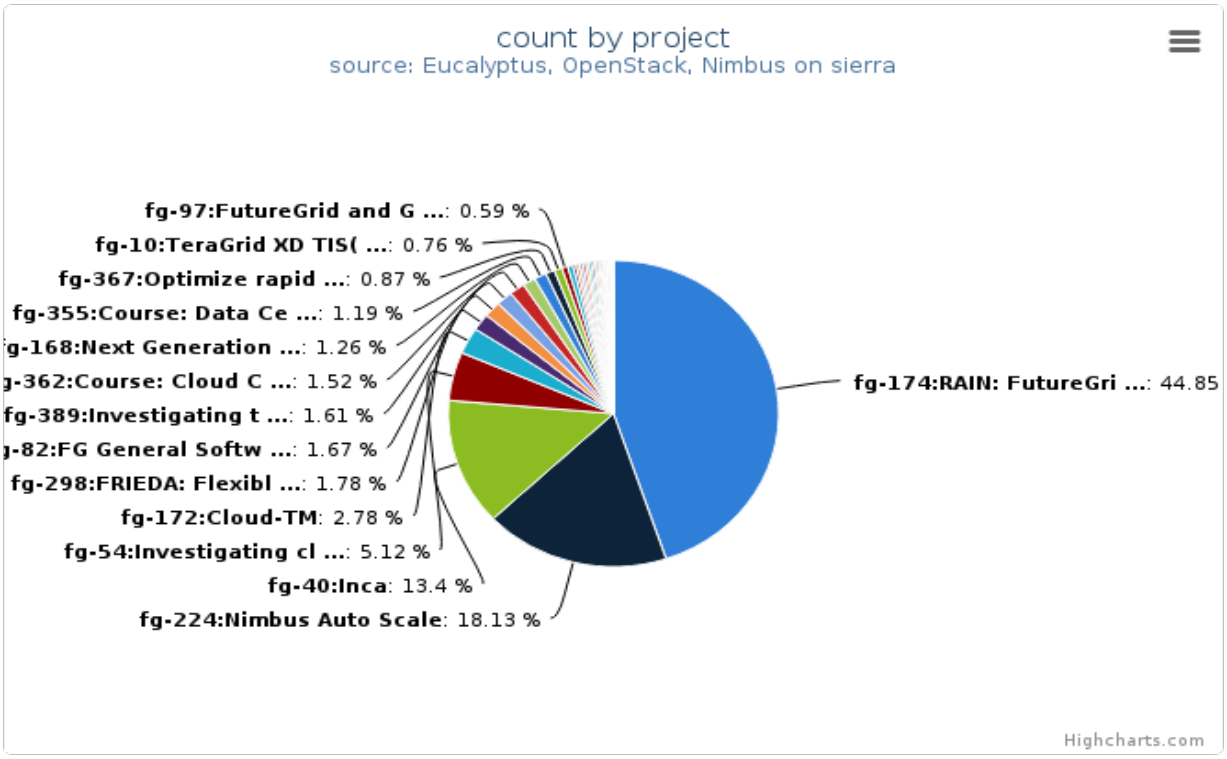


Figure 6: VMs count by project

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

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

Table 3.1: VMs count by project

| Project | Value |
|---|---|
| fg-174:RAIN: FutureGrid Dynamic provisioning Framework | 2066 |
| fg-224:Nimbus Auto Scale | 835 |
| fg-40:Inca | 617 |
| fg-54:Investigating cloud computing as a solution for analyzing particle physics data | 236 |
| fg-172:Cloud-TM | 128 |
| fg-298:FRIEDA: Flexible Robust Intelligent Elastic Data Management | 82 |
| fg-82:FG General Software Development | 77 |
| fg-389:Investigating the Apache Big Data Stack | 74 |
| fg-362:Course: Cloud Computing and Storage (UF) | 70 |
| fg-168:Next Generation Sequencing in the Cloud | 58 |
| fg-355:Course: Data Center Scale Computing Class | 55 |

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**Table 3.1 – continued from previous page**

| Project | Value |
|---|---|
| fg-367:Optimize rapid deployment and updating of VM images at the remote compute cluster | 40 |
| fg-10:TeraGrid XD TIS(Technology Insertion Service) Technology Evaluation Laboratory | 35 |
| fg-97:FutureGrid and Grid'5000 Collaboration | 27 |
| fg-363:Course: Applied Cyberinfrastructure concepts | 23 |
| fg-214:Mining Interactions between Network Community Structure and Information Diffusion | 15 |
| fg-374:Course: Cloud and Distributed Computing | 15 |
| fg-316:Course: Cloud Computing Class - third edition | 15 |
| fg-244:Course: Data Center Scale Computing | 14 |
| fg-372:Mobile Device Computation Offloading over SocialVPNs | 14 |
| fg-384:Graph/network analysis Resource manager | 12 |
| fg-264:Course: 1st Workshop on bioKepler Tools and Its Applications | 12 |
| fg-334:Tutorial on Cloud Computing and Software-defined Networking | 10 |
| fg-371:Characterizing Infrastructure Cloud Performance for Scientific Computing | 10 |
| fg-364:Course: EEL6871 Autonomic Computing | 8 |
| fg-215:FuturGrid Directory Entry | 8 |
| fg-1:Peer-to-peer overlay networks and applications in virtual networks and virtual clusters | 7 |
| fg-341:Course: Parallel Computing | 6 |
| fg-380:FutureGrid Support for BigData MOOC | 6 |
| fg-233:CINET - A Cyber-Infrastructure for Network Science | 5 |
| fg-382:Reliability Analysis using Hadoop and MapReduce | 5 |
| fg-175:GridProphet, A workflow execution time prediction system for the Grid | 5 |
| fg-369:Testing of Network Facing Services for the Open Science Grid | 4 |
| fg-243:Applied Cyberinfrastructure concepts | 4 |
| fg-381:Authentication of Mobile Cloud Computing | 3 |
| fg-301:Course: Advanced Networking class University of Colorado | 1 |
| fg-314:User-friendly tools to play with cloud platforms | 1 |
| fg-315:Biome representational in silico karyotyping | 1 |
| fg-340:Research: Parallel Computing for Machine Learning | 1 |
| fg-69:Investigate provenance collection for MapReduce | 1 |

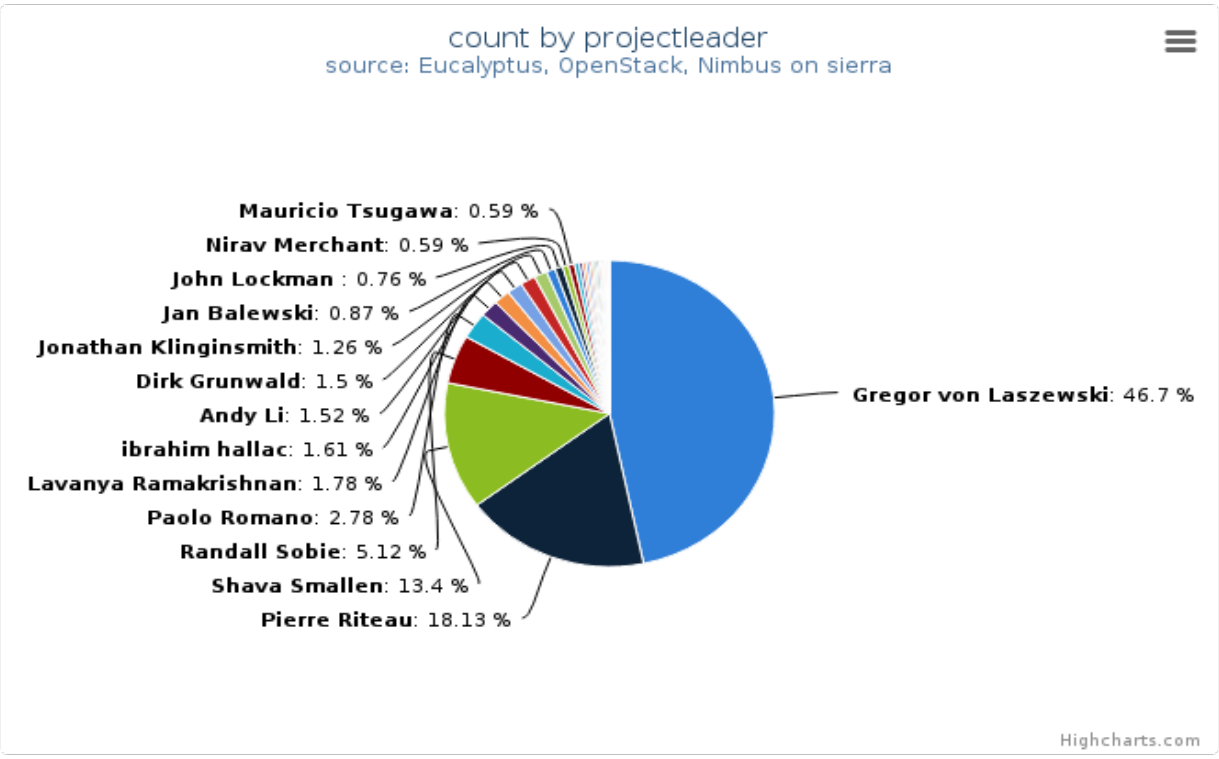


Figure 7: VMs count by project leader

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

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

Table 3.2: VMs count by project leader

| Projectleader | Value |
|---|---|
| Gregor von Laszewski | 2151 |
| Pierre Riteau | 835 |
| Shava Smallen | 617 |
| Randall Sobie | 236 |
| Paolo Romano | 128 |
| Lavanya Ramakrishnan | 82 |
| ibrahim hallac | 74 |
| Andy Li | 70 |
| Dirk Grunwald | 69 |
| Jonathan Klinginsmith | 58 |
| Jan Balewski | 40 |

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**Table 3.2 – continued from previous page**

| Projectleader | Value |
|---|---|
| John Lockman | 35 |
| Nirav Merchant | 27 |
| Mauricio Tsugawa | 27 |
| Renato Figueiredo | 21 |
| Massimo Canonico | 16 |
| Philip Rhodes | 15 |
| Yong-Yeol Ahn | 15 |
| Ilkay Altintas | 12 |
| Tirtha Bhattacharjee | 12 |
| Jose Fortes | 10 |
| Theron Voran | 10 |
| Meng Han | 8 |
| Wilson Rivera | 7 |
| Abhilash Koppula | 6 |
| Thomas Fahringer | 5 |
| Keith Bisset | 5 |
| Carl Walasek | 5 |
| Igor Sfiligoi | 4 |
| Shane Green | 3 |
| Aaron Lee | 1 |
| Jiaan Zeng | 1 |
| Eric Keller | 1 |

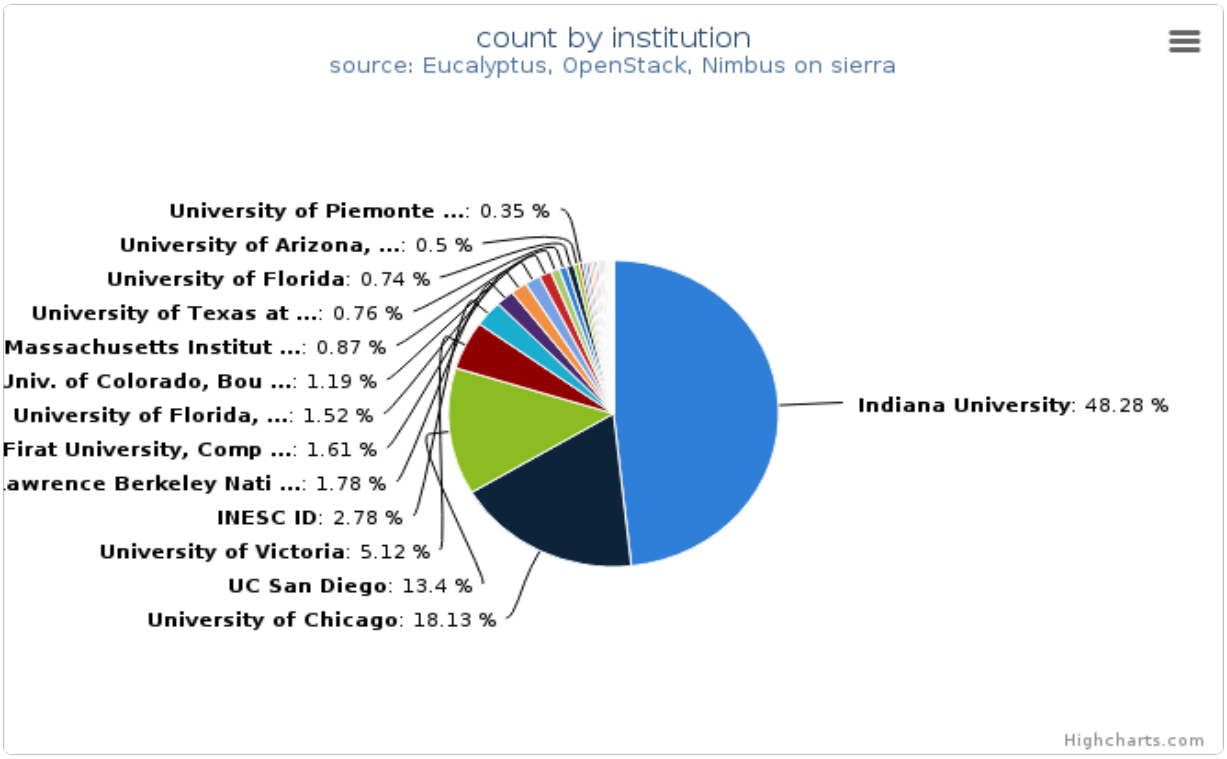

Figure 8: VMs count by institution
This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

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

Table 3.3: VMs count by institution

| Institution | Value |
|---|---|
| Indiana University | 2224 |
| University of Chicago | 835 |
| UC San Diego | 617 |
| University of Victoria | 236 |
| INESC ID | 128 |
| Lawrence Berkeley National Lab | 82 |
| Firat University, Computer Science Department | 74 |
| University of Florida, Department of Electrical and Computer Eng | 70 |
| Univ. of Colorado, Boulder, Computer Science | 55 |
| Massachusetts Institute of Technology, Laboratory for Nuclear Sc | 40 |
| University of Texas at Austin | 35 |
| University of Florida | 34 |
| University of Arizona, Arizona Research Laboratories, School of | 23 |
| University of Piemonte Orientale, Computer Science Department | 16 |
| University of Mississippi, Department of Computer Science | 15 |
| University of Florida, Electrical and Computer Engineering | 14 |
| Univ. of Colorado | 14 |
| Virginia Bioinformatics Institute, Virginia Polytechnic Institut | 12 |
| UCSD | 12 |
| University of Florida, Advanced Computing and Information System | 10 |
| University of Colorado at Boulder, Computer Science Department | 10 |
| University of Florida, ACIS | 8 |
| University of Puerto Rico, Electrical and Computer Emgineering D | 7 |
| Indiana University, Community Grids Lab | 6 |
| University of the Sciences , Mathematics, Physics, and Statistic | 5 |
| University of Innsbruck | 5 |
| Virginia Tech | 5 |
| University of California San Diego, Physics Department | 4 |
| University of Arizona | 4 |
| Colorado Technical University, Computer Science and Engineering | 3 |
| Washington University at St Louis, School of Medicine, Departmen | 1 |
| University of Colorado | 1 |
| Computer Science | 1 |

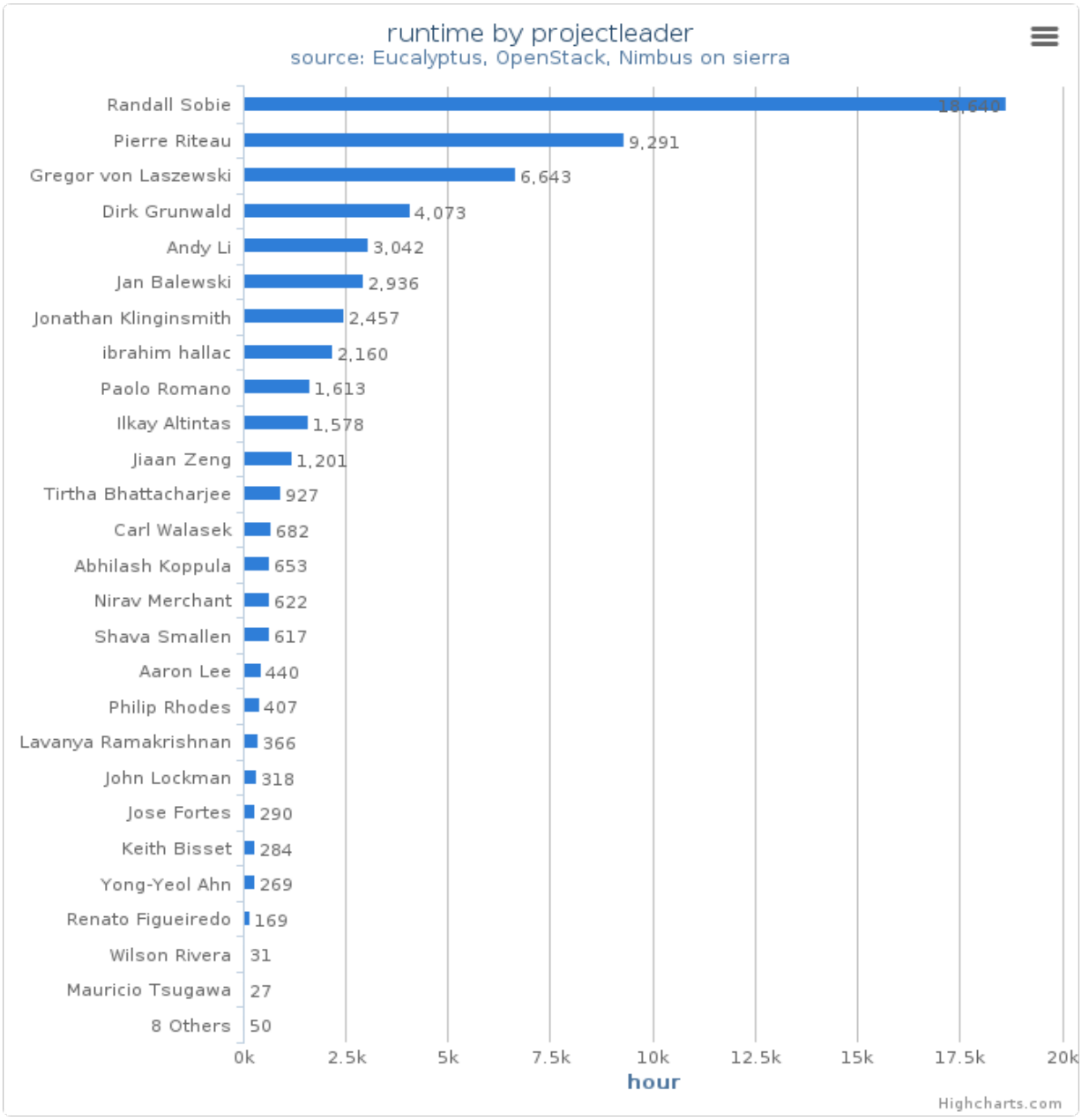


Figure 9: Wall time (hours) by project leader
This chart illustrates proportionate total run times by project leader.

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

## 3.3 System information

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

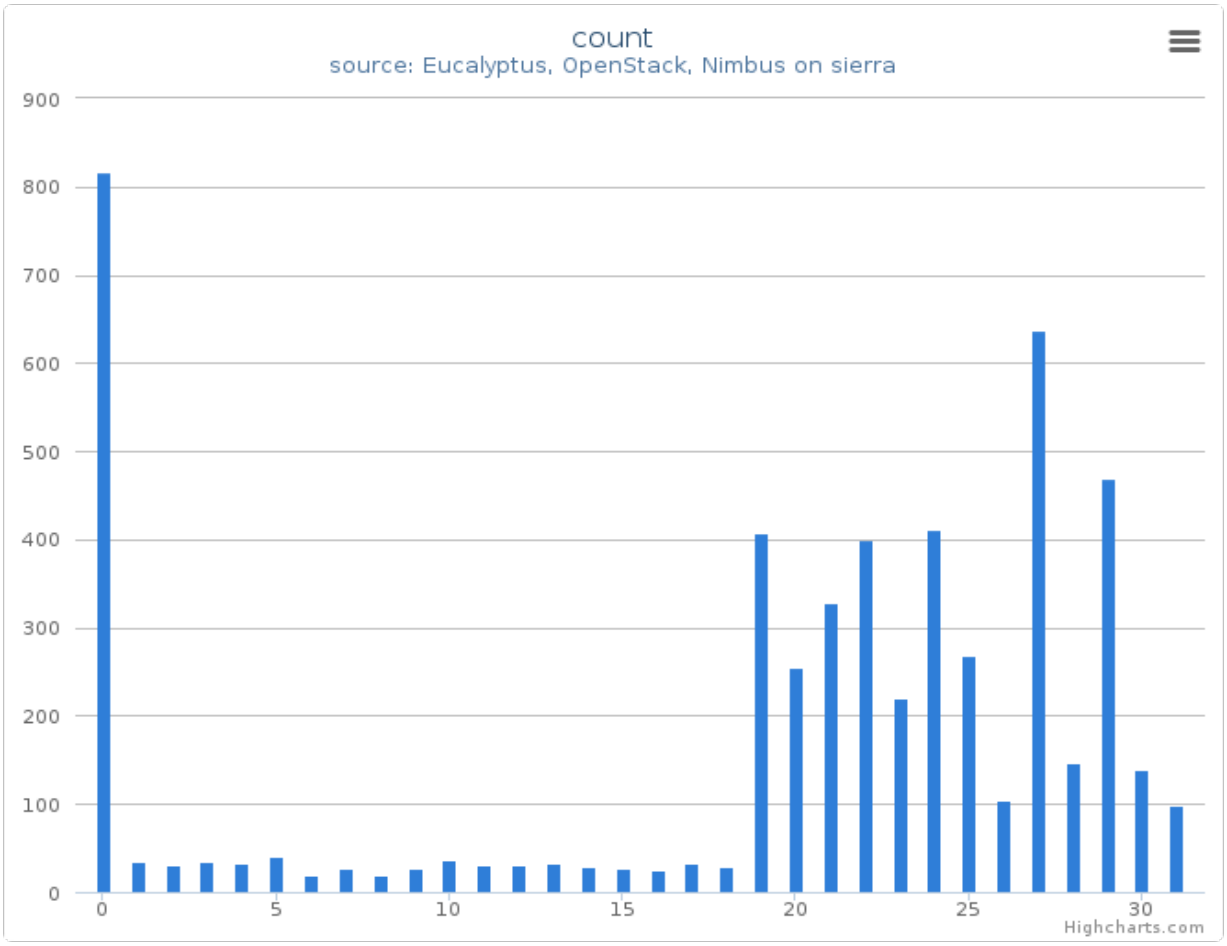


Figure 10: VMs count by systems (compute nodes) in Cluster (sierra)
This column chart represents VMs count among systems.

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

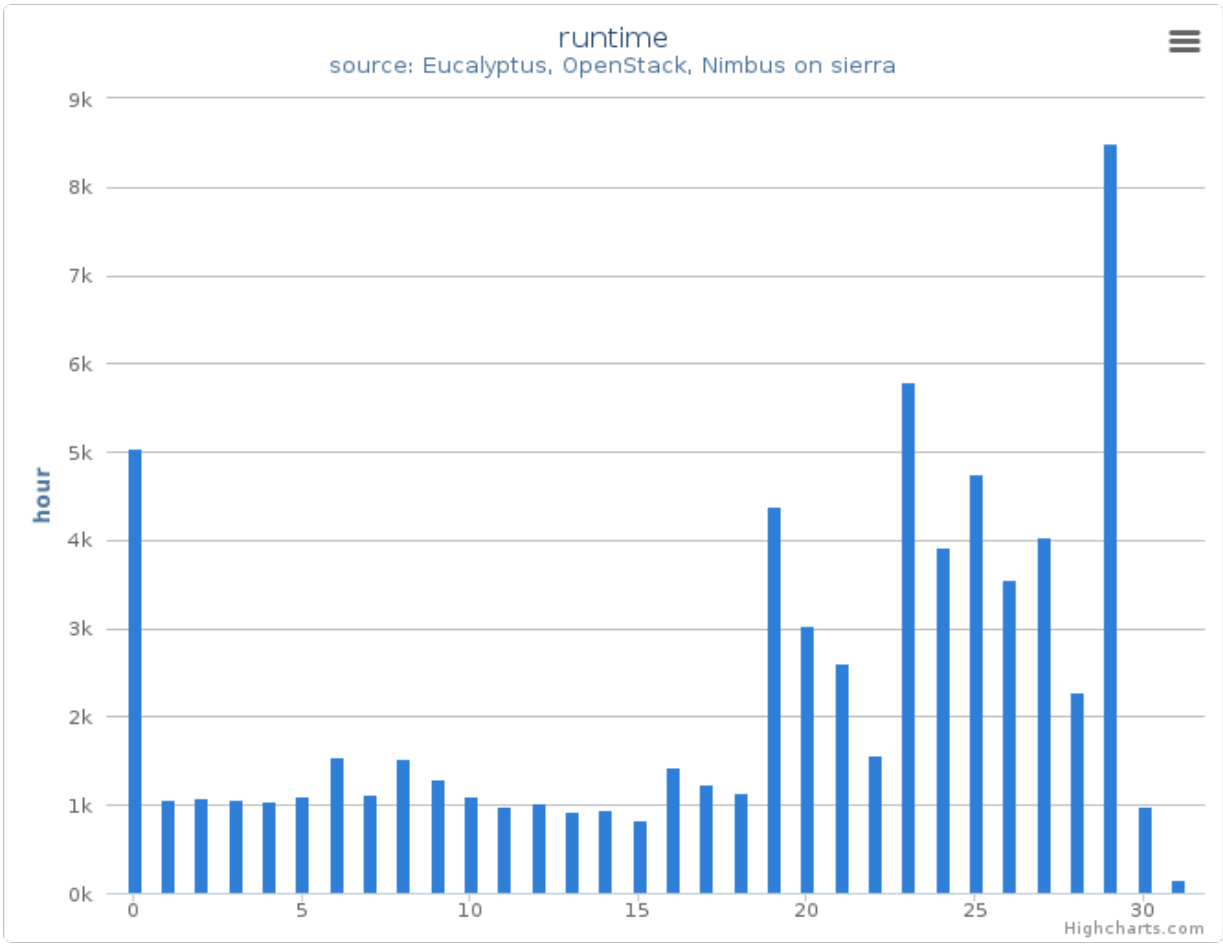


Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (sierra)
This column chart represents wall time among systems.

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

CHAPTER

FOUR

# USAGE REPORT ALAMO

- Period: October 01 – December 23, 2013
- Hostname: alamo.futuregrid.org
- Services: nimbus, openstack
- Metrics: VMs count, Users count, Wall time (hours), Distribution by wall time, project, project leader, and institution, and systems

## 4.1 Histogram

### 4.1.1 Summary (Monthly)

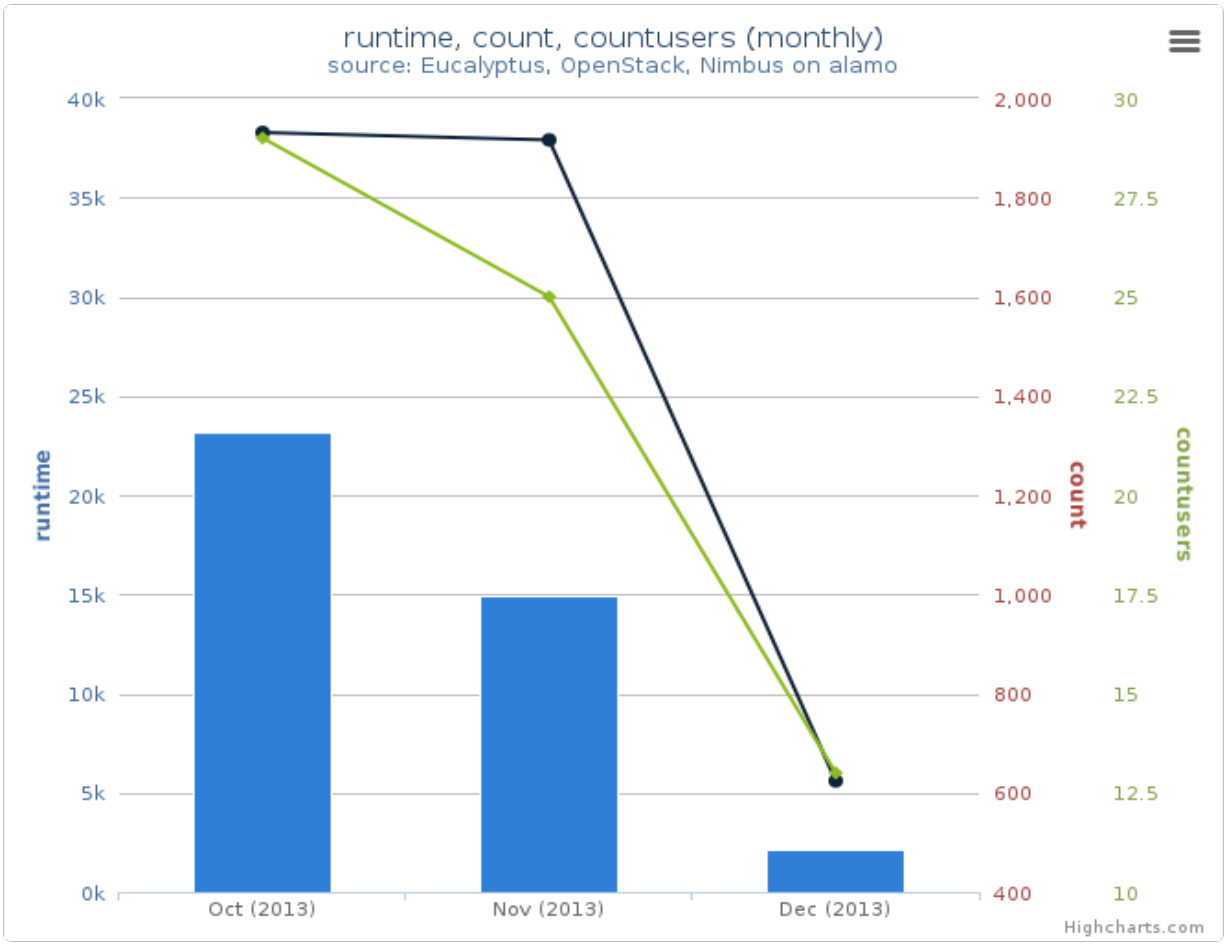


Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)
This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: October 01 – December 23, 2013
- Cloud(IaaS): nimbus, openstack
- Hostname: alamo
- **Metric:**
  - Runtime (Wall time hours): Sum of time elapsed from launch to termination of VM instances
  - Count (VM count): The number of launched VM instances
  - User count (Active): The number of users who launched VMs

### 4.1.2 Summary (Daily)

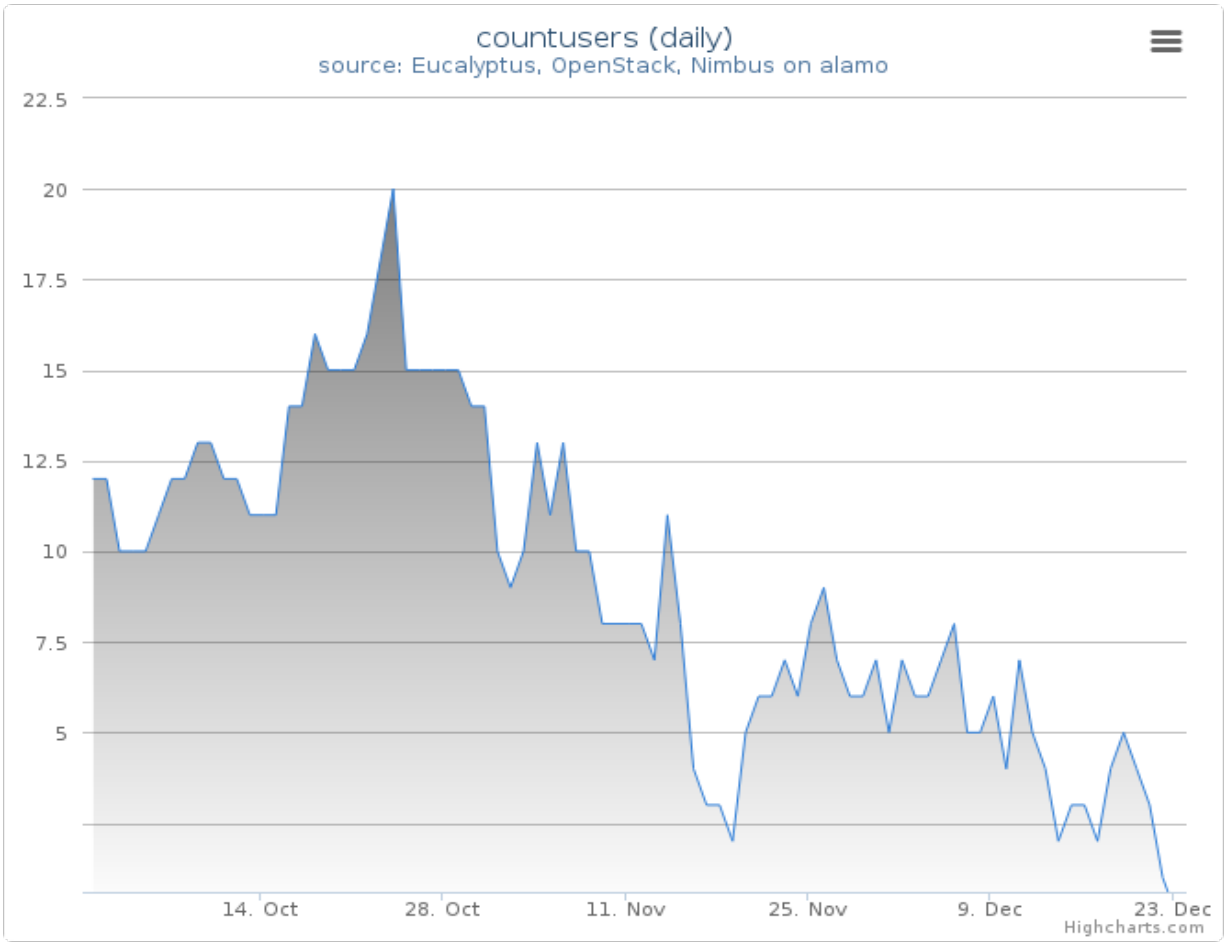


Figure 2: Users count

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

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

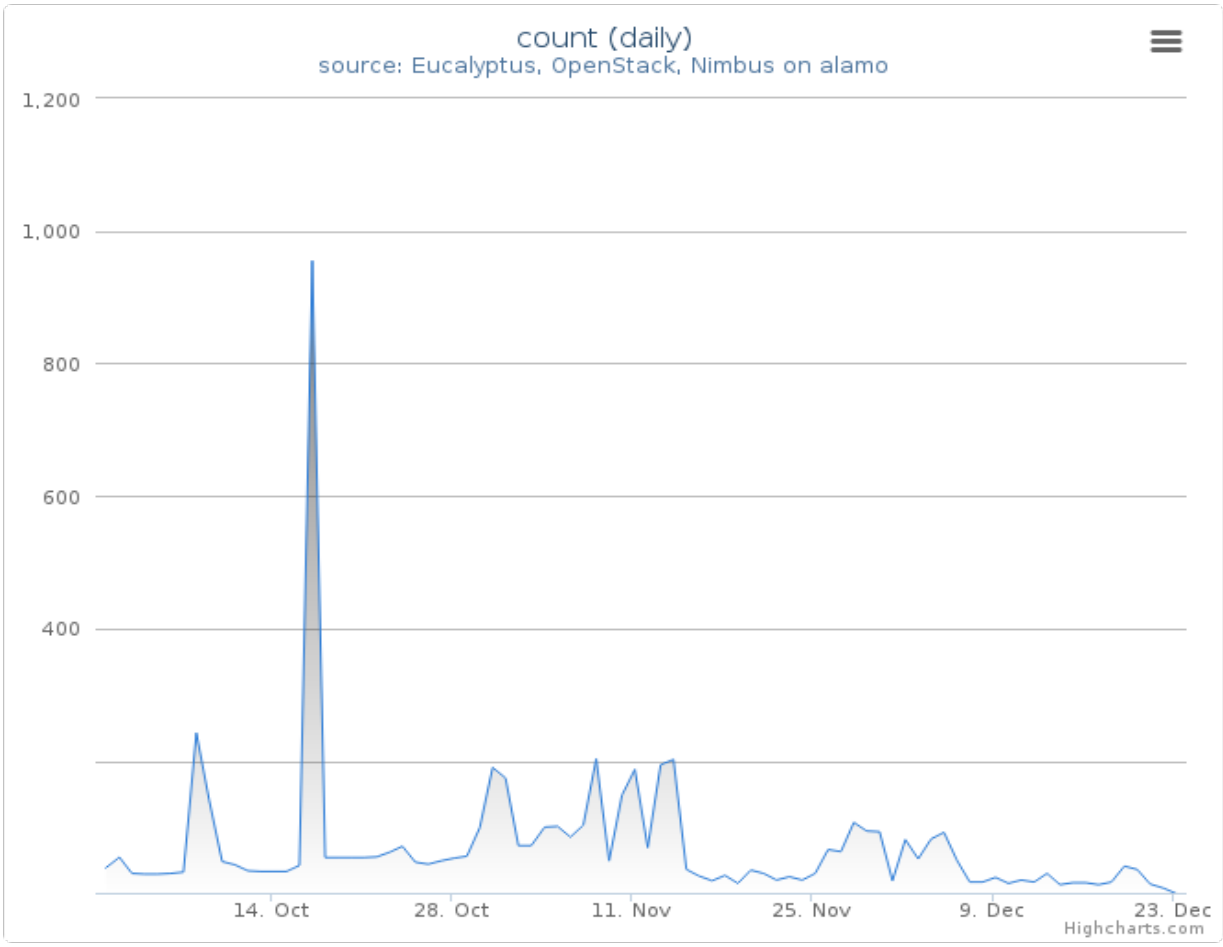


Figure 3: VMs count

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

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

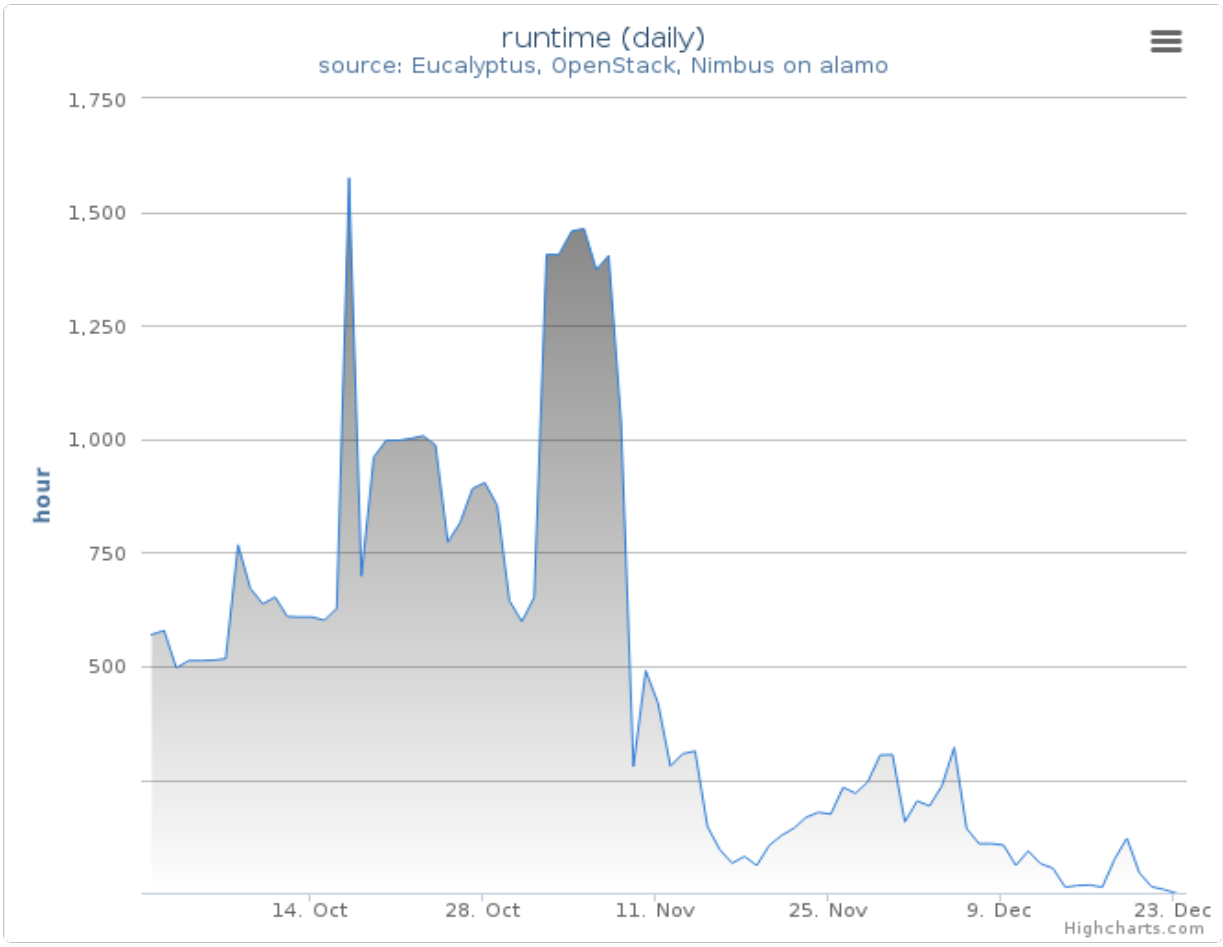


Figure 4: Wall time (hours)

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

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

## 4.2 Distribution

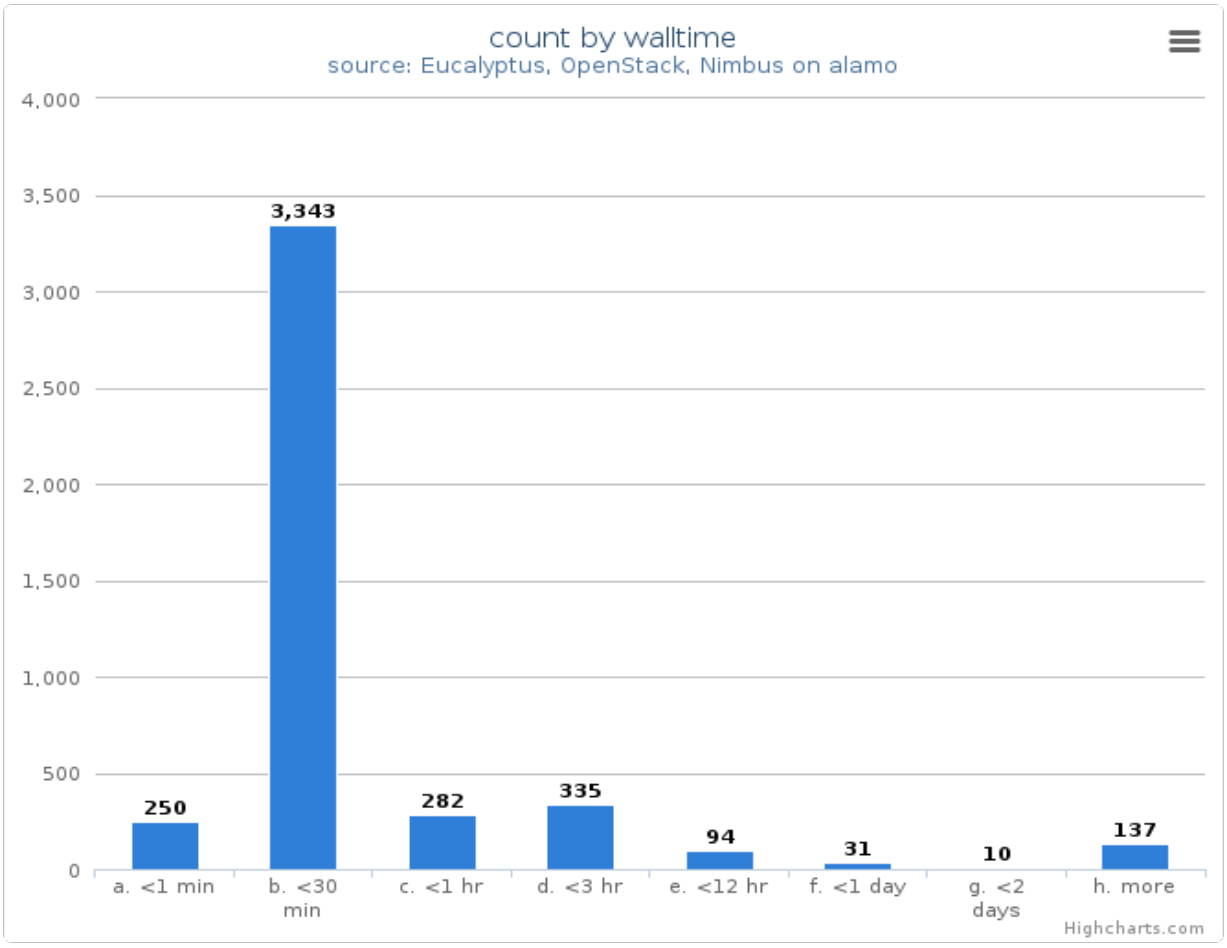


Figure 5: VM count by wall time
This chart illustrates usage patterns of VM instances in terms of running wall time.

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

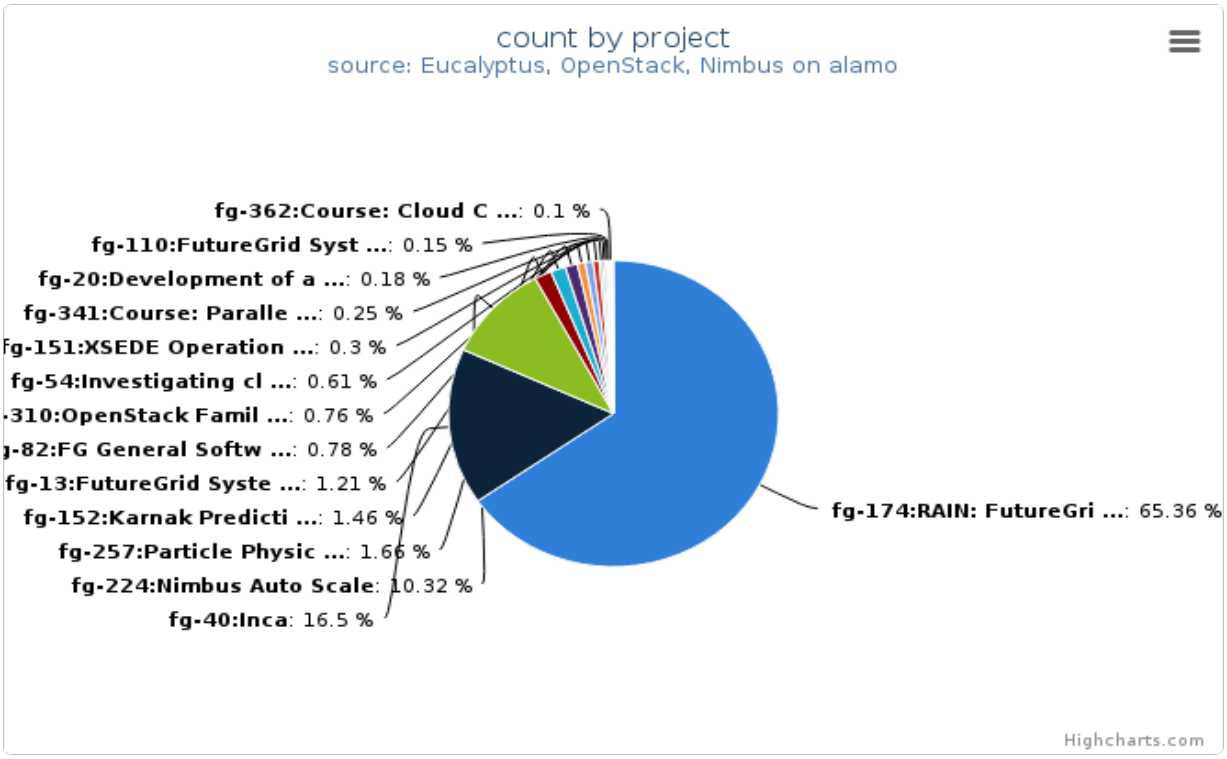


Figure 6: VMs count by project

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

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

Table 4.1: VMs count by project

| Project | Value |
|---|---|
| fg-174:RAIN: FutureGrid Dynamic provisioning Framework | 2591 |
| fg-40:Inca | 654 |
| fg-224:Nimbus Auto Scale | 409 |
| fg-257:Particle Physics Data analysis cluster for ATLAS LHC experiment | 66 |
| fg-152:Karnak Prediction Service | 58 |
| fg-13:FutureGrid Systems Development and Prototyping | 48 |
| fg-82:FG General Software Development | 31 |
| fg-310:OpenStack Familiarization for TACC | 30 |
| fg-54:Investigating cloud computing as a solution for analyzing particle physics data | 24 |
| fg-151:XSEDE Operations Group | 12 |
| fg-341:Course: Parallel Computing | 10 |
| fg-20:Development of an information service for FutureGrid | 7 |
| fg-110:FutureGrid Systems Development | 6 |
| fg-97:FutureGrid and Grid'5000 Collaboration | 4 |
| fg-362:Course: Cloud Computing and Storage (UF) | 4 |
| fg-248:Geophysical fluid dynamics education and research | 3 |
| fg-312:Sensor-Rocks: A novel integrated framework to improve software Operations and Management (O&M) and power management in environmental observing systems | 3 |
| fg-175:GridProphet, A workflow execution time prediction system for the Grid | 2 |
| fg-172:Cloud-TM | 1 |
| fg-136:JGC-DataCloud-2012 paper experiments | 1 |

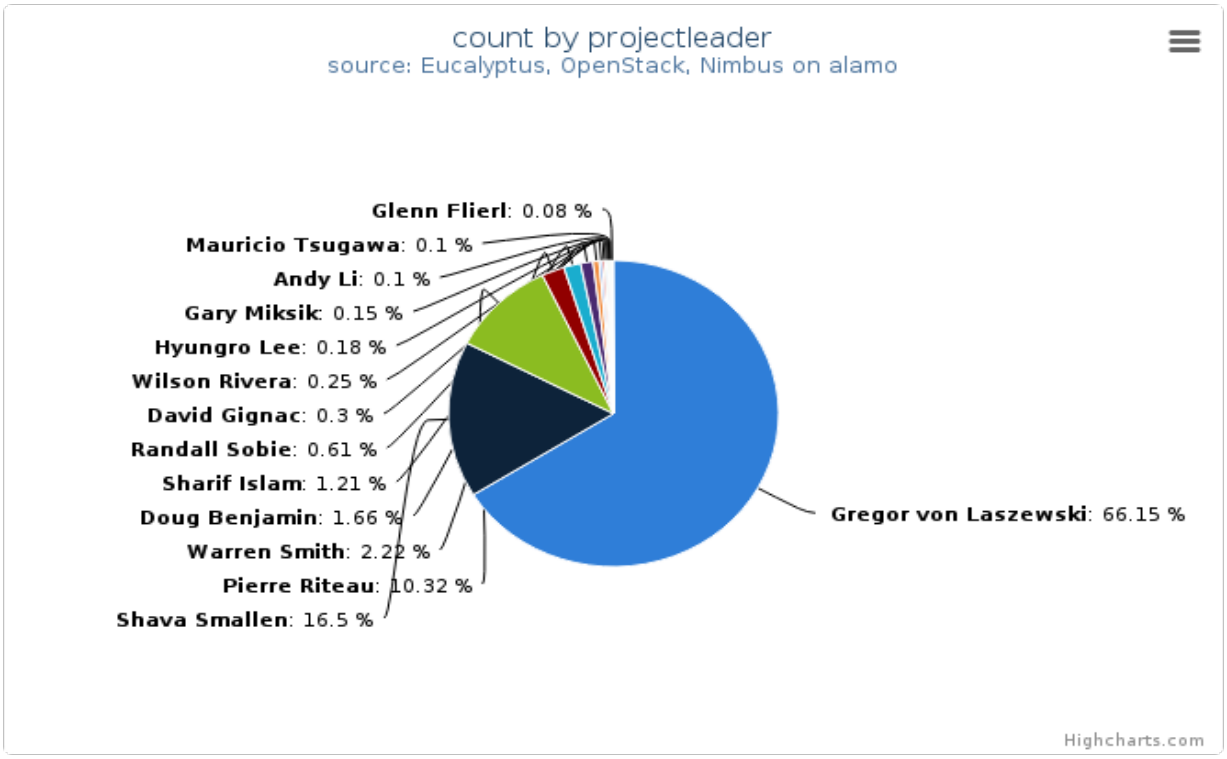

Figure 7: VMs count by project leader
This chart also illustrates the proportion of launched VM instances by project Leader. The same data in tabular form follows.

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

Table 4.2: VMs count by project leader

| Projectleader | Value |
|---|---|
| Gregor von Laszewski | 2622 |
| Shava Smallen | 654 |
| Pierre Riteau | 409 |
| Warren Smith | 88 |
| Doug Benjamin | 66 |
| Sharif Islam | 48 |
| Randall Sobie | 24 |
| David Gignac | 12 |
| Wilson Rivera | 10 |
| Hyungro Lee | 7 |
| Gary Miksik | 6 |
| Andy Li | 4 |
| Mauricio Tsugawa | 4 |
| Sameer Tilak | 3 |
| Glenn Flierl | 3 |
| Thomas Fahringer | 2 |
| Mats Rynge | 1 |
| Paolo Romano | 1 |

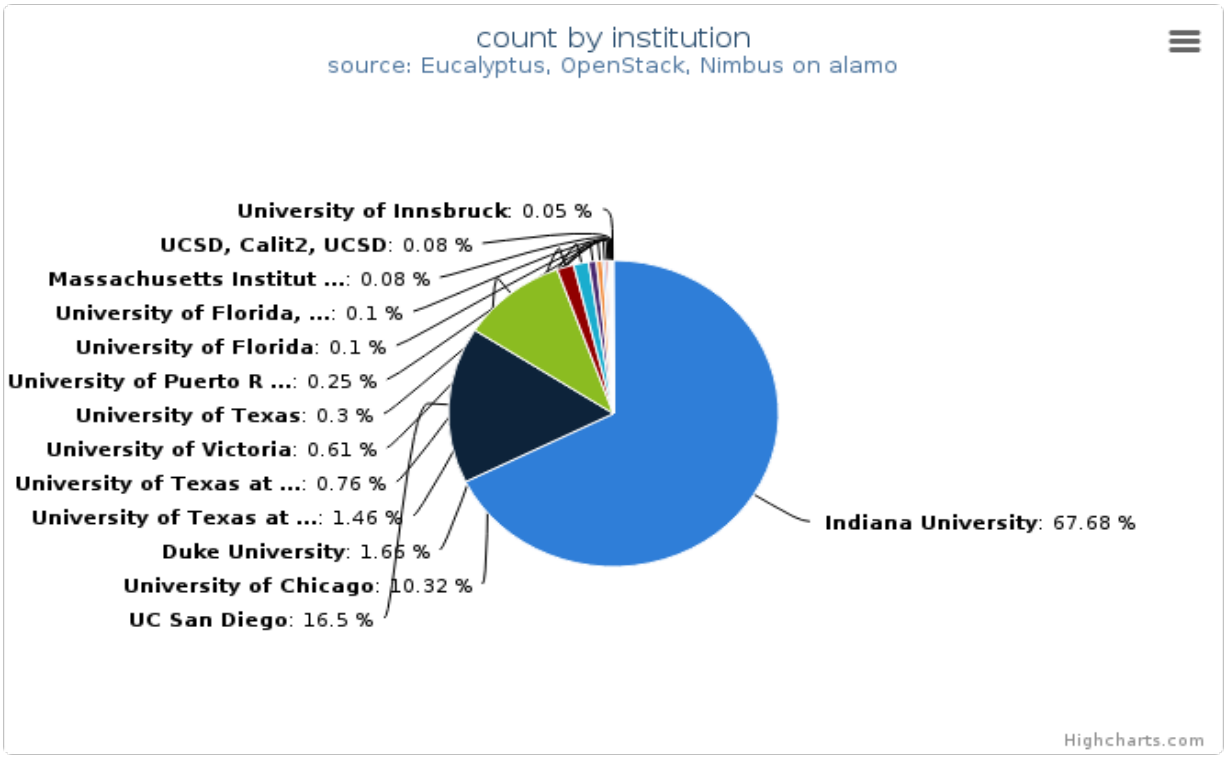


Figure 8: VMs count by institution
This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

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

Table 4.3: VMs count by institution

| Institution | Value |
|---|---|
| Indiana University | 2683 |
| UC San Diego | 654 |
| University of Chicago | 409 |
| Duke University | 66 |
| University of Texas at Austin | 58 |
| University of Texas at Austin, Texas Advanced Computing Center | 30 |
| University of Victoria | 24 |
| University of Texas | 12 |
| University of Puerto Rico, Electrical and Computer Emgineering D | 10 |
| University of Florida | 4 |
| University of Florida, Department of Electrical and Computer Eng | 4 |
| Massachusetts Institute of Technology | 3 |
| UCSD, Calit2, UCSD | 3 |
| University of Innsbruck | 2 |
| INESC ID | 1 |
| USC | 1 |

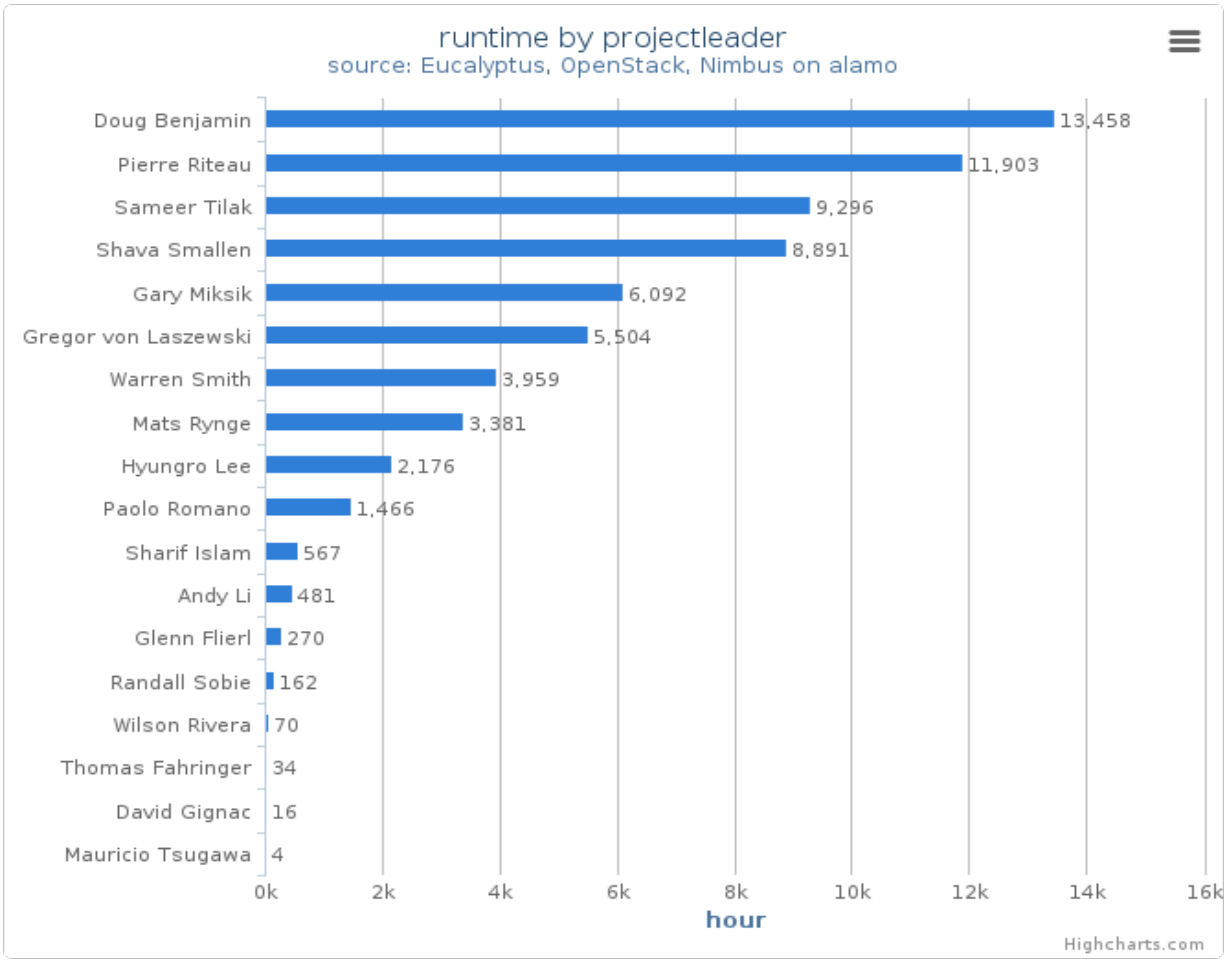


Figure 9: Wall time (hours) by project leader

This chart illustrates proportionate total run times by project leader.

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

## 4.3 System information

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

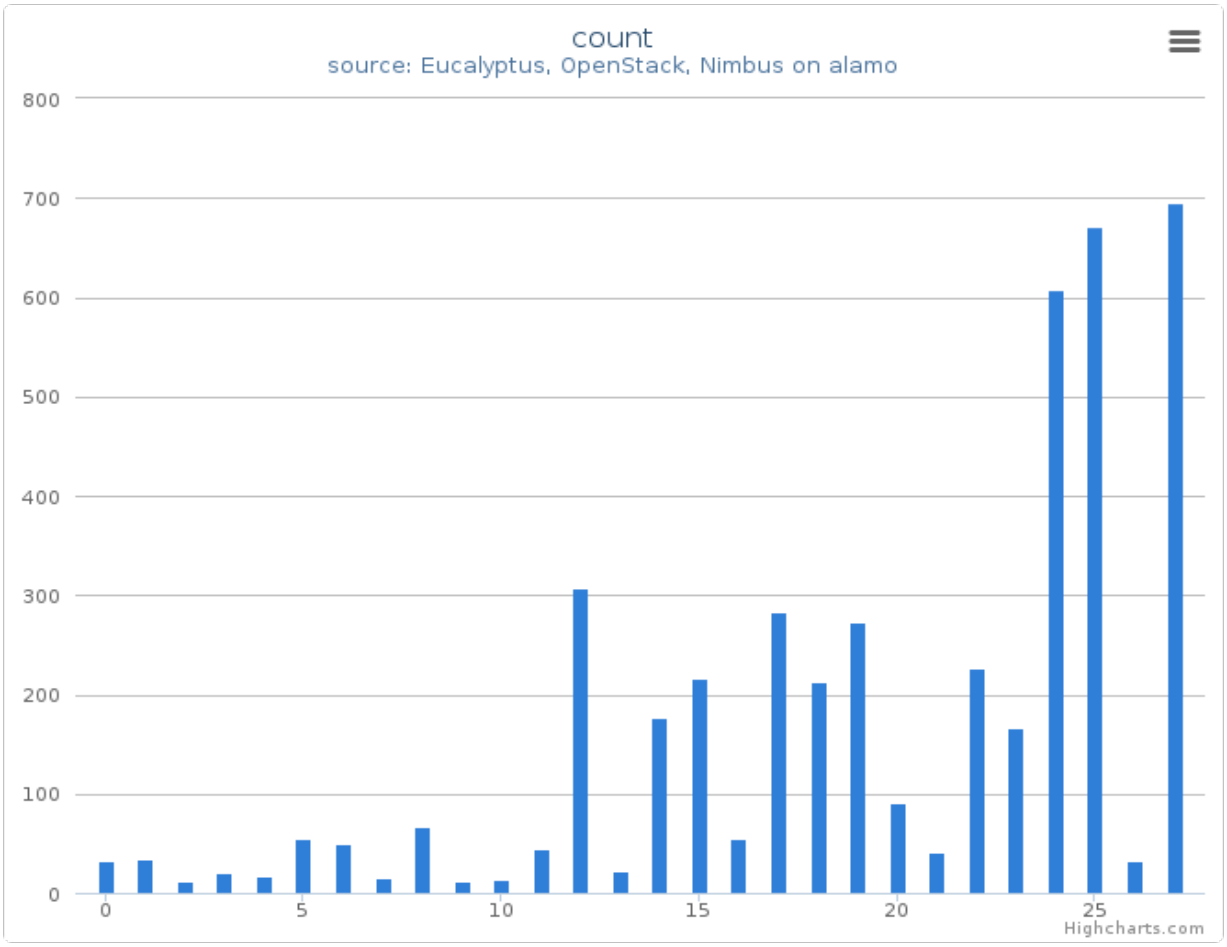


Figure 10: VMs count by systems (compute nodes) in Cluster (alamo)
This column chart represents VMs count among systems.

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

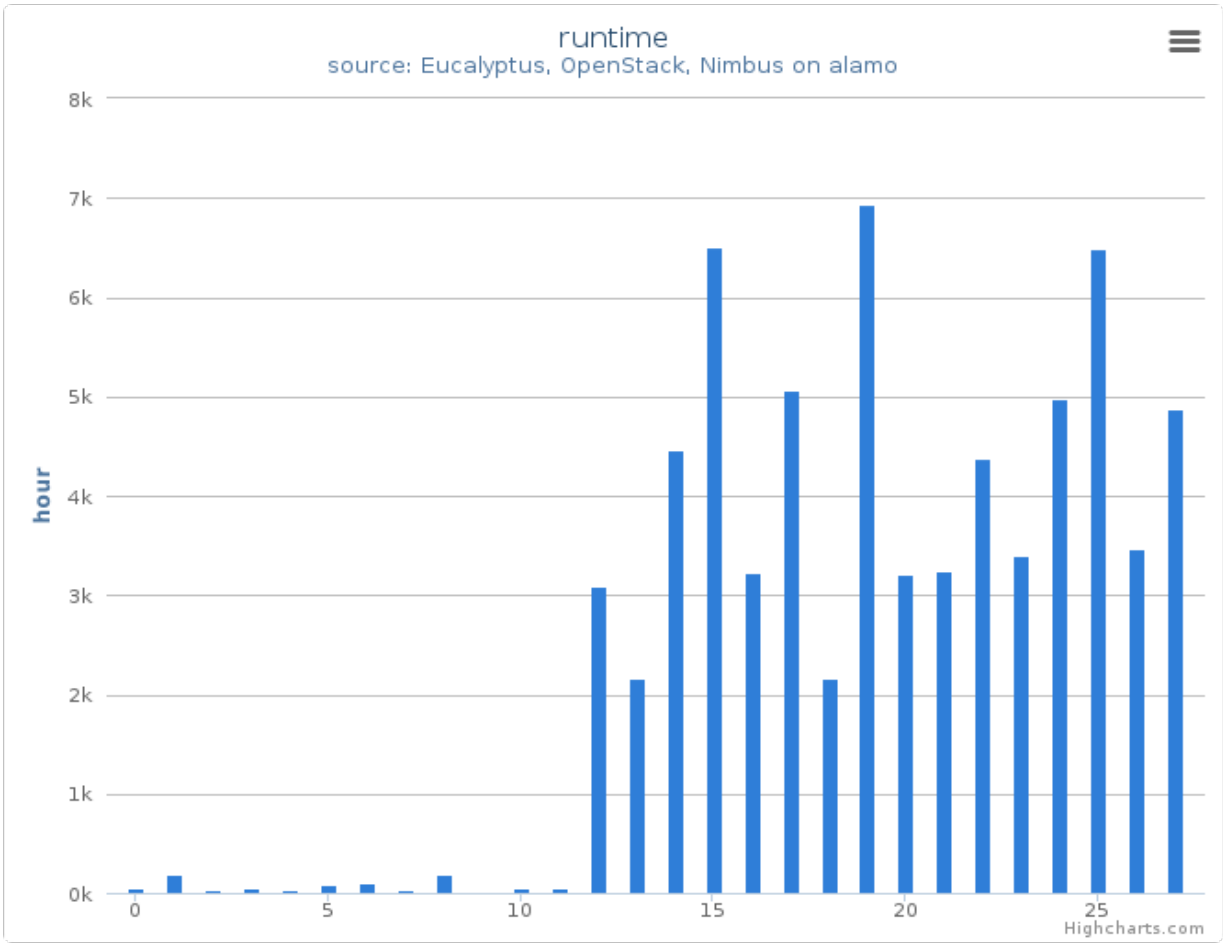


Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (alamo)
This column chart represents wall time among systems.

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

CHAPTER

FIVE

# USAGE REPORT FOXTROT

- Period: October 01 – December 23, 2013
- Hostname: foxtrot.futuregrid.org
- Services: nimbus
- Metrics: VMs count, Users count, Wall time (hours), Distribution by wall time, project, project leader, and institution, and systems

## 5.1 Histogram

### 5.1.1 Summary (Monthly)

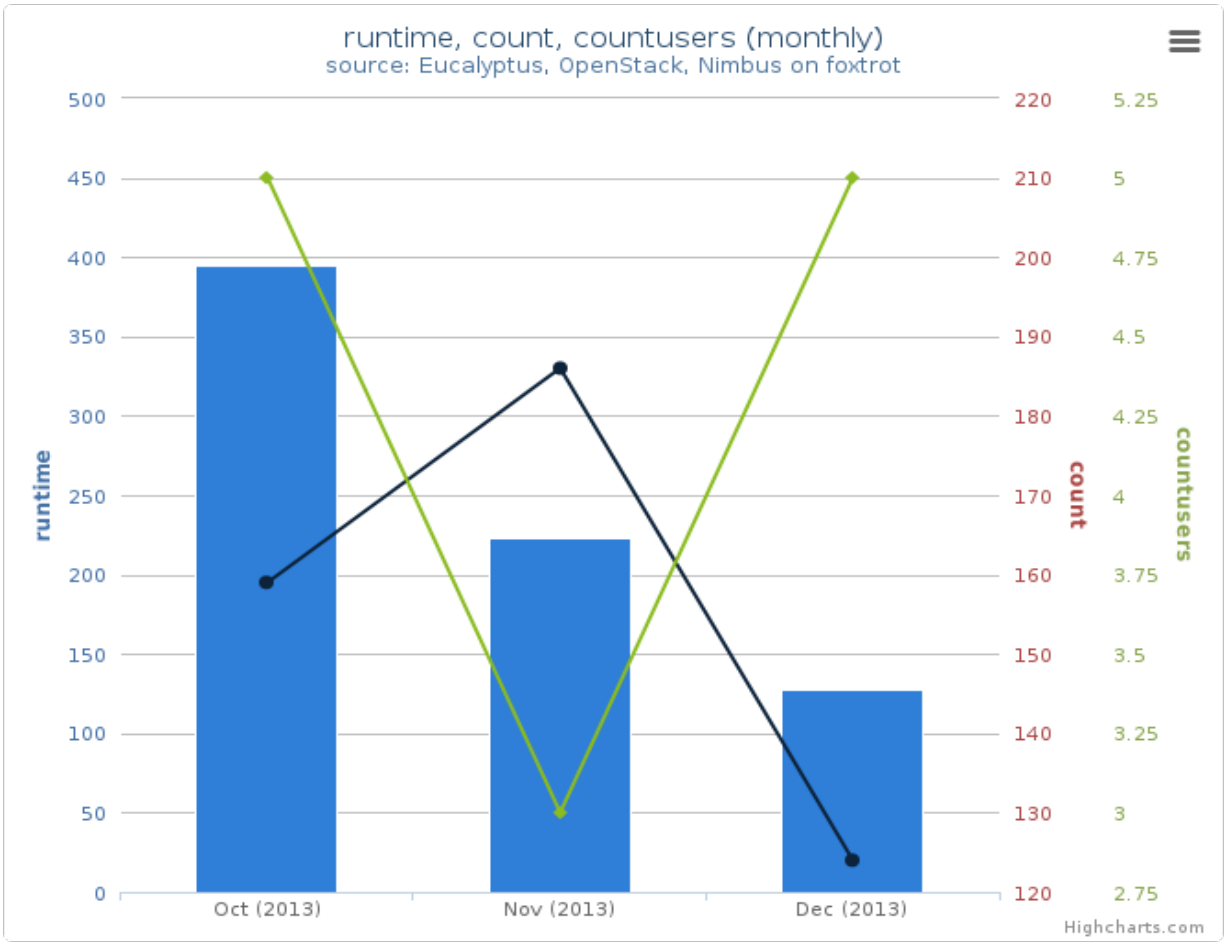


Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)
This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: October 01 – December 23, 2013
- Cloud(IaaS): nimbus
- Hostname: foxtrot
- **Metric:**
  - Runtime (Wall time hours): Sum of time elapsed from launch to termination of VM instances
  - Count (VM count): The number of launched VM instances
  - User count (Active): The number of users who launched VMs

### 5.1.2 Summary (Daily)

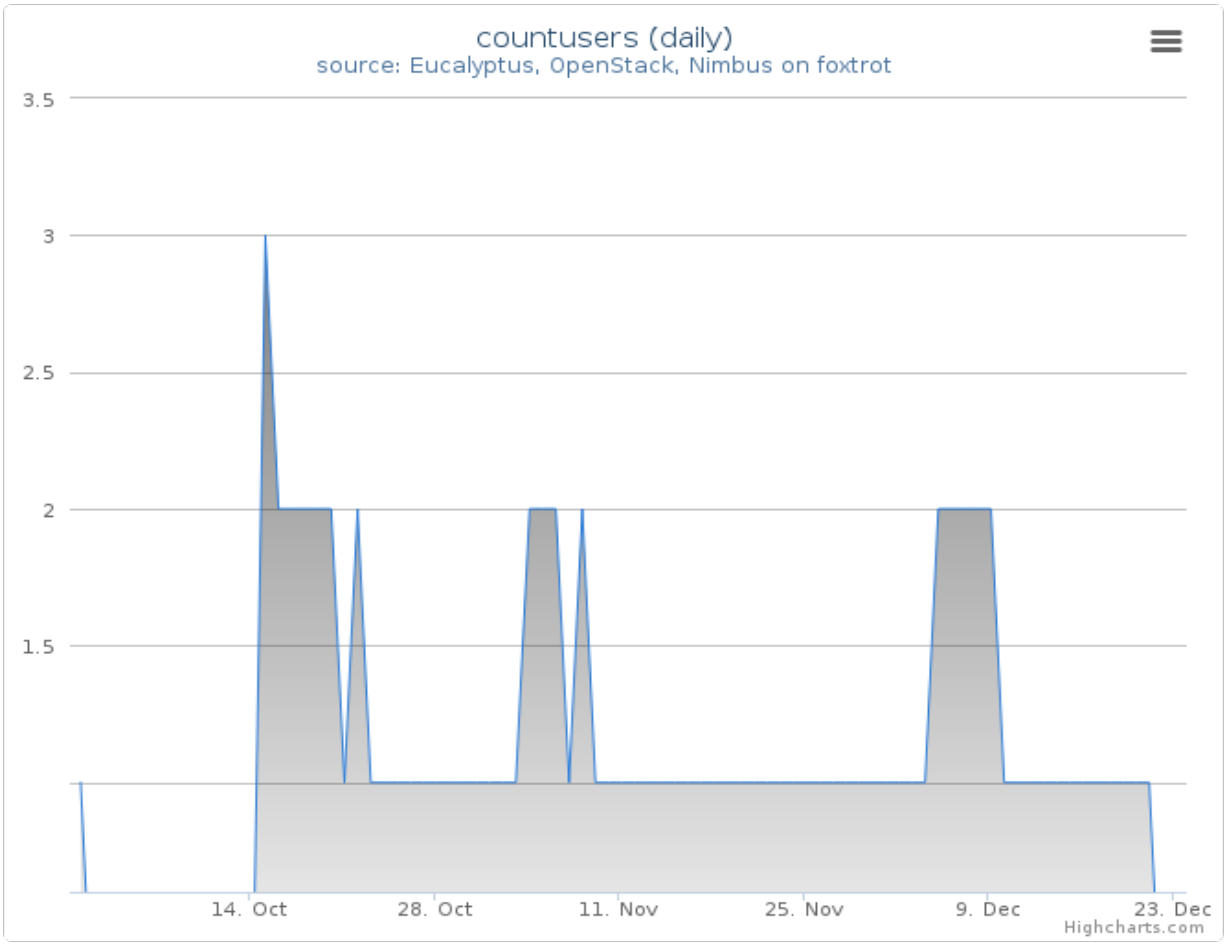


Figure 2: Users count

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

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

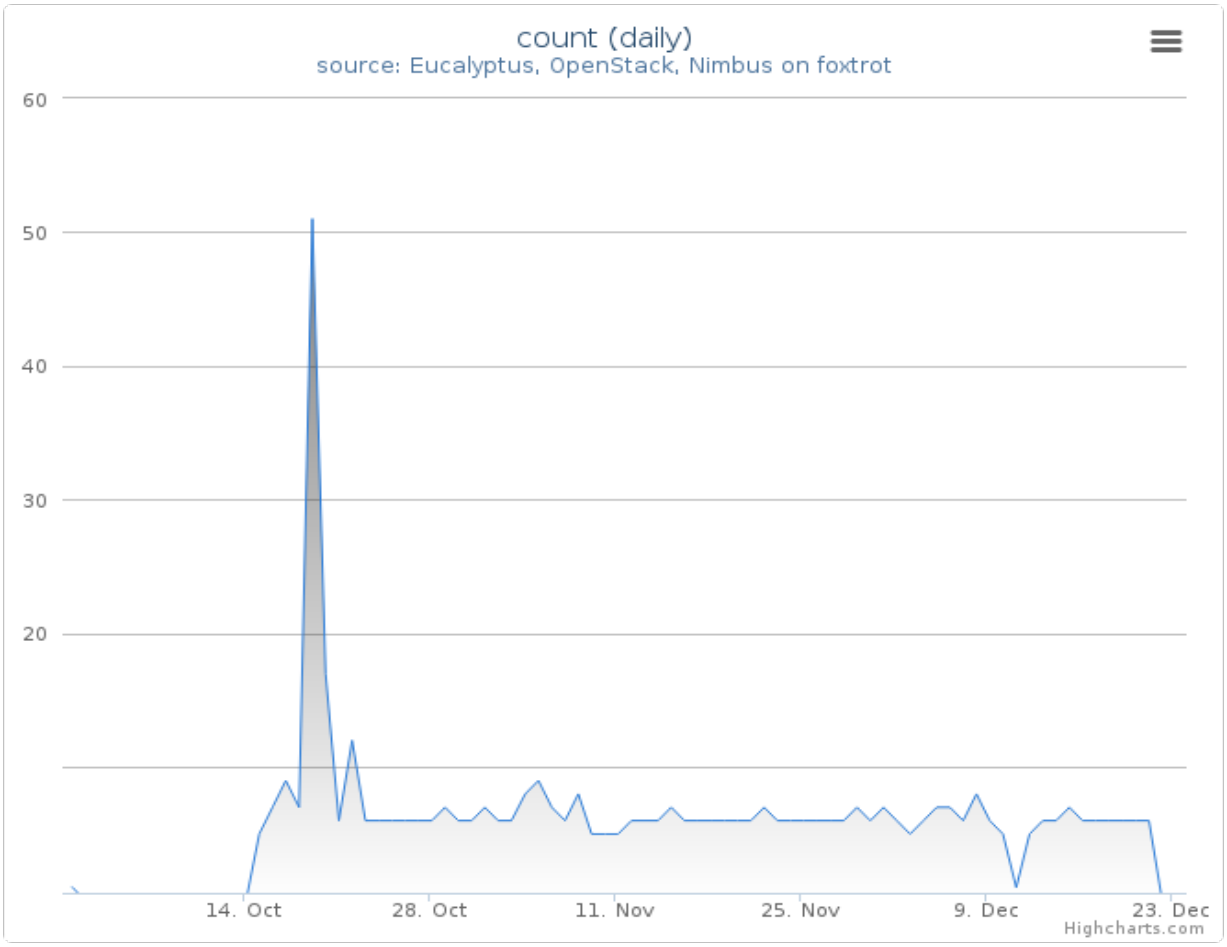


Figure 3: VMs count

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

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

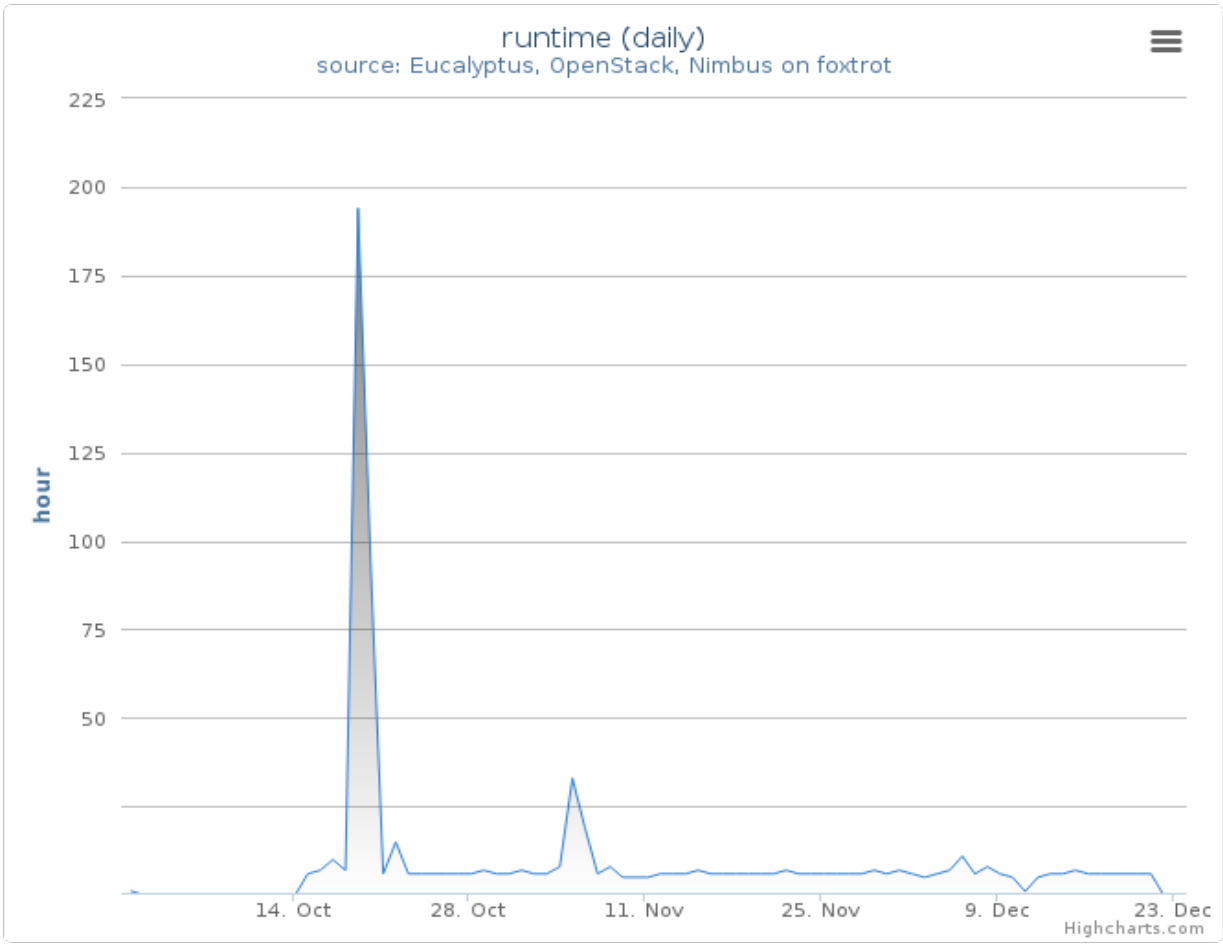


Figure 4: Wall time (hours)

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

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

## 5.2 Distribution

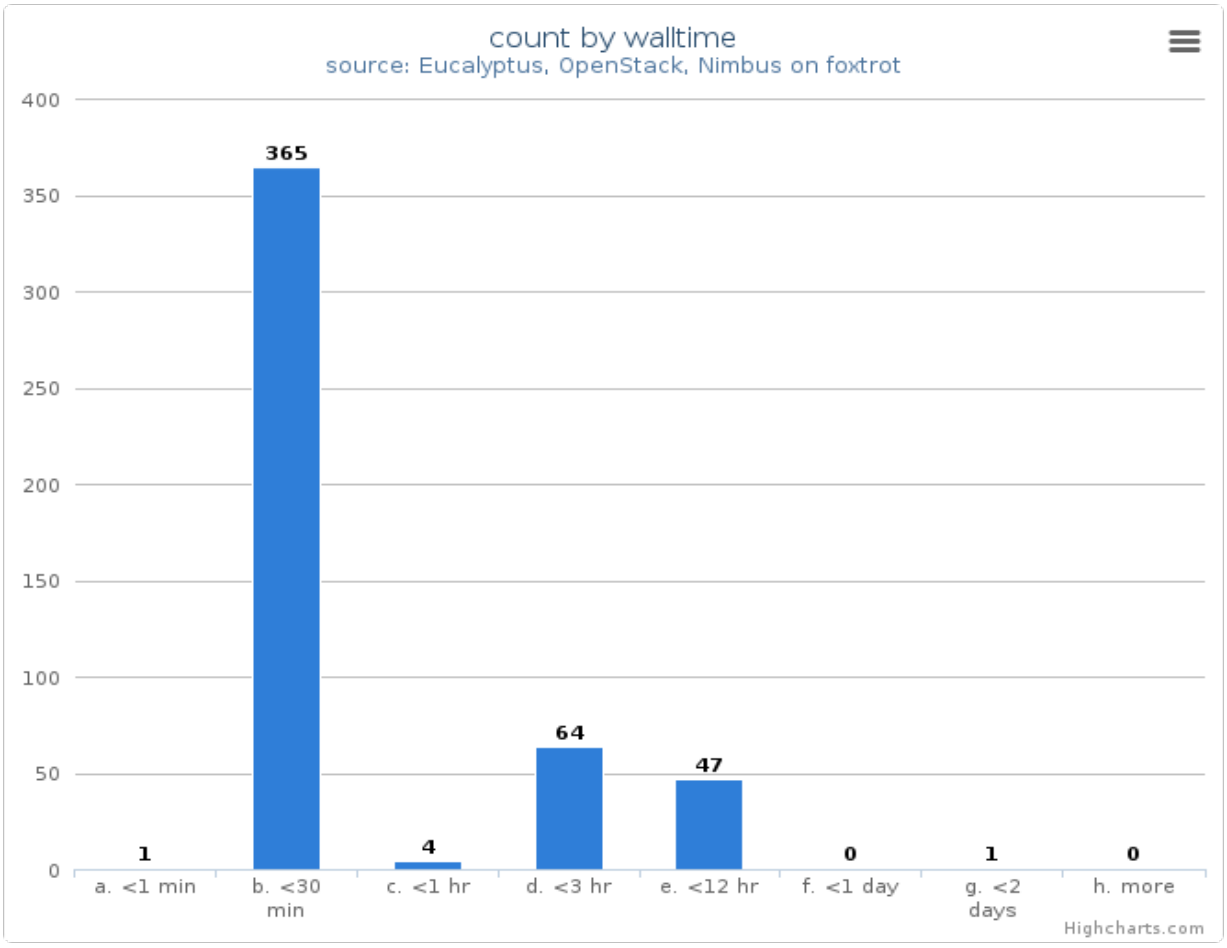


Figure 5: VM count by wall time
This chart illustrates usage patterns of VM instances in terms of running wall time.

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

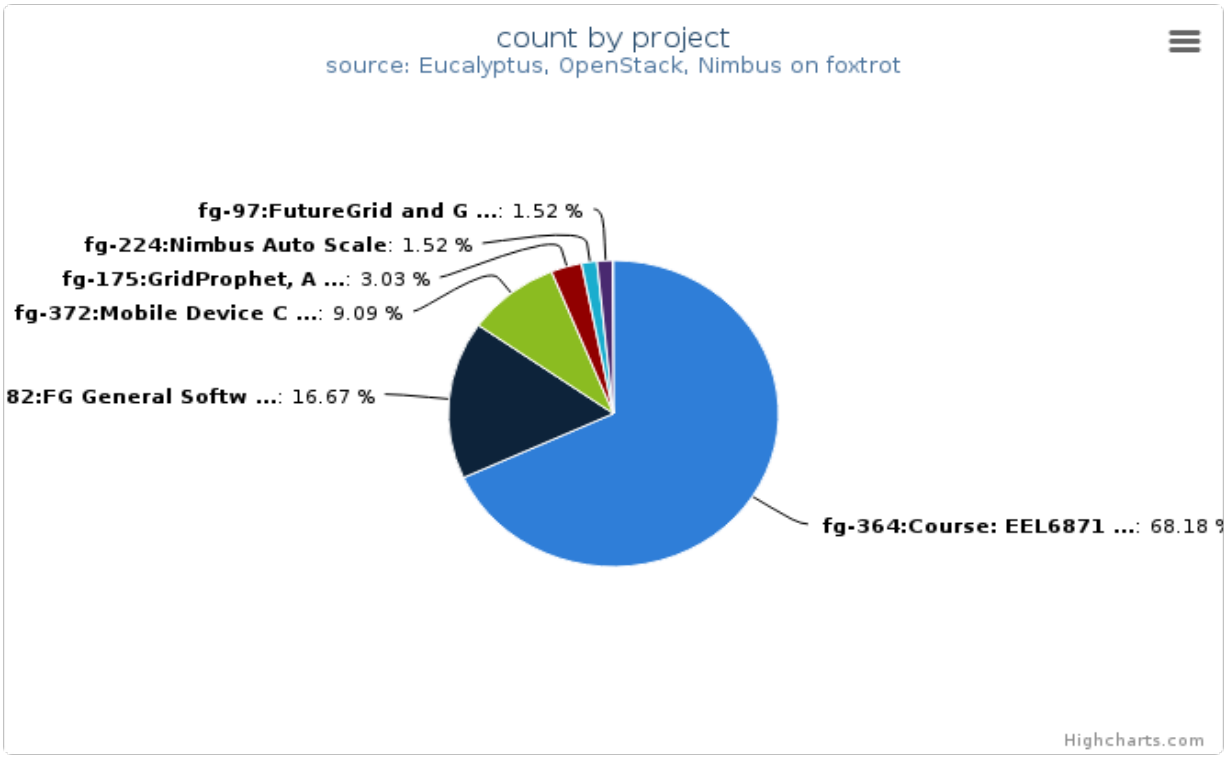


Figure 6: VMs count by project

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

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

Table 5.1: VMs count by project

| Project | Value |
|---|---|
| fg-364:Course: EEL6871 Autonomic Computing | 45 |
| fg-82:FG General Software Development | 11 |
| fg-372:Mobile Device Computation Offloading over SocialVPNs | 6 |
| fg-175:GridProphet, A workflow execution time prediction system for the Grid | 2 |
| fg-224:Nimbus Auto Scale | 1 |
| fg-97:FutureGrid and Grid‘5000 Collaboration | 1 |

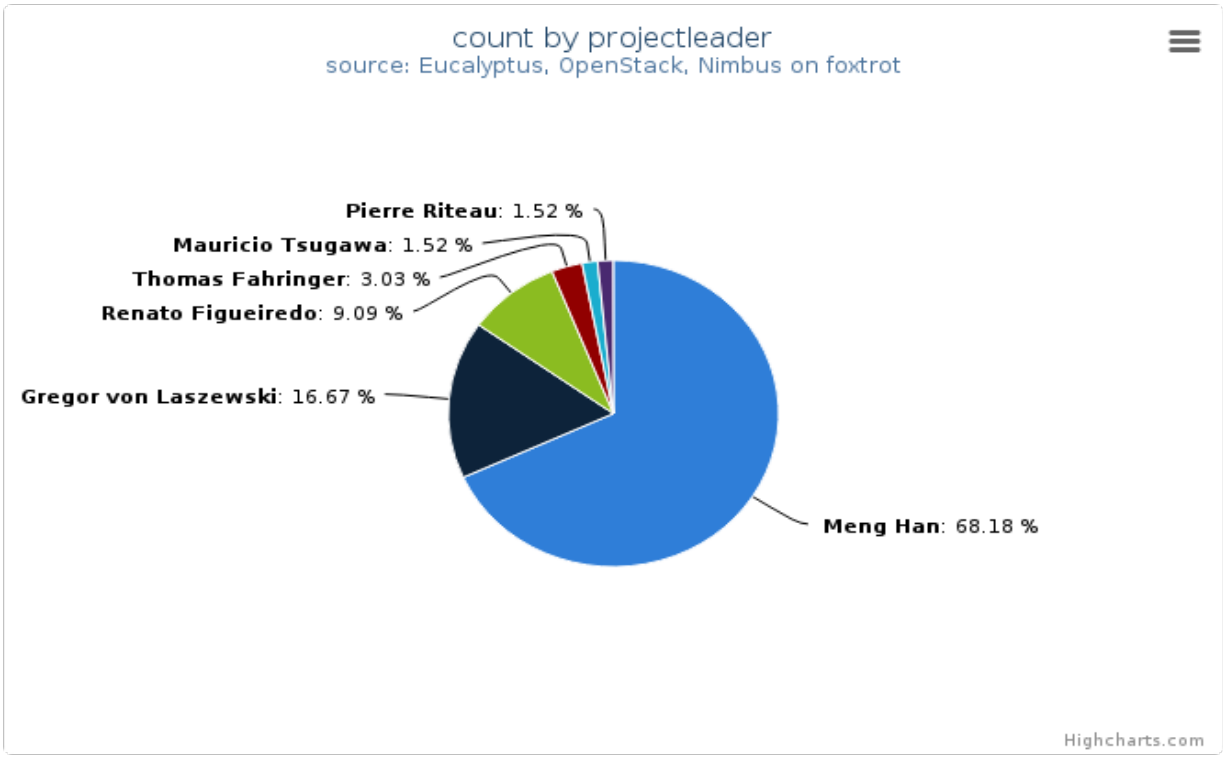


Figure 7: VMs count by project leader

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

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

Table 5.2: VMs count by project leader

| Projectleader | Value |
|---|---|
| Meng Han | 45 |
| Gregor von Laszewski | 11 |
| Renato Figueiredo | 6 |
| Thomas Fahringer | 2 |
| Mauricio Tsugawa | 1 |
| Pierre Riteau | 1 |

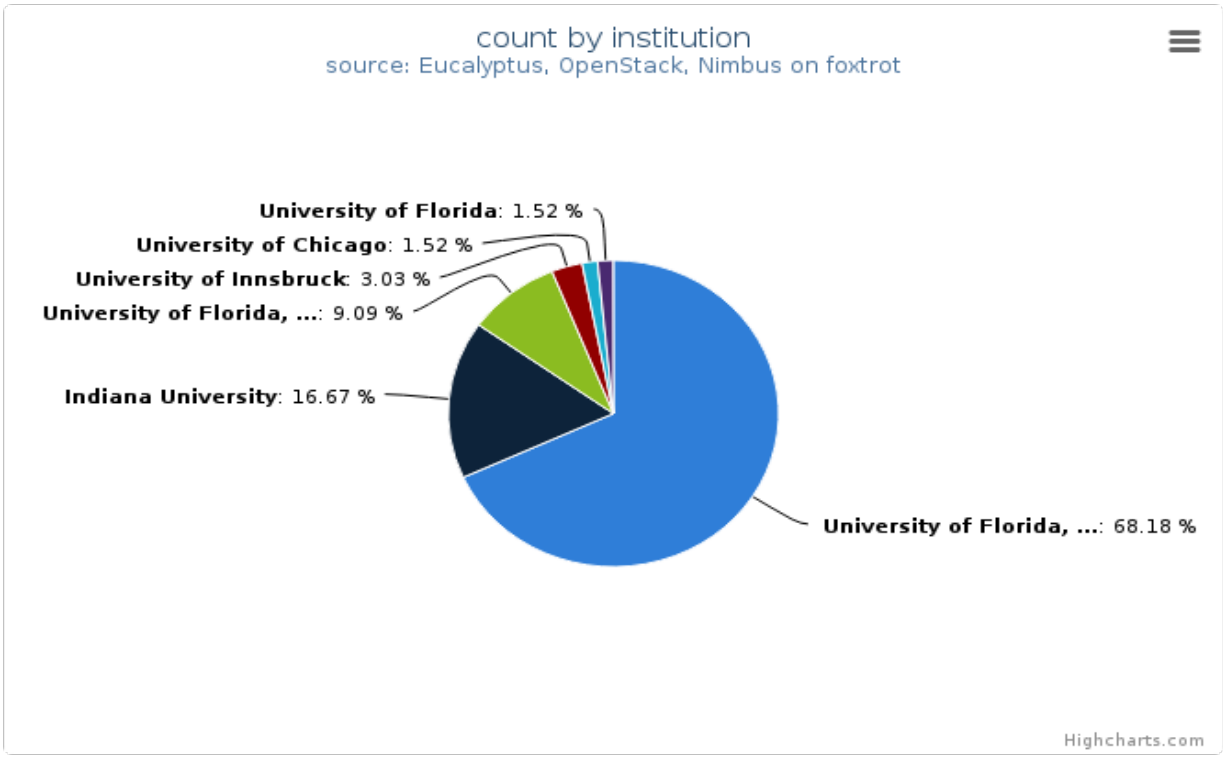


Figure 8: VMs count by institution
This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

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

Table 5.3: VMs count by institution

| Institution | Value |
|---|---|
| University of Florida, ACIS | 45 |
| Indiana University | 11 |
| University of Florida, Electrical and Computer Engineering | 6 |
| University of Innsbruck | 2 |
| University of Chicago | 1 |
| University of Florida | 1 |

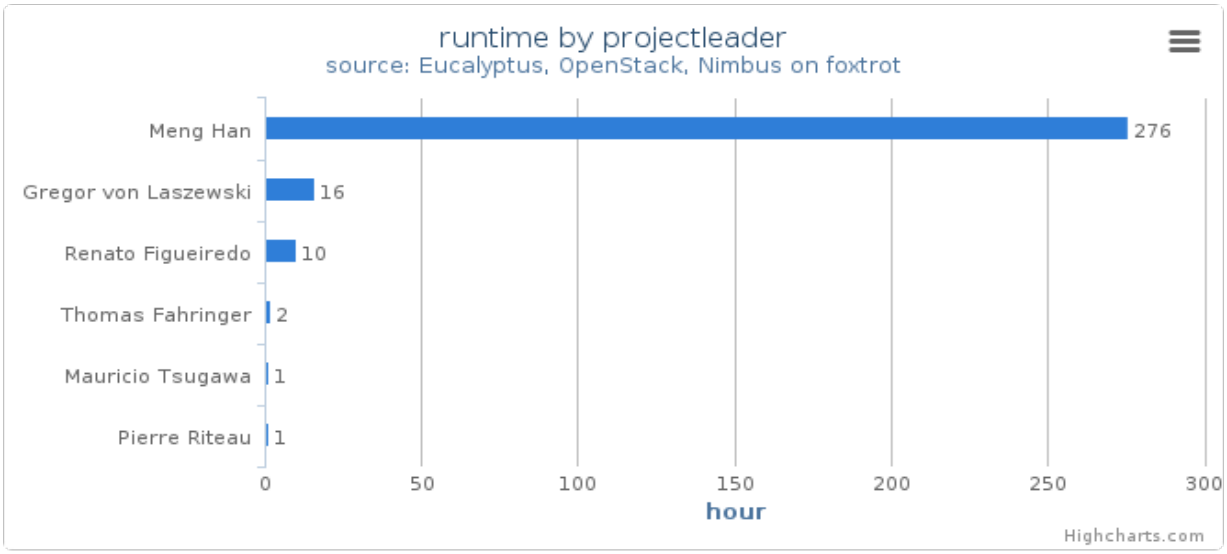


Figure 9: Wall time (hours) by project leader
This chart illustrates proportionate total run times by project leader.

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

## 5.3 System information

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

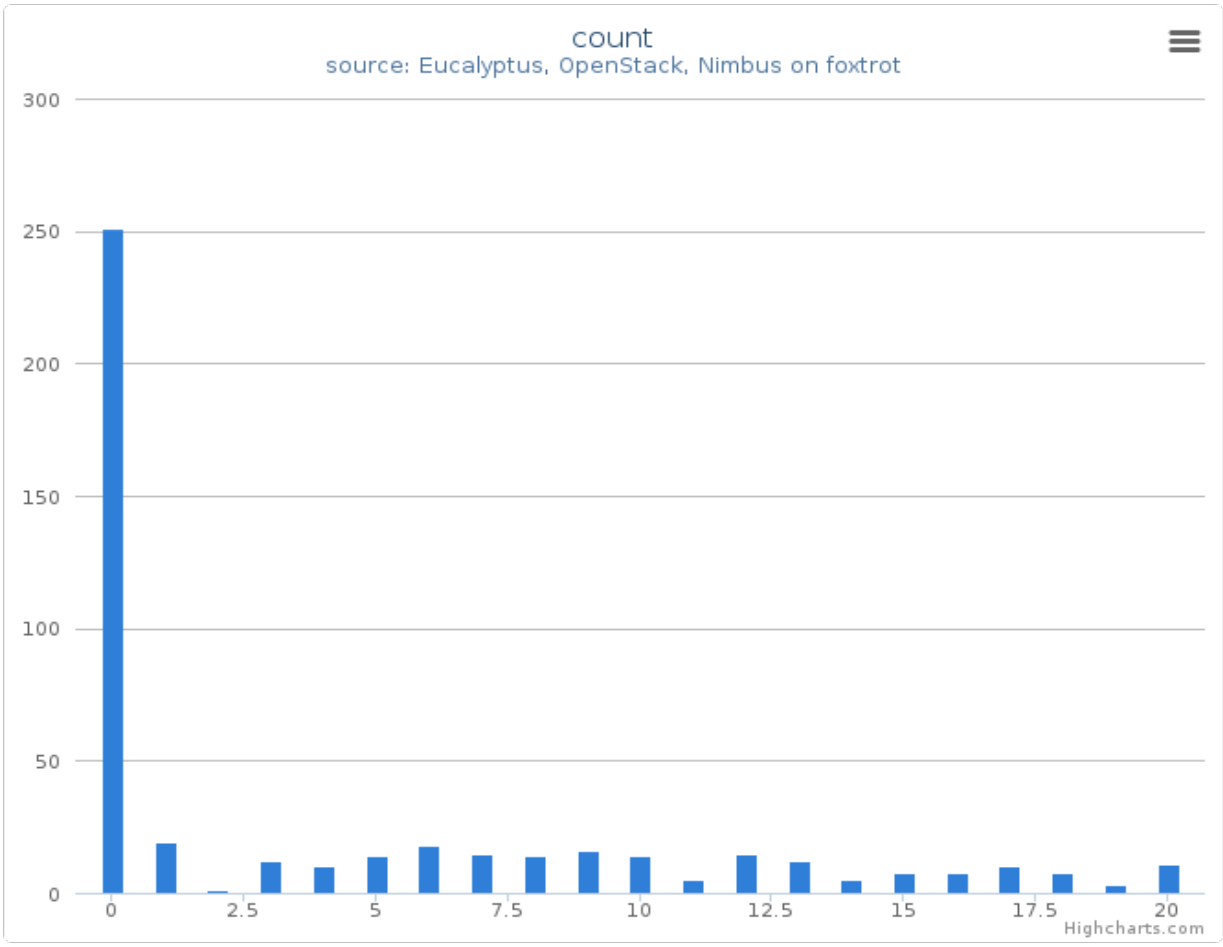


Figure 10: VMs count by systems (compute nodes) in Cluster (foxtrot)
This column chart represents VMs count among systems.

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

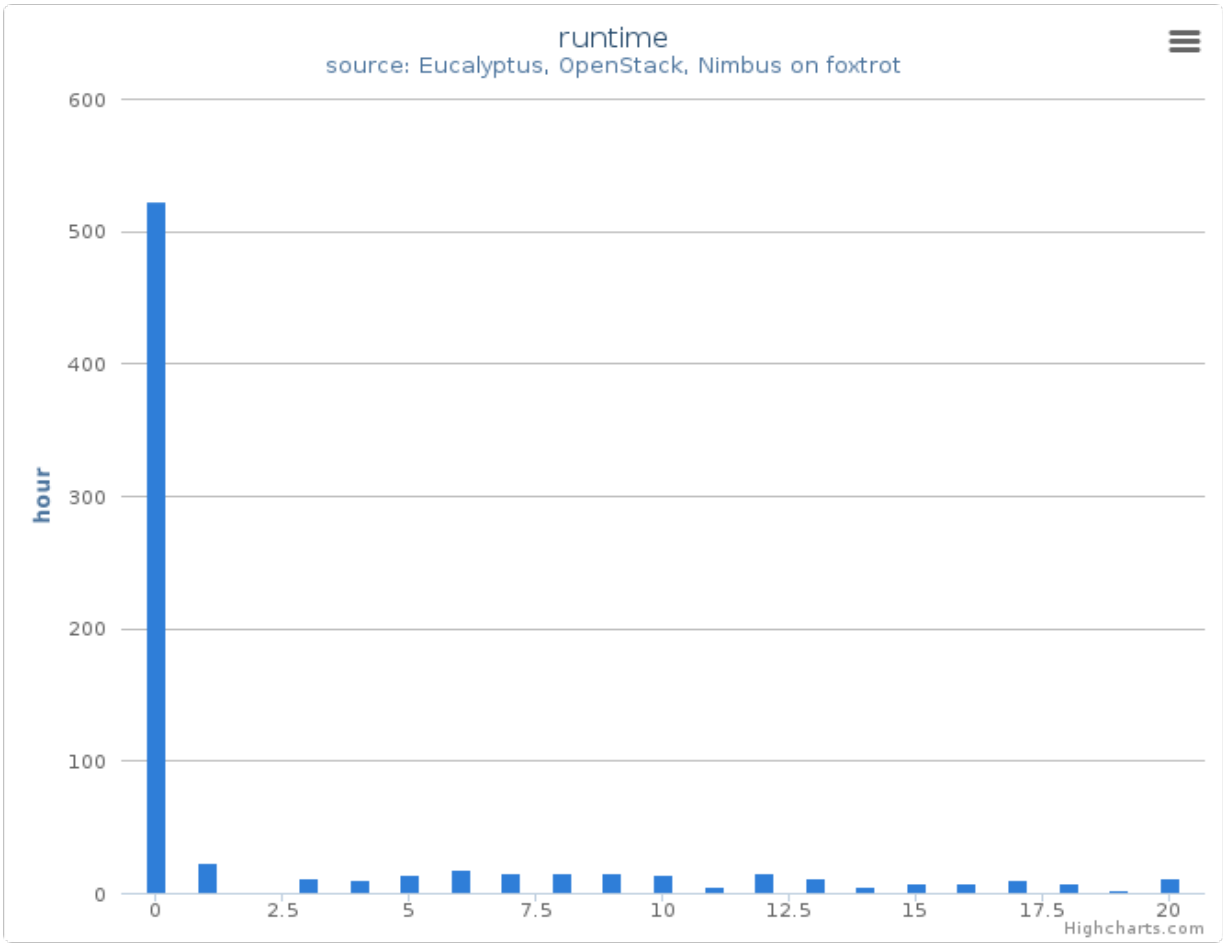


Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (foxtrot)
This column chart represents wall time among systems.

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

CHAPTER

SIX

# USAGE REPORT HOTEL

- Period: October 01 – December 23, 2013
- Hostname: hotel.futuregrid.org
- Services: nimbus
- Metrics: VMs count, Users count, Wall time (hours), Distribution by wall time, project, project leader, and institution, and systems

## 6.1 Histogram

### 6.1.1 Summary (Monthly)

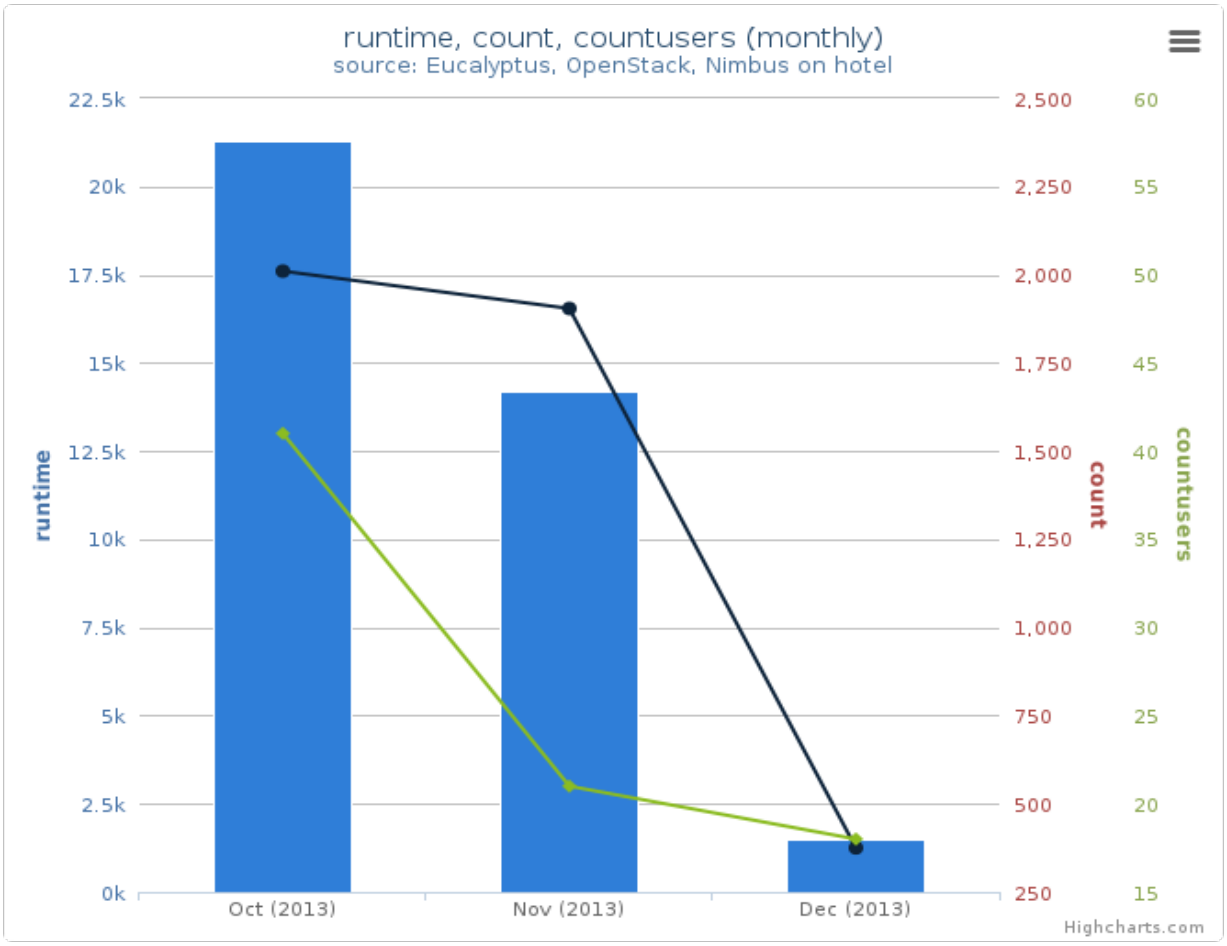


Figure 1: Average monthly usage data (wall time (hour), launched VMs, users)
This mixed chart represents average monthly usage as to wall time (hour), the number of VM instances and active users.

- Period: October 01 – December 23, 2013
- Cloud(IaaS): nimbus
- Hostname: hotel
- **Metric:**
  - Runtime (Wall time hours): Sum of time elapsed from launch to termination of VM instances
  - Count (VM count): The number of launched VM instances
  - User count (Active): The number of users who launched VMs

### 6.1.2 Summary (Daily)

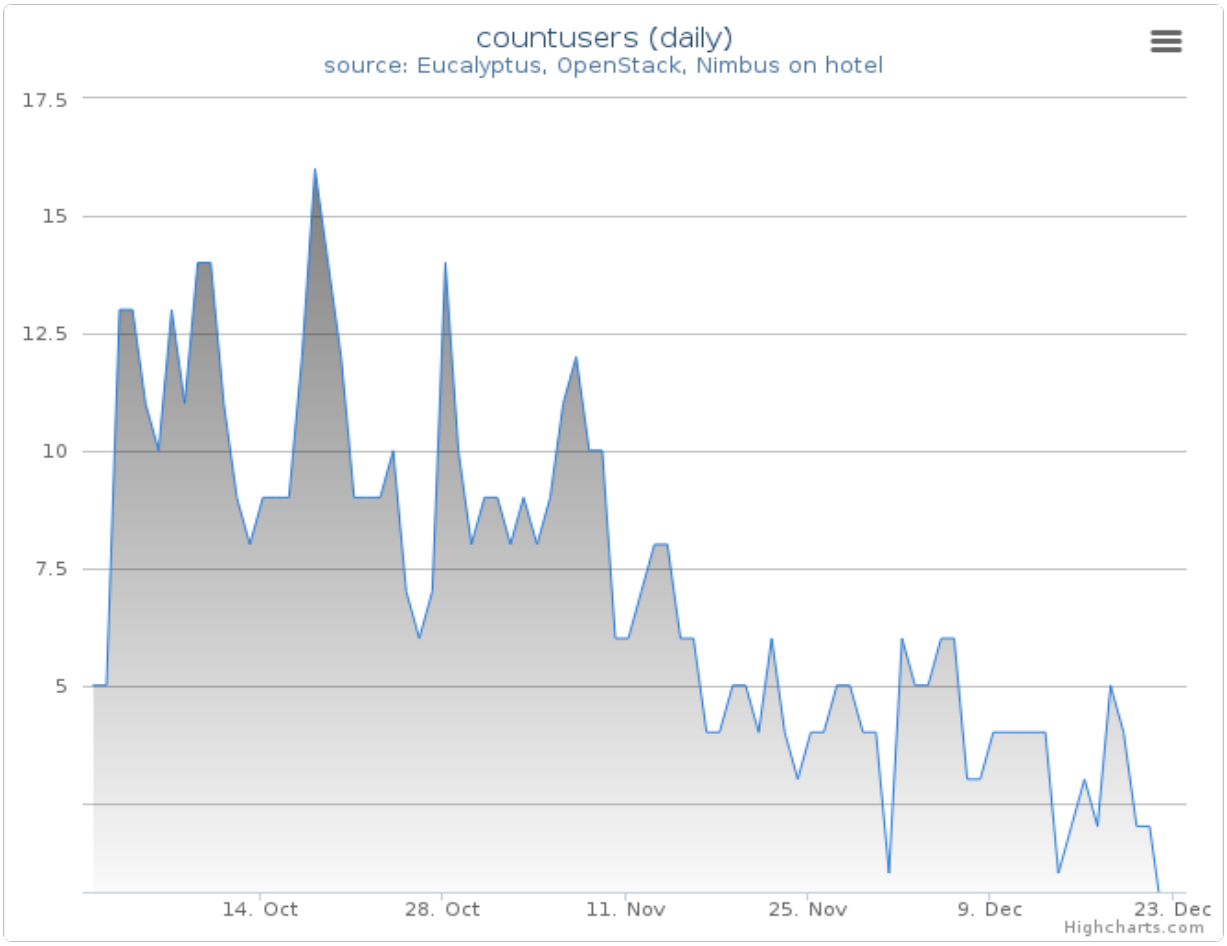


Figure 2: Users count

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

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

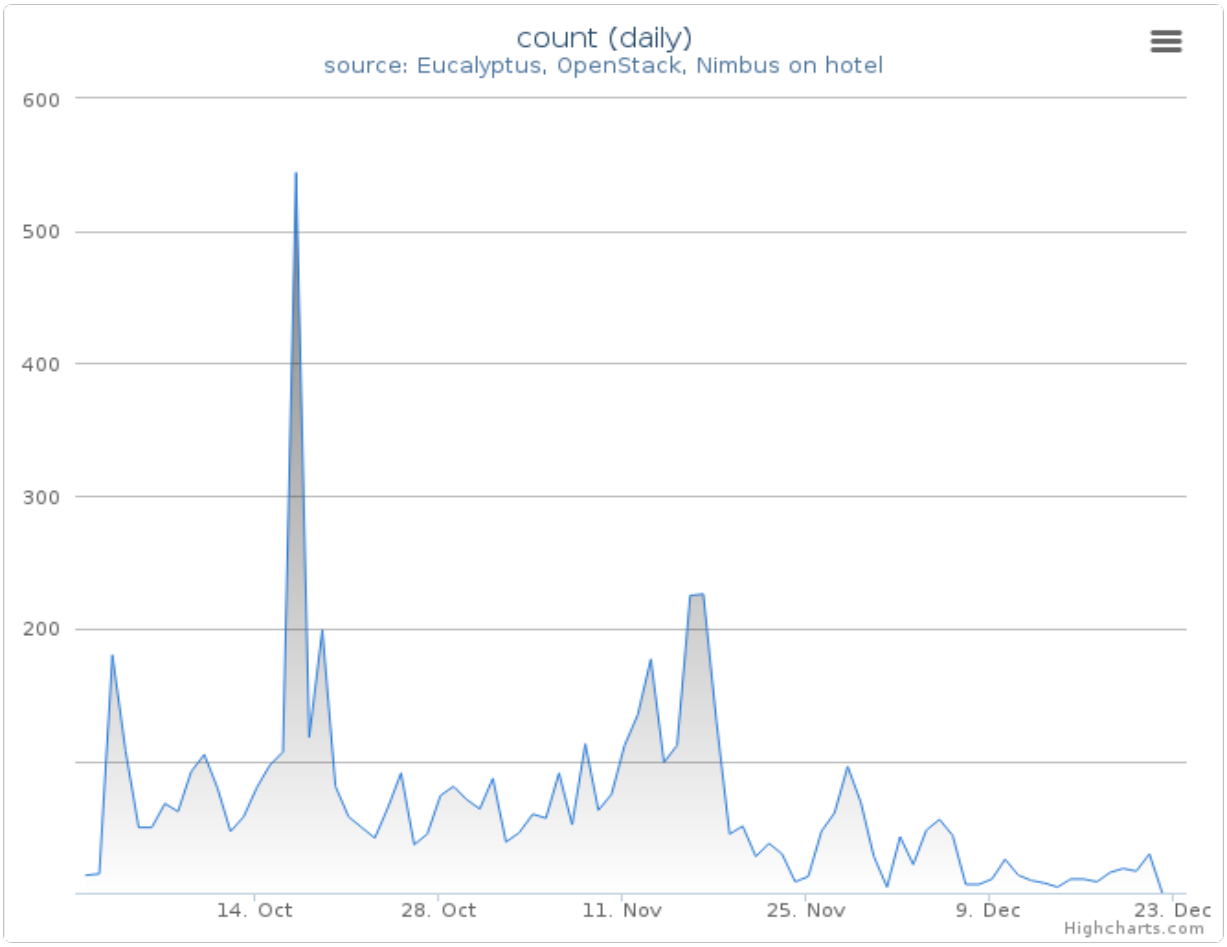


Figure 3: VMs count

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

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

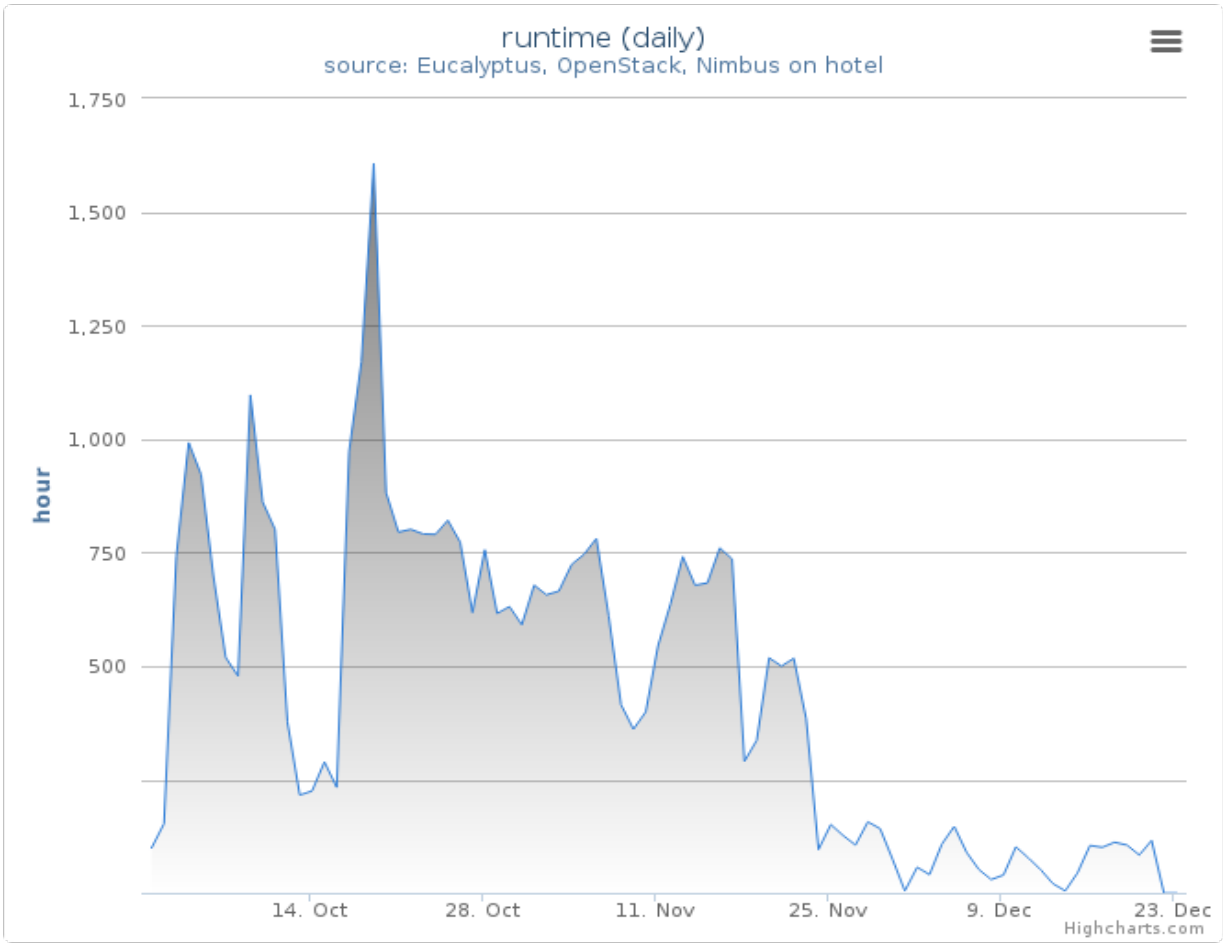


Figure 4: Wall time (hours)

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

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

## 6.2 Distribution

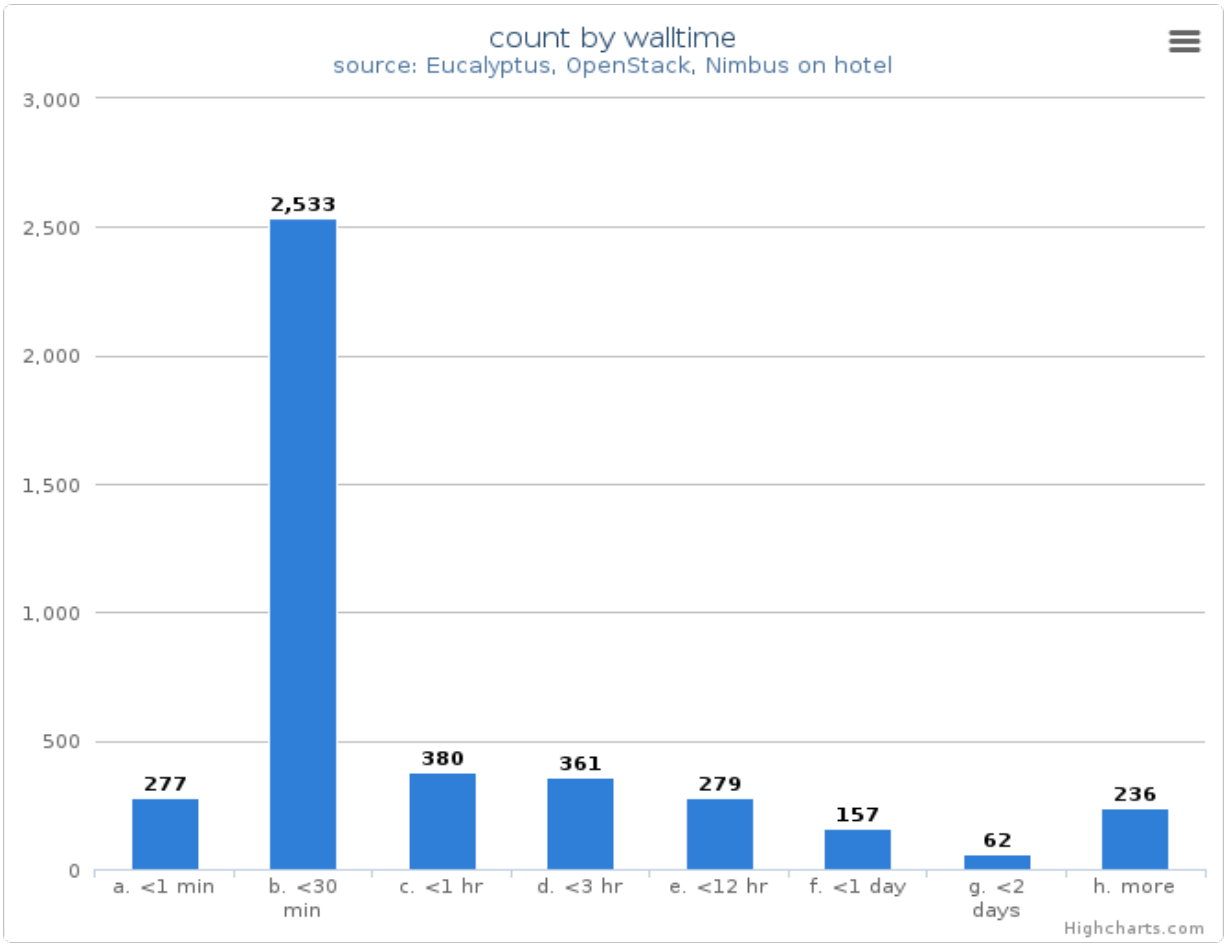


Figure 5: VM count by wall time
This chart illustrates usage patterns of VM instances in terms of running wall time.

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

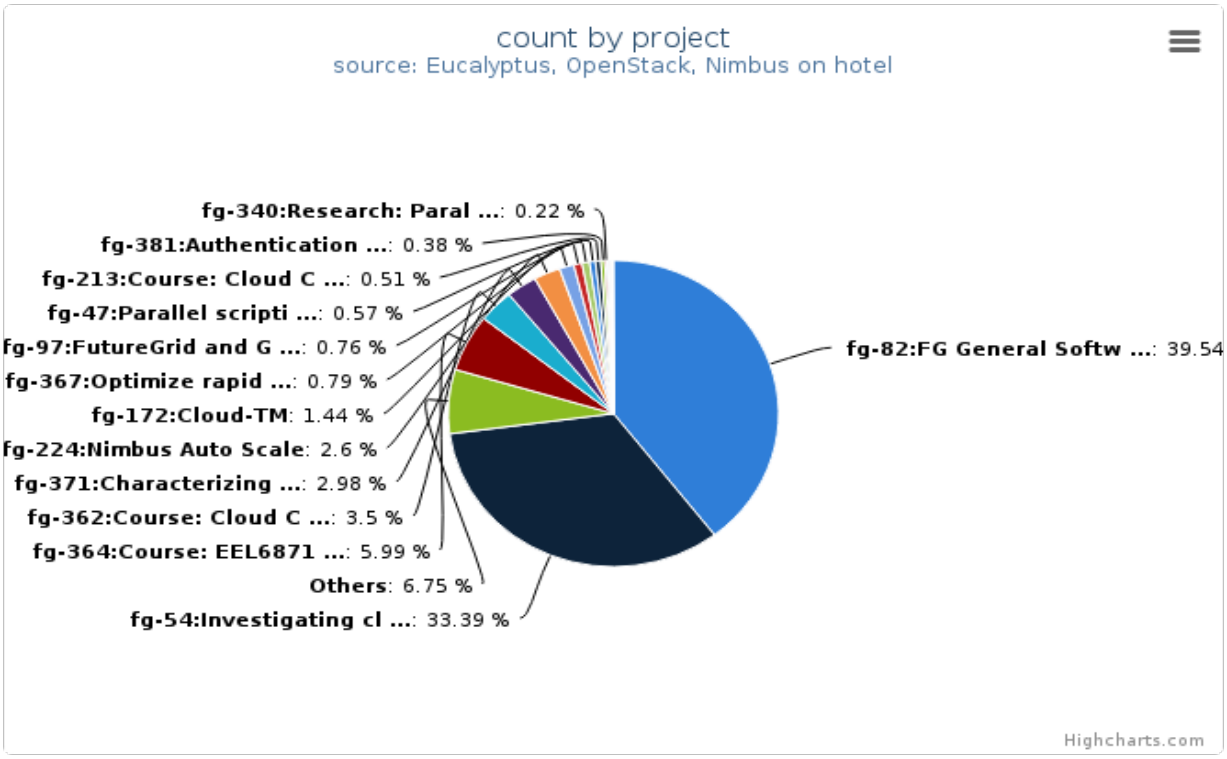


Figure 6: VMs count by project

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

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

Table 6.1: VMs count by project

| Project | Value |
|---|---|
| fg-82:FG General Software Development | 1459 |
| fg-54:Investigating cloud computing as a solution for analyzing particle physics data | 1232 |
| Others | 249 |
| fg-364:Course: EEL6871 Autonomic Computing | 221 |
| fg-362:Course: Cloud Computing and Storage (UF) | 129 |
| fg-371:Characterizing Infrastructure Cloud Performance for Scientific Computing | 110 |
| fg-224:Nimbus Auto Scale | 96 |
| fg-172:Cloud-TM | 53 |
| fg-367:Optimize rapid deployment and updating of VM images at the remote compute cluster | 29 |
| fg-97:FutureGrid and Grid'5000 Collaboration | 28 |
| fg-47:Parallel scripting using cloud resources | 21 |
| fg-213:Course: Cloud Computing class - second edition | 19 |
| fg-381:Authentication of Mobile Cloud Computing | 14 |
| fg-340:Research: Parallel Computing for Machine Learning | 8 |
| fg-341:Course: Parallel Computing | 5 |
| fg-175:GridProphet, A workflow execution time prediction system for the Grid | 5 |
| fg-372:Mobile Device Computation Offloading over SocialVPNs | 5 |
| fg-130:Optimizing Scientific Workflows on Clouds | 3 |
| fg-391:Topics in Parallel Computation | 2 |
| fg-201:ExTENCI Testing, Validation, and Performance | 1 |
| fg-10:TeraGrid XD TIS(Technology Insertion Service) Technology Evaluation Laboratory | 1 |

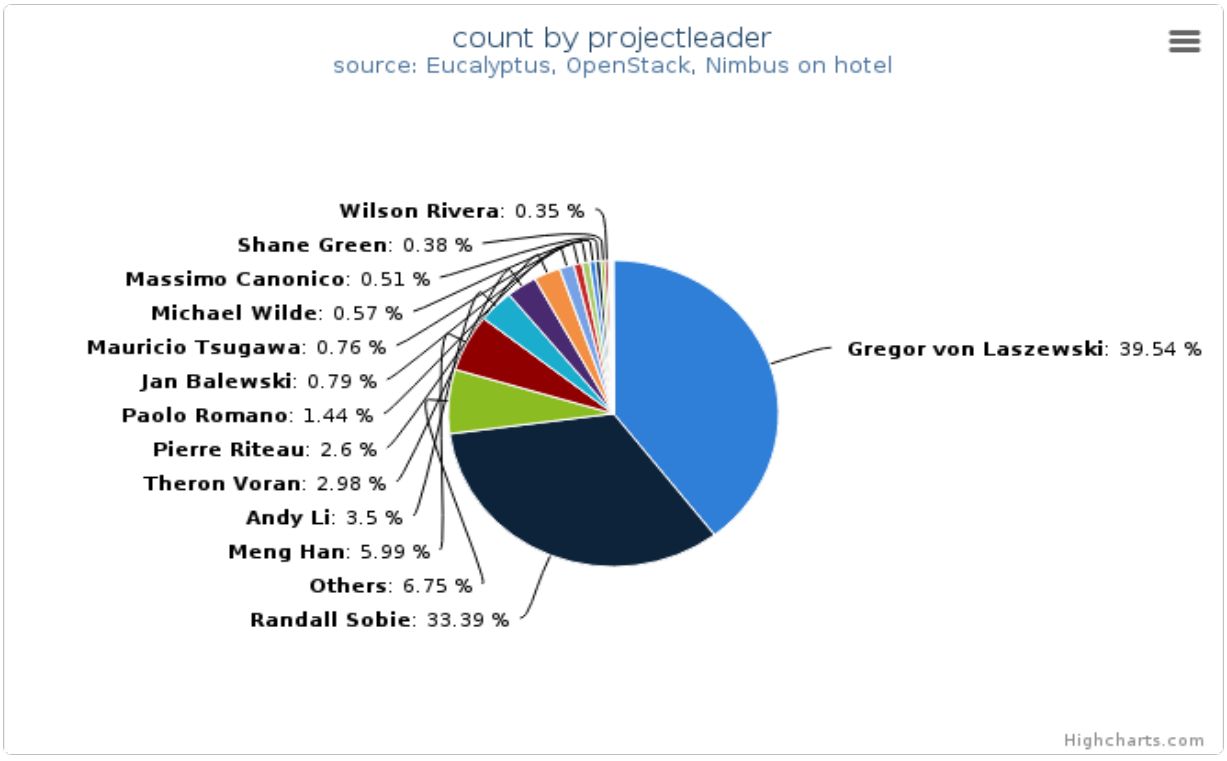

Figure 7: VMs count by project leader
This chart also illustrates the proportion of launched VM instances by project Leader. The same data in tabular form follows.

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

Table 6.2: VMs count by project leader

| Projectleader | Value |
|---|---|
| Gregor von Laszewski | 1459 |
| Randall Sobie | 1232 |
| Others | 249 |
| Meng Han | 221 |
| Andy Li | 129 |
| Theron Voran | 110 |
| Pierre Riteau | 96 |
| Paolo Romano | 53 |
| Jan Balewski | 29 |
| Mauricio Tsugawa | 28 |
| Michael Wilde | 21 |
| Massimo Canonico | 19 |
| Shane Green | 14 |
| Wilson Rivera | 13 |
| Thomas Fahringer | 5 |
| Renato Figueiredo | 5 |
| Weiwei Chen | 3 |
| Heru Suhartanto | 2 |
| Preston Smith | 1 |
| John Lockman | 1 |

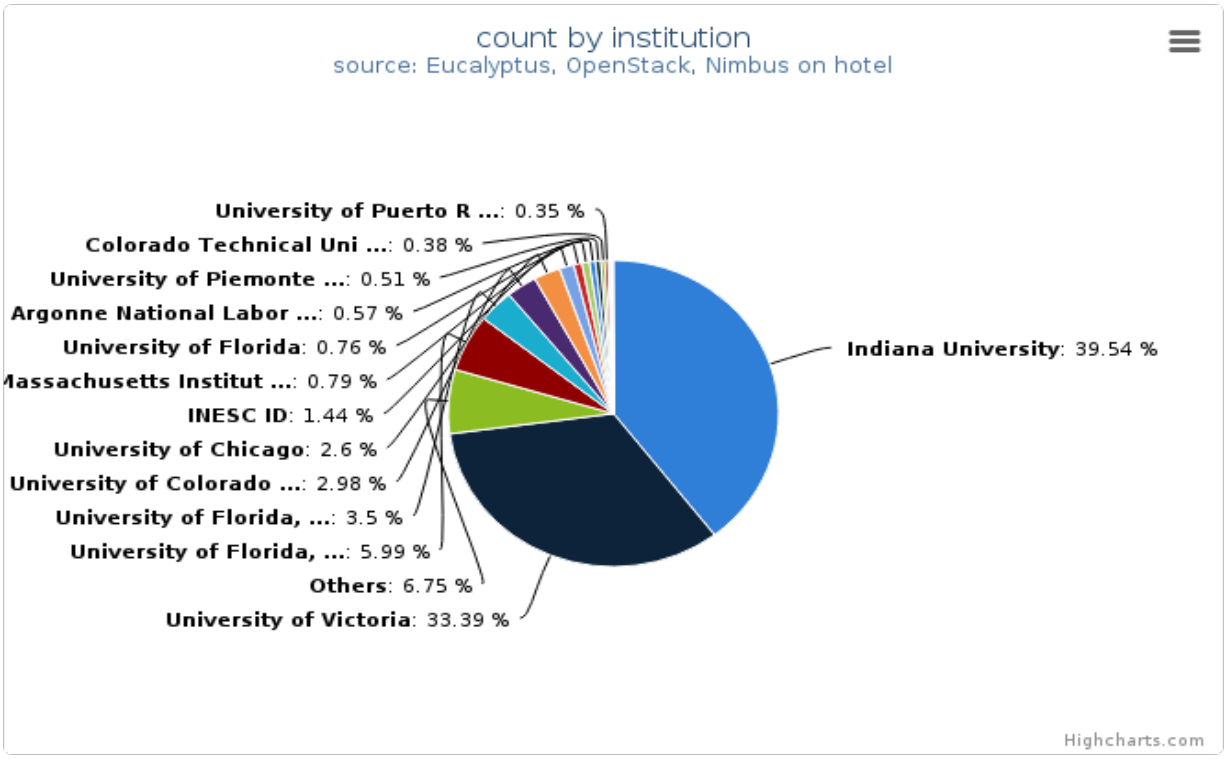


Figure 8: VMs count by institution
This chart illustrates the proportion of launched VM instances by Institution. The same data in tabular form follows.

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

Table 6.3: VMs count by institution

| Institution | Value |
|---|---|
| Indiana University | 1459 |
| University of Victoria | 1232 |
| Others | 249 |
| University of Florida, ACIS | 221 |
| University of Florida, Department of Electrical and Computer Eng | 129 |
| University of Colorado at Boulder, Computer Science Department | 110 |
| University of Chicago | 96 |
| INESC ID | 53 |
| Massachusetts Institute of Technology, Laboratory for Nuclear Sc | 29 |
| University of Florida | 28 |
| Argonne National Laboratory | 21 |
| University of Piemonte Orientale | 19 |
| Colorado Technical University, Computer Science and Engineering | 14 |
| University of Puerto Rico, Electrical and Computer Emgineering D | 13 |
| University of Florida, Electrical and Computer Engineering | 5 |
| University of Innsbruck | 5 |
| University of Southern California | 3 |
| Universitas Indonesia, Faculty of Computer Science | 2 |
| University of Texas at Austin | 1 |
| Purdue University | 1 |

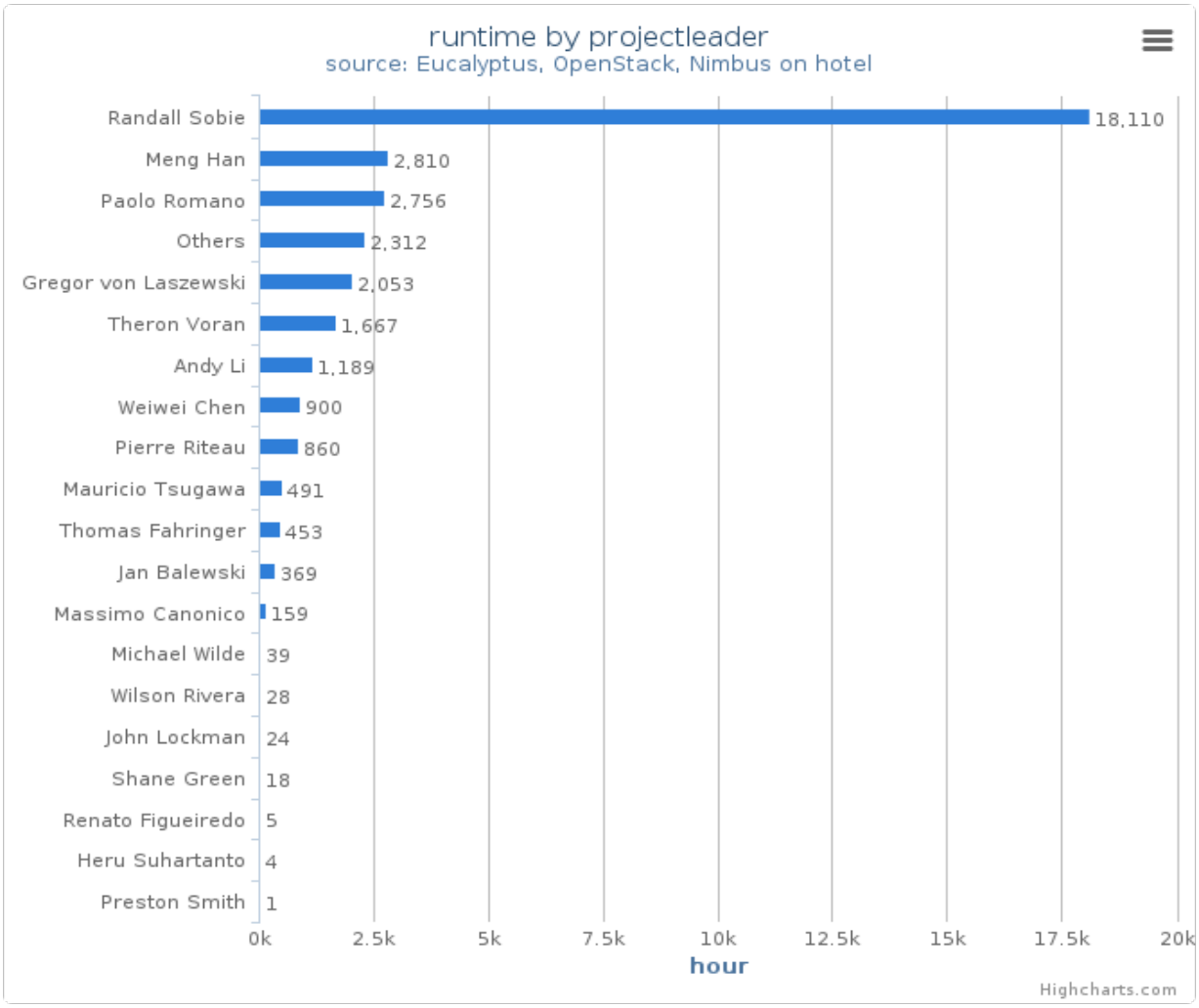


Figure 9: Wall time (hours) by project leader
This chart illustrates proportionate total run times by project leader.

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

## 6.3 System information

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

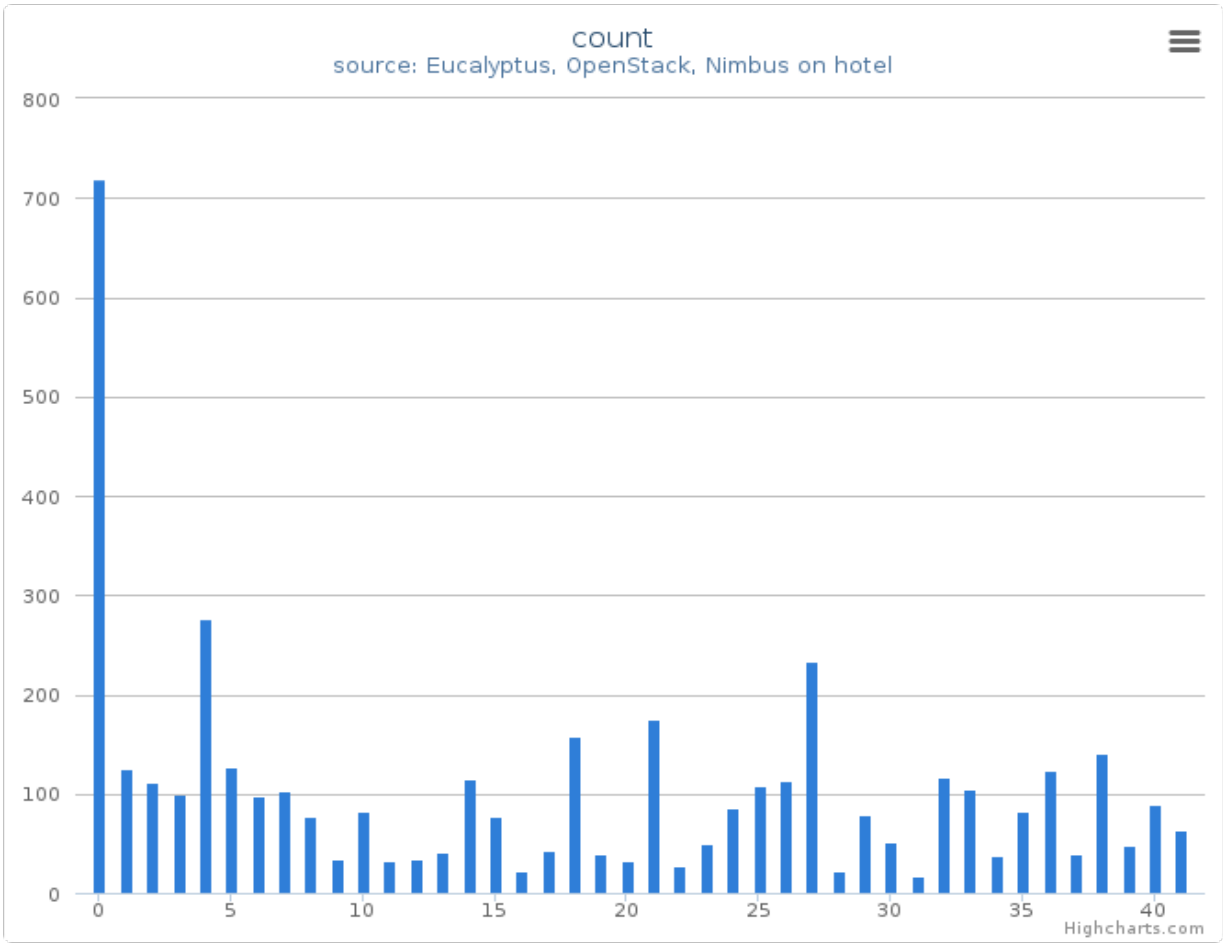


Figure 10: VMs count by systems (compute nodes) in Cluster (hotel)
This column chart represents VMs count among systems.

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

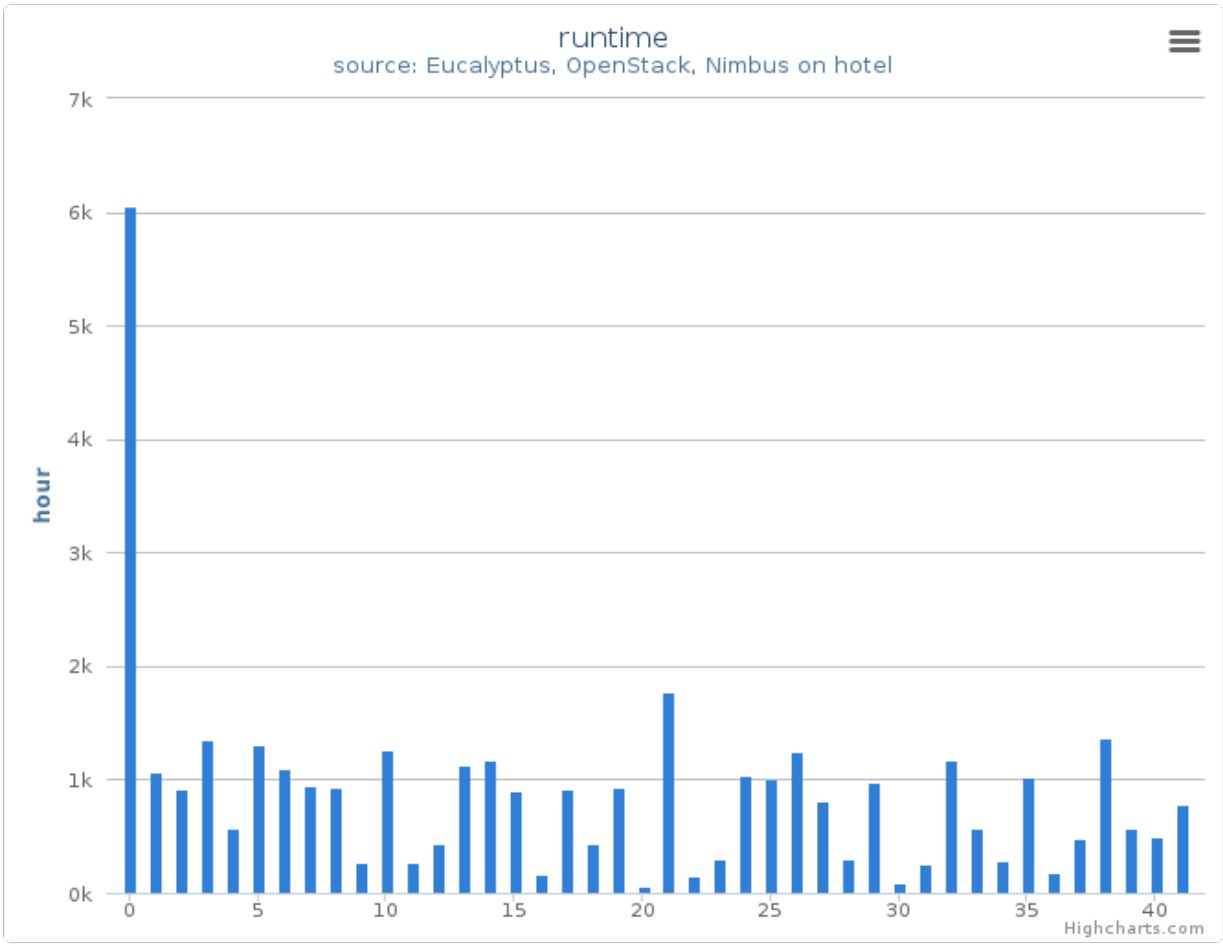


Figure 11: Wall time (hours) by systems (compute nodes) in Cluster (hotel)
This column chart represents wall time among systems.

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

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.