

The OpenStack logo, which consists of a light blue cloud shape with a circular arrow inside, is positioned in the background behind the text.

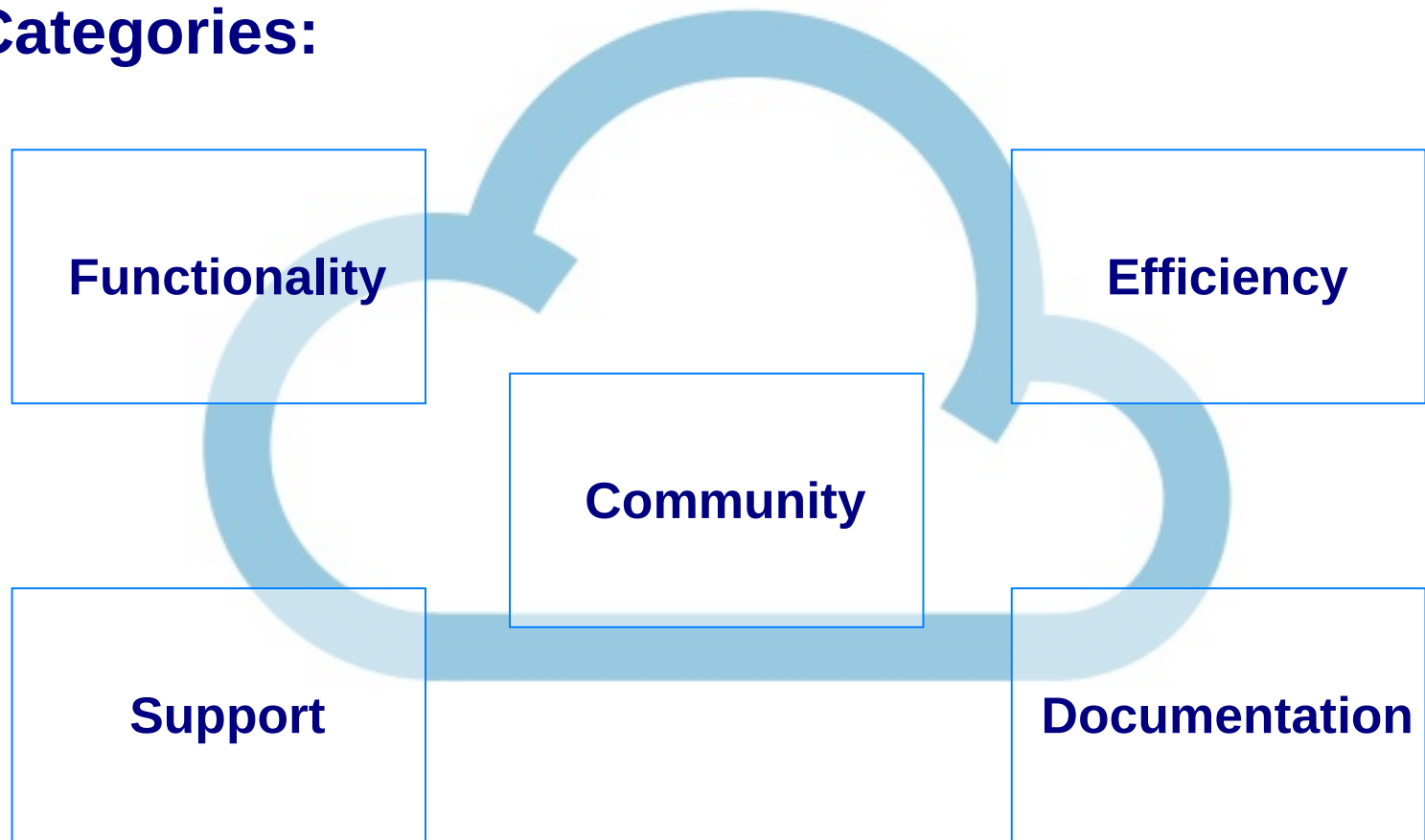
# **Software Quality Evaluation of FOSS Cloud Project OpenStack**

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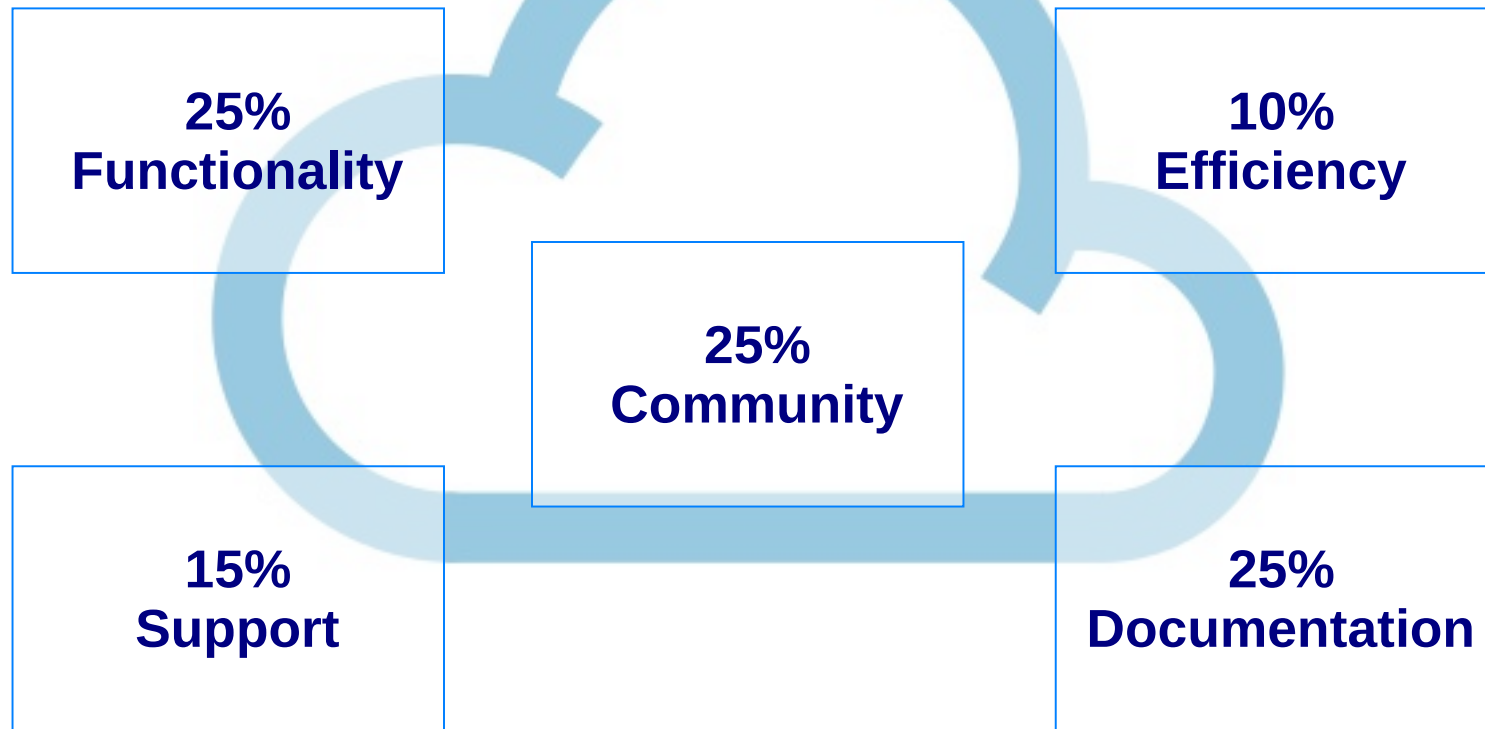
# Cloud Project Requirements

- **Categories:**



# Selected Quality Methodology

- **Open Business Readiness Rating Model**



# Functionality

- **Billing System (20%)** [5/5]
  - SystemUsageData\* & QuantumUsage\*
- **Multi Platform Suport (15%)** [1/5]
  - Red Hat/Fedora/SUSE/Debian/Ubuntu
  - Hypervisors Support: Xen/libvirt, KVM, QEMU, ESXi, Hyper-V
- **Configuration System for Administrators (30%)** [5/5]
  - Dashboard
- **I18n (10%)** [1/5]
  - Transifex\*
- **Quota Facilities (25%)** [5/5]
  - Manage user quotas, block storage and networking

# Efficiency

- **Performance Testing & Benchmark Reports (30%) [3/5]**
  - Grenoble Rhône-Alpes Research Center (France)
  - IBM, SoftLayer and Mirantis (USA)
- **Tuning & Configuration (70%) [3/5]**
  - Red Hat (USA)
  - Aptira (Australia and India)

# Support

- Companies providing professional support (100%) [5/5]



# Documentation

<https://github.com/openstack/nova.git>

- **Documentation Update Frequency (55%) [4/5]**

```
mysql> SELECT MAX(s.date)
        FROM scmlog s, actions a, file_types ft, files f
        WHERE s.id=a.commit_id
              AND a.file_id=ft.file_id
              AND ft.type='documentation'
              AND f.file_name
              LIKE '%.txt' ORDER BY s.date;
```

- **Number of contributors last year (45%) [5/5]**

```
mysql> SELECT COUNT (DISTINCT(p.id))
        FROM scmlog s, actions a, file_types ft, files f, people p
        WHERE s.committer_id=p.id
              AND s.id=a.commit_id
              AND ft.file_id=a.file_id
              AND ft.type="documentation" AND f.file_name LIKE "%.txt"
              AND YEAR(s.date)="2013";
```

# Community

- **Number of commits per developer last month (30%) [3/5]**

```
mysql> SELECT COUNT DISTINCT(p.id)
        FROM scmlog s, people p
        WHERE s.committer_id=p.id
        AND YEAR s.date='2013'
        AND MONTH s.date='11';
```

```
mysql> SELECT COUNT s.id
        FROM scmlog s, people p
        WHERE s.committer_id=p.id
        AND YEAR s.date='2013'
        AND MONTH s.date='11';
```

- **Files touched by only one developer (30%) [1/5]**

```
mysql> SELECT COUNT DISTINCT(file_path)
        FROM file_links;
```

```
mysql> SELECT COUNT p.email
        FROM scmlog s, people p, file_links fl
        WHERE fl.commit_id=s.id
        AND s.committer_id=p.id
        GROUP BY fl.file_path
        HAVING COUNT p.email=1;
```

- **Community growth (40%) [3/5]**

```
mysql> SELECT COUNT s.id
        FROM scmlog s, people p
        WHERE YEAR s.date='2012'
        AND s.committer_id=p.id;
```

```
mysql> SELECT COUNT s.id
        FROM scmlog s, people p
        WHERE YEAR s.date='2013'
        AND s.committer_id=p.id;
```



# Comparison Among FOSS Cloud Projects

cloudstack

BRR:  
4.13

OpenNebula

BRR:  
3.26

EUCLALYPTUS

BRR:  
3.74



BRR:  
3.76

# Final Conclusions

- Technical decision standpoint:  
The FOSS cloud project that best fits with requirements

The CloudStack logo, featuring the word "cloudstack" in a blue and grey sans-serif font, is centered. Behind it is a large, light blue circular graphic. To the right of the logo is a tilted rectangular image showing a hand giving a thumbs up against a blue background with white clouds.

**cloudstack**

# References

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