Quality analysis of free software cloud computing software

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Project Evaluation
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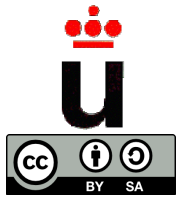

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Overview

Introduction

The main goal of this final work is the **cloud computing software evaluation** in group. The evaluated projects have been

- Eucalyptus
- OpenNebula
- OpenStack
- CloudStack

Methodology

- The company role is a **services provider**
- The purpose is to choose a cloud computing software for building web services, and infrastructure cloud services.
- New paradigm for building and support services infrastructure (free software model)

Quality model - Attributes

- Functionality
  - Billing System
  - Multi Platform Support
  - Administrators Configuration System
  - i18n
  - Quota Facilities
- Efficiency
  - Performance Testing and Benchmark Reports available
  - Performance Tuning & Configuration

Quality model - Attributes

- Support
  - Company Support
- Documentation
  - Documentation Update
  - Number of contributors to documentation
- Community
  - Mean commits / developer last month
  - Percent of files touched by only one developer
  - Community growth (commit number variation)

Quality model - Weights

Evaluated Technology		
Component Name:		
Component type: Core		
Usage Setting: Cloud Computing Softwre		
Rank	Category	Weight
1	Functionality	30.00%
2	Efficiency	20.00%
3	Support	10.00%
4	Documentation	10.00%
5	Community	30.00%
		Total Weight
		100.00%

Quality model - Weights

Evaluated Technology		
Component Name:		
Component type: Core		
Usage Setting: Cloud Computing Softwre		
Rank	Category	Weight
1	Functionality	30.00%
	Billing System	*30.00%*
	Multi Platform Support	*10.00%*
	Administrators Configuration System	*20.00%*
	i18n	*10.00%*
	Quota Facilities	*30.00%*
2	Efficiency	20.00%
	Performance Testing and Benchmark Reports available	*50.00%*
	Performance Tuning & Configuration	*50.00%*
3	Support	10.00%
	Company Support	*100.00%*
4	Documentation	10.00%
	Documentation Update	*40.00%*
	Number of contributors to documentation	*60.00%*
5	Community	30.00%
	Mean commits / developer last month	*25.00%*
	Percent of files touched by only one developer	*25.00%*
	Community growth (commit number variation)	*50.00%*
		Total Weight
		100.00%

Tools

CVSAnalY

- Retrieves and organizes information from source code management (version control) systems. It currently supports CVS, Subversion and git repositories, with Bazaar and Mercurial in the planning.

Bicho

- Retrieves and organizes information from issue tracking system. Currently it supports Bugzilla, Jira, and the SourceForge, Allura, GitHub, Google Code, Launchpad, Redmine and GitHub trackers. Trac is in the planning.

OpenBRR template
Project Official websites
Google - DuckDuckGo

Data sources

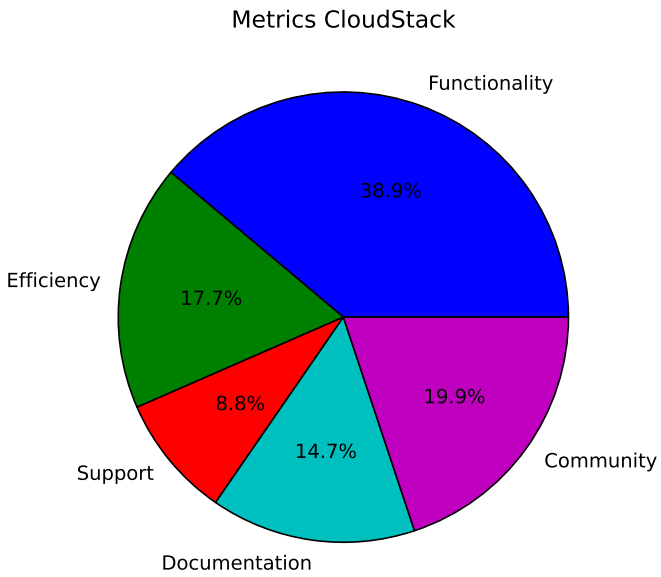
The following repositories were used

- Eucalyptus: `https://github.com/eucalyptus`
- OpenNebula: `https://github.com/OpenNebula`
- OpenStack: `https://github.com/openstack`
- CloudStack: `git://git.apache.org/cloudstack.git`

Project Official websites - Documentation

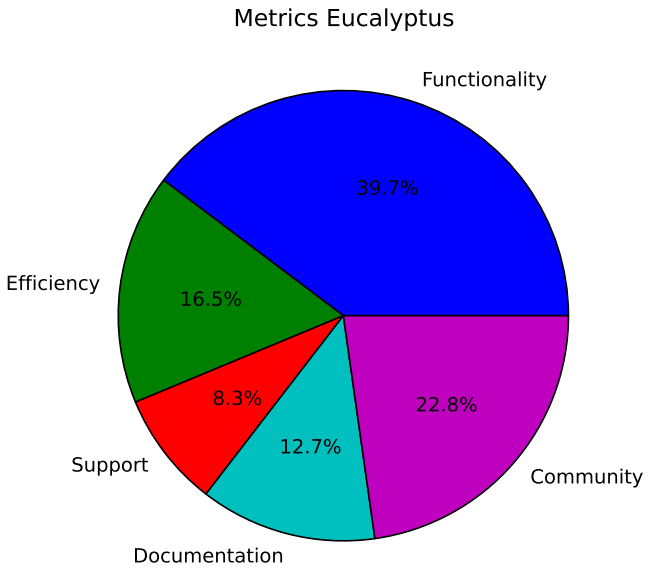
Analysis - CloudStack

Evaluated Technology And Functional Orientation					BRR
Apache CloudStack					**3.395**
Component type: One					
Usage Setting: Cloud Computing Software					
Rank	Category Title		Weight	Unweighted Rating	Weighted Rating
1	**Functionality**		30.00%	4.4	1.32
Rank	Category Title		Weight	Unweighted Rating	Weighted Rating
2	**Efficiency**		20.00%	3	0.6
Rank	Category Title		Weight	Unweighted Rating	Weighted Rating
3	**Support**		10.00%	3	0.3
Rank	Category Title		Weight	Unweighted Rating	Weighted Rating
4	**Documentation**		10.00%	5	0.5
Rank	Category Title		Weight	Unweighted Rating	Weighted Rating
5	**Community**		30.00%	2.25	0.675



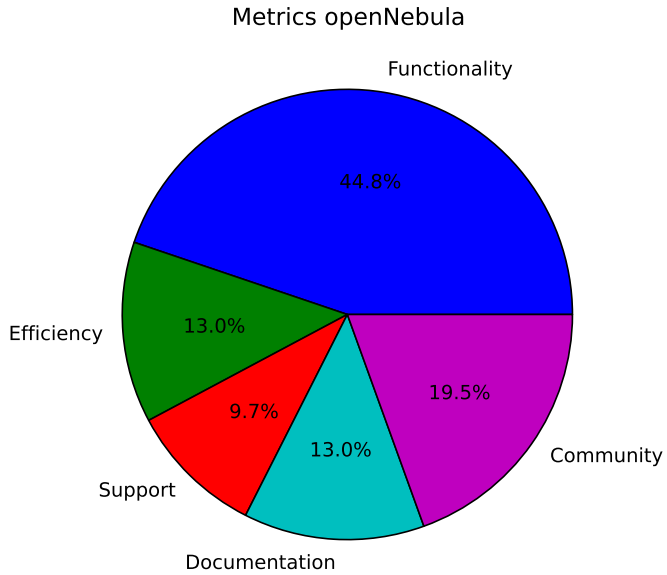
Results - Eucalyptus

Evaluated Technology And Functional Orientation					BRR
Component Name: Eucalyptus					**3.625**
Component type:Eucalyptus					
Usage Setting: Cloud Computing Software					
Rank	Category Title		Weight	Unweighted Rating	Weighted Rating
1	Functionality		30.00%	4.8	1.44
Rank	Category Title		Weight	Unweighted Rating	Weighted Rating
2	Efficiency		20.00%	3	0.6
Rank	Category Title		Weight	Unweighted Rating	Weighted Rating
3	Support		10.00%	3	0.3
Rank	Category Title		Weight	Unweighted Rating	Weighted Rating
4	Documentation		10.00%	4.6	0.46
Rank	Category Title		Weight	Unweighted Rating	Weighted Rating
5	Community		30.00%	2.75	0.825



Results - OpenNebula

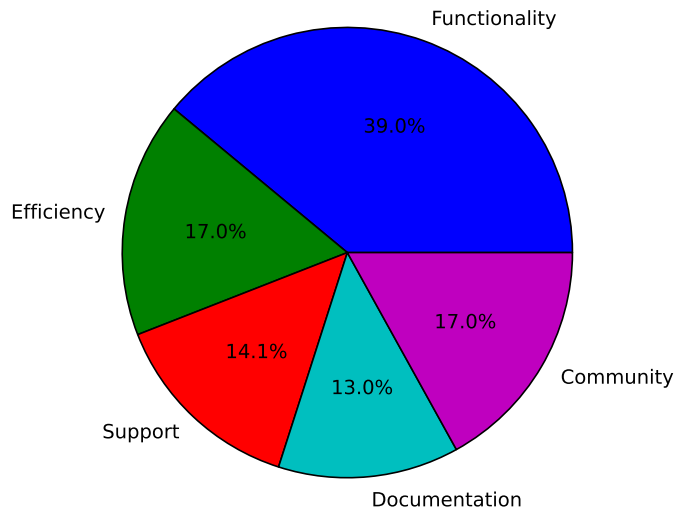
Evaluated Technology And Functional Orientation				BRR
OpenNebula				**3.08**
Component type: One				
Usage Setting: Cloud Computing Framework				
Rank	Category Title	Weight	Unweighted Rating	Weighted Rating
1	Functionality	30.00%	4.6	1.38
Rank	Category Title	Weight	Unweighted Rating	Weighted Rating
2	Efficiency	20.00%	2	0.4
Rank	Category Title	Weight	Unweighted Rating	Weighted Rating
3	Support	10.00%	3	0.3
Rank	Category Title	Weight	Unweighted Rating	Weighted Rating
4	Documentation	10.00%	4	0.4
Rank	Category Title	Weight	Unweighted Rating	Weighted Rating
5	Community	30.00%	2	0.6



Results - OpenStack

Evaluated Technology And Functional Orientation				BRR
OpenStack				**3.540**
Component type: Nova				
Usage Setting: Cloud Computing Framework				
Rank	Category Title	Weight	Unweighted Rating	Weighted Rating
1	Functionality	30.00%	4.6	1.38
Rank	Category Title	Weight	Unweighted Rating	Weighted Rating
2	Efficiency	20.00%	3	0.6
Rank	Category Title	Weight	Unweighted Rating	Weighted Rating
3	Support	10.00%	5	0.5
Rank	Category Title	Weight	Unweighted Rating	Weighted Rating
4	Documentation	10.00%	4.6	0.46
Rank	Category Title	Weight	Unweighted Rating	Weighted Rating
5	Community	30.00%	2	0.6

Metrics openNebula



Results - Summary

Evaluated Technology And Functional Orientation	BRR
Apache CloudStack	3.395
Eucalyptus	3.625
OpenNebula	3.080
OpenStack	3.540

Conclusion

- Eucalyptus project has the best assessment.
- My expected result would be OpenStack.
- The most outstanding attribute was functionality, what about community.
- Efficiency metrics could be ambiguous.
- What about licences.
- What about maturity.
- Recommendation:
  - Iteration
  - Community metrics revision

References

 Eucalyptus (https://www.eucalyptus.com/)

 OpenNebula (http://opennebula.org/)

 OpenStack (http://www.openstack.org/)

 CloudStack (http://cloudstack.apache.org/)

 OpenBRR (http://cloudstack.apache.org/)

 MetricsGrimoire (https://github.com/MetricsGrimoire)

Questions