# MSWL Project Evaluation: OpenNebula Project Analysis

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OpenNebula

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## About OpenNebula I

- FLOSS Cloud Computing Framework:
  - Flexible Enterprise Cloud Made Simple
  - Mission: Simple but feature-rich and flexible solution to build and manage enterprise clouds and virtualized data centers
  - Main Objective: Lead innovation in enterprise-class cloud data center management
  - Core Values:
    1. Openness
    2. Excellence
    3. Cooperation
    4. Innovation

# About OpenNebula II

- Project Start: 2008
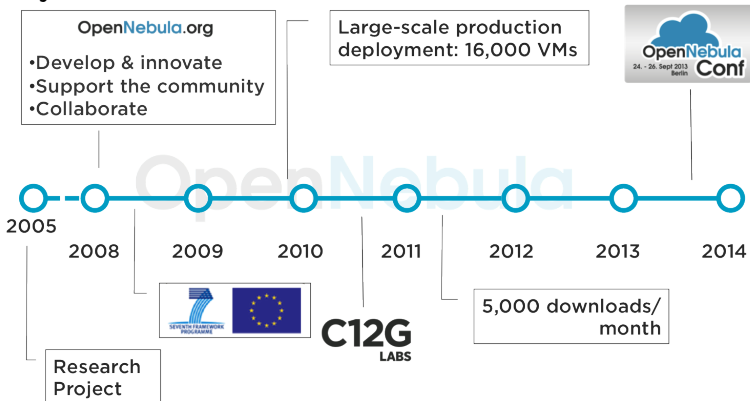
# Cloud Computing State of the Art I

- OpenNebula
  - CG12 Labs, Focused on Functionality, Weak Community
- CloudStack
  - Open CloudStack, by Apache (Community, Openness)
- Eucalyptus
  - OpenSource AWS Compatible Private Clouds
- OpenStack
  - More than 200 hundred companies involved

## Objectives I

"Find which Cloud Computing Open Source Project has more Quality according to an evaluator necessities"
Methodology followed to identify the most appropriate Cloud Computing Open Source Project:

- Candidates Identification (State of Art)
- Define Quality Model (OpenBRR based)
- Invent evaluator role, defining necessities $=>$ Weights
- Analyse a project (OpenNebula)
- Compare with competitor projects (OpenStack, Eucalyptus, CloudStack)

# Quality Model I

- OpenBRR based. Spreadsheet available.
- Model: 2 Levels. Categories + metrics.
- Categories:
    1. Functionality (5 metrics)
    2. Efficiency, Benchmarks (2 metrics)
    3. Professional Support (1 metric)
    4. Documentation (2 metrics)
    5. Community (3 metrics)
- Weights: 2 Levels as well:
    1. Category weights (Importance of category)
    2. Inside category weights (Importance of each metric inside a category)

## Role I

- Open Source background
- Community First
- Functionality "comes" with community
- Category weights:
  1. Functionality (10%)
  2. Efficiency, Benchmarks (15%)
  3. Professional Support (20%)
  4. Documentation (25%)
  5. Community (30%)
- Inside category metric weights:
  1. All aspects important inside category
  2. No special considerations
  3. 1 Metric (100%), 2 Metrics (50/50%), 3 Metrics (33/33/33%), 4 Metris (25/25/25/25%), ...

## Analysis I

Tools used:

- OpenNebula Web Portal. Functionality. Professional Support.
- Google. Efficiency.
- cvsanaly2. Documentation and Community.

Data Sources:

- Documentation associated to Key Features on OpenNebula project.
- Documentation associated to Commercial Support.
- OpenStack/OpenNebula benchmark comparison.
- OpenNebula "one" Git repository.

## Results I

| Category | Unweighted Rating | Weight | Weighted Score |
|----------|-------------------|--------|----------------|
| Functionality | 4.2 | 10% | 0.42 |
| Efficiency | 2 | 15% | 0.3 |
| Support | 3 | 20% | 0.6 |
| Documentation | 4 | 25% | 1 |
| Community | 2.33 | 30% | 0.7 |
| **Final Score** | | **3.02** | |

Table: OpenNebula Score

# Comparison I

| Project | Final Score | Func. | Effic. | Supp. | Doc. | Comm. |
|---------|-------------|-------|--------|-------|------|-------|
| CloudStack | **3.57** | 0.38 | 0.45 | 0.6 | 1.25 | 0.891 |
| Eucalyptus | **3.43** | 0.46 | 0.45 | 0.6 | 1.13 | 0.79 |
| OpenStack | **3.31** | 0.34 | 0.45 | 1 | 1.13 | 0.4 |
| OpenNebula | **3.02** | 0.42 | 0.3 | 0.6 | 1 | 0.7 |
| **Winner Project** | **CloudStack** | | | | | |

Table: Comparison Table

## Conclusion I

Is Cloudstack the right solution for this Quality Model?:

- Strengths. Documentation and Community => More weight. Efficiency to a lesser exent.
- Half and Half. Functionality => Less Weight. Worst than Eucalyptus and OpenNebula.
- Weakness. Professional Support => Medium weight. Even here, equals Eucalyptus and OpenNebula.

## Summary I

- Identify set of candidates
- Determine a Quality Model
- Set weights (if needed)
- Analyze and classify candidate projects
- Take the final decision

## References

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