CloudML - A DSL for model-based realization of applications in the cloud

Spring 2012

Abstract

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Contents

1 Introduction (5)

Short and sharp!

- Short introduction to Cloud domain
- Summarize the challenges
- Summarize why it is important
- Why is it an important problem

- Summarize my solution (1 paragraph)
  Summary from chap 3 in CloudMDE

- Shortly mention cloudml-engine
  Copy/paste implementation paragraph from CloudMDE

- Summarize chapters of thesis

- Short description of terms used

  - Cloud (computing)
  - Model-driven engineering
  - Provider (cloud provider)

2 Background (15)

Explain some of the topics in my thesis.
Here it is possible to introduce case study (BankManager) to ease writing

- Find a new title, 'Background' is too plain

- What is cloud computing and IaaS

  - Summarize nist definition of cloud
  - Short description of AWS
  - Short description of Rackspace

- What is model-based engineering and benefits.
  Core concepts

3 State of the Art in Provisioning (15)

What have others done for multicloud provisioning

- Identify *properties* (problems in reality)

- Find more sources

- Model driven

  - Amazon CloudFormation
  - CA Applogic

- APIs

  - libcloud
  - jclouds
  - Deltacloud

- Deployments

  - Amazon Beanstalk
  - simplifying-solution-deployment-on-a-cloud-through-composite-appliances
  - architecture-for-virtual-solution-composition-and-deployment

4   Contribution #1, Towards CloudML (20)

- Link challenges to properties (chap 3)
  1 challenge = 1 paragraph

- Outline the problem

  - Information dependency at runtime
  - Technical competence/level expectations
  - Reproducibility
  - Robustness
  - Complexity
  - Shareable

- State how the problem is not solved by any suggestions in my 'state-of-art'
  section

- Why is it important to solve the problems

  - Cloud domain is state of the art
  - model driven approach with benefits (no special tooling)
  - Easier for businesses (especially SMBs) to reach out to Cloud
  - Easier for larger more time-constraint businesses to try out the cloud
  - Opening the eyes of big providers for a larger cross-cloud language

- Introduce *BankManager*, case study

  - What it can do
  - Technologies used
  - Why it is relevant
    * Enterpriseish setup
    * Copy from CloudMDE chap 2

5 Contribution #2, Developing CloudML (25)

Here it is possible to introduce the implementation earlier to help writing.
(help visualizing what is possible)

- CloudML (10 pages)

    - Copy chap 3 from CloudMDE
    - Weaknesses

- Implementation (cloudml-engine) (10 pages)

    - More info than CloudMDE
    - Technologies chosen
    - Why technologies were chosen

- Validation (5 pages)

    - Validation
    - How BankManager proves concepts of the templates (subsection 1) with cloudml-engine

6 Conclusions (5)

Short and sharp

- Summary of CloudML

    - What subsection in solution solves what subsection in problem

- CloudML

- Implementation

- Perspectives (2 paragraphs, can be section)

    - Look into the future
        * Deployments
    - short term
    - long term

4

Bibliography

Appendix (CloudMDE)

(Maybe)