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

Spring 2012

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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

Bibliography

Appendix (CloudMDE)

(Maybe)