SLA-based Data Integration on Multi-Cloud: A Systematic Mapping Analysis

[a,b,c,d,e,e]

[a]
[b]
[c]
[d]
[e]

Abstract

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Keywords: ..., ..., Systematic Mapping.

1. Introduction

2. Related Works

2.1. Data integration on multi-cloud environment

2.2. Service level agreement

3. Systematic Mapping process

We applied the systematic mapping methodology presented in [1] to our study on SLA-guided data integration on a multi-cloud environments. The proposed methodology consists in five steps (in which step has a result and the final one is the mapping):

Definition of research question to define the *research scope*;

Conduct search in order to retrieve *all candidate papers*. Those papers are selected applying a query which express the research interest to scientific databases;

Screening of papers to select the *relevant papers* to answer the research question based on a inclusion and exclusion criteria;

Keywording using abstracts to identify terms that helps on developing the *classification scheme* (mapping categories to classify the papers); and

Data extraction and mapping process to sort the relevant papers into the mapping categories and produce the systematic mapping.

The following subsections describes our first to fourth step in the mapping. The systematic mapping results are presented in the next section.

3.1. Definition of research questions (RQs)

The aim of this work is to identify in the literature how has *SLA-guided data integration on a multi-cloud environments* been explored, discover possible gaps and the main results produced. In order to achieve this goal we formulated three research questions:

Which are the SLA measures that have been applied most in the cloud?

How has the publication of papers on data integration involved towards cloud topics?

How and in which context have data integration guided by QoS models or requirements been explored in the literature?

3.2. Search and screening of papers

search string...

inclusion and exclusion criteria...

Inclusion: The title and the abstract mention (i) approach using SLA which includes (or doesn't) data integration; (ii) any study regarding SLA in the context of cloud computing (I saw that there are some works on voip services. I believe this is out of our scope) or some improvement to SLA; (iii) data integration in the context of cloud computing; and (iv) QoS efforts regarding data integration;

A new version of our exclusion criteria:

Papers, books and others that the subject do not focus on the following topics must be excluded: (i) an approach combining SLA, data integration and cloud and multi-cloud; (ii) an approach using SLA contracts in the context of cloud and multi-cloud; (iii) an approach applying some improvement to SLA; (iv) a data integration approach in the context of cloud and multi-cloud; and (v) a QoS approach regarding data integration.

number of results...

3.3. Keywording of abstracts

facets...

Architecture: multi-databases, federated databases, data warehouse, peer-to-peer.

Data Integration description: schema integration, knowledge, metadata.

Data Integration deployment: centralized, grid, cloud, multi-cloud, peer-to-peer.

Data Integration environment: cloud, federated database, data warehouse

Query rewriting: storage, techniques

Data Quality: none, provenance, privacy, SLA

SLA: none, languages, clauses, model, security, resources

Topic: SLA and Cloud, SLA and DI, etc. Related to our query...

Contribution: Metric, tool, model, method, process, etc

Research: Evaluation research, Validation research, Solution proposal, etc

table with results...

4. Mapping Analysis

5. Conclusion and final remarks

References

[1] Kai Petersen, Robert Feldt, Shahid Mujtaba, and Michael Mattsson. Systematic mapping studies in software engineering. In *Proceedings of the 12th International Conference on Evaluation and Assessment in Software Engineering*, EASE'08, pages 68–77, Swinton, UK, UK, 2008. British Computer Society.