

A high-angle, blurred photograph of a crowd of people walking on a light-colored pavement. The people are in motion, creating a sense of a busy, public space. The background is a plain, light-colored floor.

SLA Assurance in Cloud Data Centers

Yearly Team Meeting 2015

Abdallah Ali Z.A. IBRAHIM

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CSC

COMPUTER SCIENCE
AND COMMUNICATIONS
RESEARCH UNIT



UNIVERSITÉ DU
LUXEMBOURG

Agenda

- My Biography
 - Background & Education
 - Work Experience
- Master Thesis
 - Thesis Review
- PhD
 - Current Work
 - Future Work

BIO: Background & Education

- **BSc.(Sep. 2006- July 2010)**
 - Bachelor of Information & Computer Sciences - Suez Canal University (Ismailia, Egypt)
- **Pre-MSc.(Sep. 2011- July 2012)**
 - Pre-master of Computer Sciences(Master 1) – Suez Canal University (Ismailia, Egypt)
- **MSc.(Sep. 2013 – July 2015)(Erasmus Mundus)**
 - Master of Information & Computer Sciences – University of Luxembourg (Luxembourg)
 - Two profiles: Communications & Network Systems

BIO: Work Experience

- **Teaching Assistant (Oct. 2010 – Aug. 2013)**
 - Faculty of Computers & Informatics, Suez Canal University (Egypt)
- **Instructor (Jan. 2011 – Aug. 2013)**
 - CISCO Academy, Suez Canal University (Egypt)
- **Network Administrator (Feb. 2012 – Aug. 2013)**
 - IT Unit in Faculty of Computers & Informatics- Suez Canal University (Egypt)
- **Research Assistant (Jan. 2014 – Mar. 2015)**
 - SnT- Vehicular & Secan labs, University of Luxembourg (Luxembourg)

Master Thesis

Thesis:

Service Level Agreement Assurance in Cloud Computing Data Centers

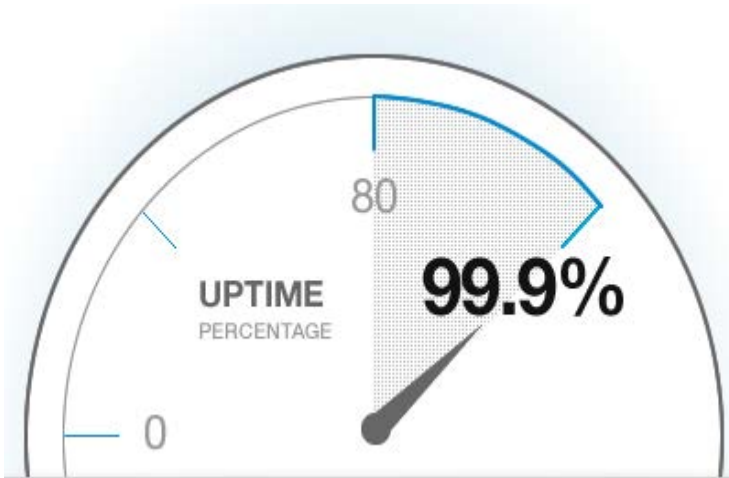
Supervisor: Prof. Dr. Pascal Bouvry

Reviewer: Prof. Dr. Ulrich Sorger

Advisor: Dr. Dzmitry Kliazovich

Thesis Overview

Up Time



Response Time



Services Availability

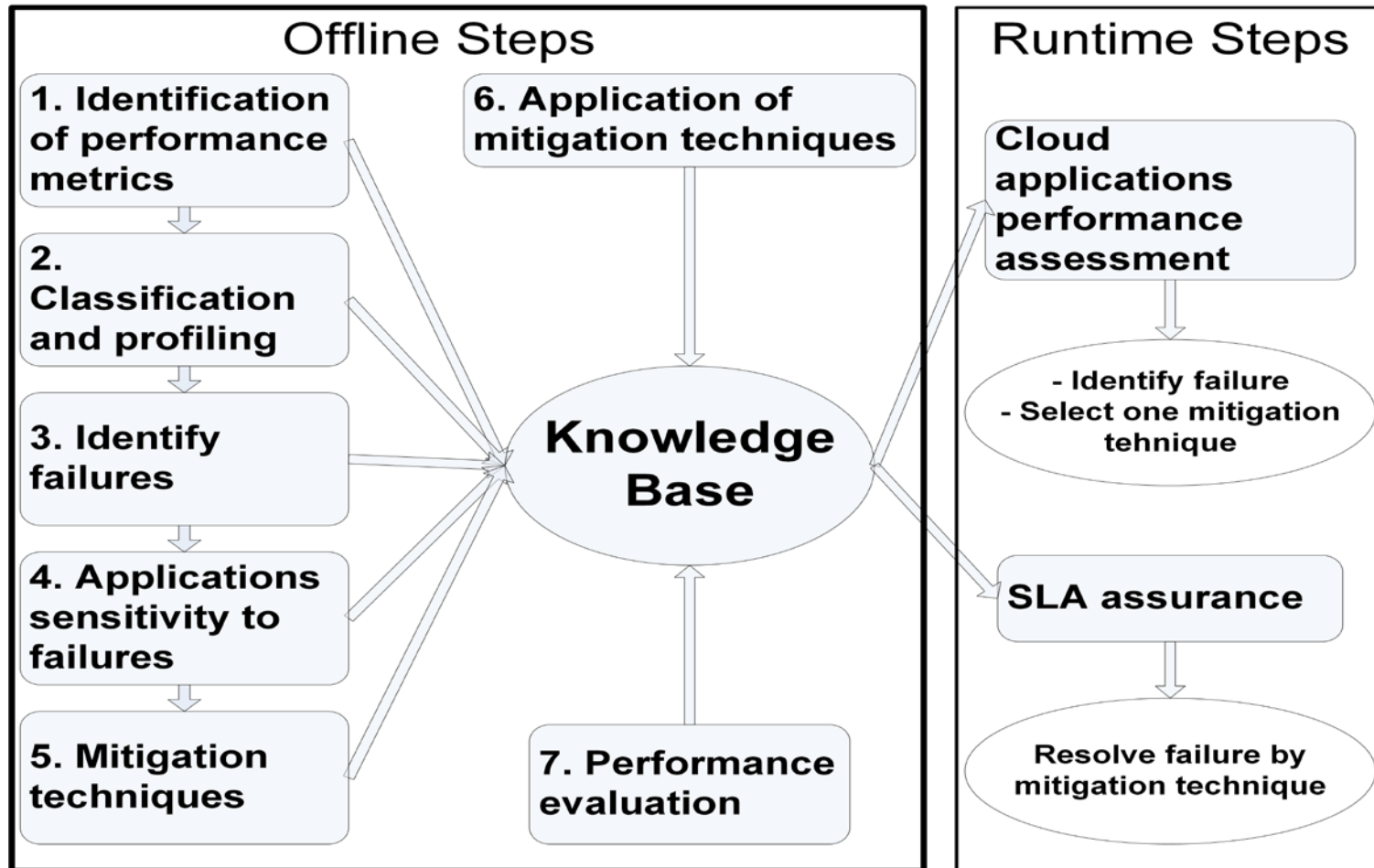
Services Performance
QoS

Motivation

- Third party is needed to assure no violations in SLA contract.
- To assure, Services performance (QoS) and response time metric.



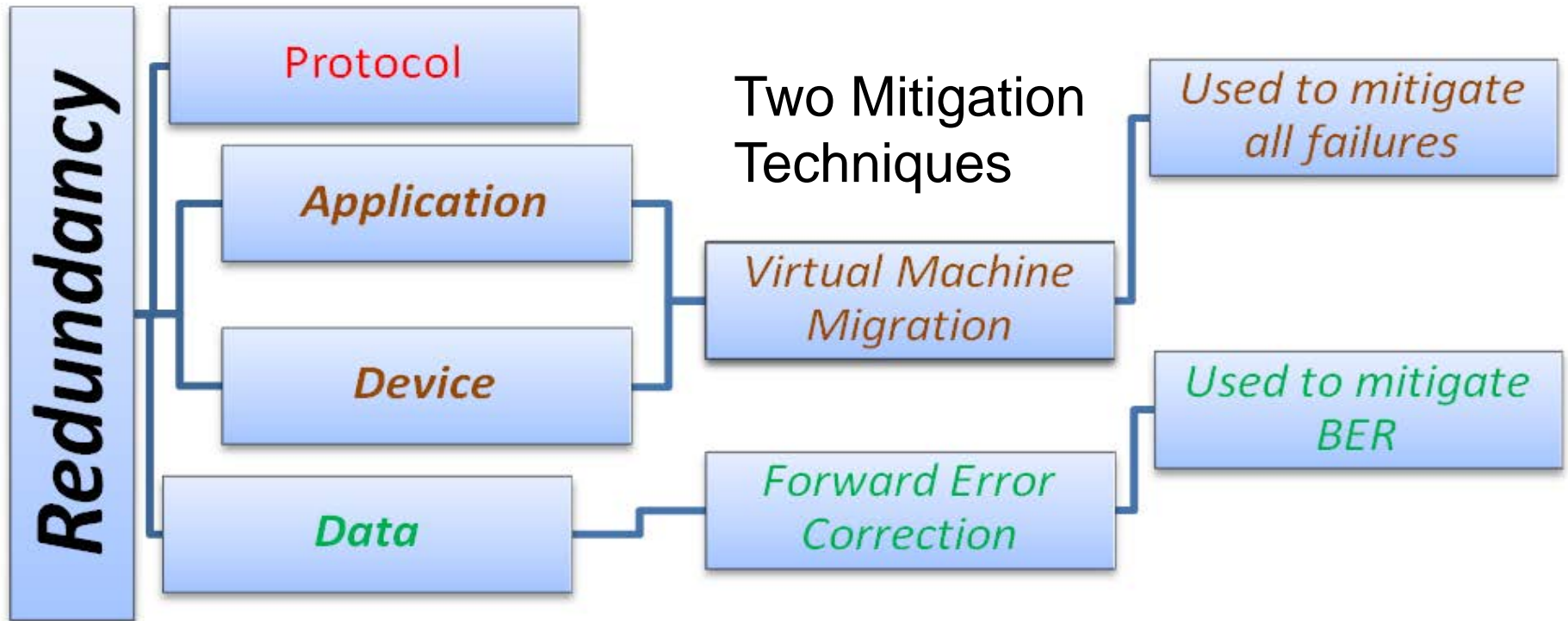
SLA Assurance



Proposed Framework for SLA Assurance

Resolve & Mitigate Failures

- Mitigation of failures either by redundancy, replacement or restarting and reactivating.



Submitted Paper

IEEE International Conference on Communications 2016

On Service Level Agreement Assurance in Cloud Computing Data Centers

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Abstract—Software-as-a service(SaaS) is providing cloud applications like web, file, email, real-time, highly interactive, massive data analysis, high performance computing and mobile cloud applications. Cloud computing uses internet data centers to host applications and data storage. Cloud computing resources and services offered to customers on pay-per-use model while the quality of the offered resources and services are defined using service level agreements or SLAs. Un-

SLA guarantees cloud customer a certain level of service, giving him confidence that if something goes wrong, the supplier will respond quickly. However the problem is that the service quality level is just written on the SLA document, but there is nothing verify on it. In this work, we assessed the quality of services provided to the customers, and this allow us to assure what the SLA document cover. SLA covers the uptime metric which

PhD: Current Work

- Started form 15th October 2015
- Working on the framework:
 - Find more measurement metrics for applications performance
 - Assessing QoS

PhD: Future Work

- Work on correlations:
 - Correlations between metrics
 - Correlations between applications
- Use more mitigation techniques

Thank you for your attention



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