Technical University of Denmark

02228 Fault-Tolerant Systems

Fault-Tolerant Cloud Computing Architectures

Authors:

Andreas Hallberg Kjeldsen
s092638@student.dtu.dk

Morten Chabert Eskesen
s133304@student.dtu.dk

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Chapter 1

Introduction

In this report we will describe what cloud computing is, further we will give a detailed description of the architecture and fault-tolerant features of two cloud system, at last we will compare how the systems handle failures and discuss the pros and cons of these methods. As a result of the comparison, we will be able to conclude on what the systems do well and where they might be able to improve.

1.1 Scope

We will focus on the fault-tolerant features of the cloud computing architecture within the two selected cloud computing systems. We have chosen to focus on Amazon Web Services and Google Cloud Platform. We have chosen these cloud computing systems because both systems are among the most popular[1] cloud computing systems [10].

1.2 Cloud Computing

The National Institute of Standards and Technology is a federal technology agency in the United States of America. They define cloud computing by the following:

"Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction." [11]

1.3 Fault tolerance

Brief description of what fault tolerance is (in cloud computing)...

[1] Popular means that they are among the most commonly used platforms for enterprise cloud developers

Chapter 2

Amazon Web Services

The Amazon Web Services, henceforth *AWS*....

2.1 Architecture

2.2 Fault-Tolerant Features

Chapter 3

Google Cloud Platform

3.1 Architecture

3.2 Fault-Tolerant Features

Chapter 4

Comparison of Failure Handling

List of faults that the systems handle along with a description of how it's handled and why it works. If the methods for handling the failure differ, we will discuss the methods, highlighting their pros and cons.

Chapter 5

Conclusion

Conclude on our findings, focus on what the systems do well and where it might be possible to improve.

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