Universidade Federal de Pernambuco – UFPE

Centro de Informática – Cin

Pós-graduação em Ciência da Computação

Reliability and Availability Services Improvement through Multi-Cloud Strategies

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Advisor: Prof. Paulo Maciel

Research topic

➤ Multi-cloud

- – "The use of cloud services from two or more vendors - gives organizations more flexibility to optimize performance, control costs, and leverage the best cloud technologies available" - IBM
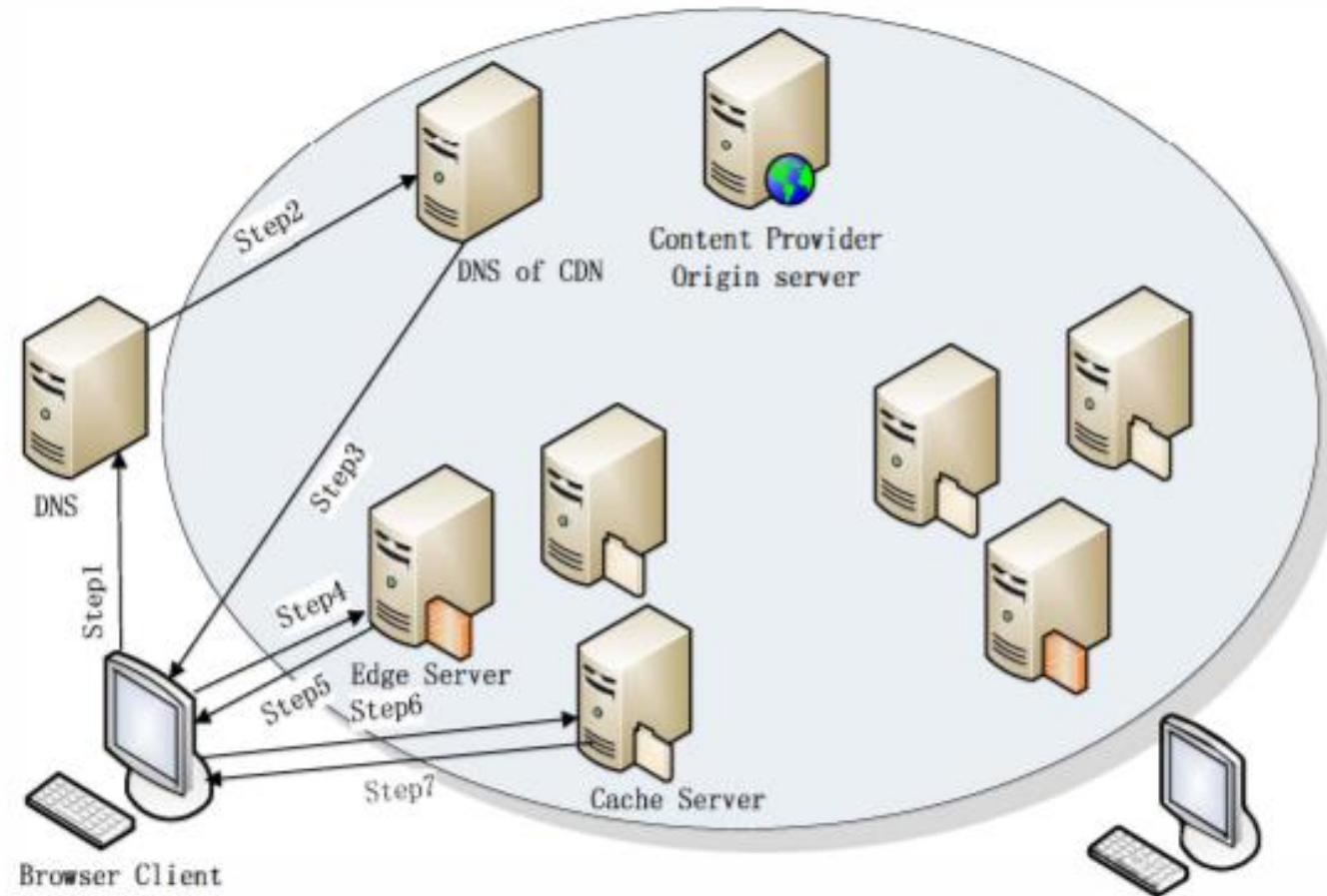
Multi-cloud

→ A multi-cloud solution is a cloud computing solution that's portable across multiple cloud providers

→ Multi-cloud solutions are typically built on open-source, cloud-native technologies

→ Managing workloads across multiple clouds with a central console

Multi-cloud storage

- Multi-cloud Storage Scenarios

- Data Distribution Strategies

CDN

Topics

- Describe the key motivations for multi-cloud concept and implementations
- How works the strategies for data distribution in multi-cloud environments
- What are the challenges for data distribution that are likely to occur while setting up multi-cloud
- Proposes models to evaluate the performance of multi-cloud data distribution in CDN networks

Topics

→ Extends the model to evaluate availability and other dependability metrics

→ Implements a multi-cloud storage strategy managment tool

Doctoral schedule

	Second Year	Third Year	Fourth Year
First trimester	First Paper Research and Write	Second Paper Research and Write	Third Paper Research and Write
Second trimester	First Paper Research and Write	Second Paper Research and Write	PhD Thesis Write
Third trimester	First Paper Research and Write; PhD Thesis structuration	Second Paper Research and Write; Third Paper Research and Write	PhD Thesis Write
Fourth trimester	PhD Thesis structuration; Qualification	Third Paper Research and Write	PhD Thesis Write; PhD Thesis Presentation

Doctoral schedule

	Second Year	Third Year	Fourth Year
First trimester	First Paper Research and Write	Second Paper Research and Write	Second Paper Research and Write; PhD Thesis Write
Second trimester	First Paper Research and Write	Second Paper Research and Write	PhD Thesis Write
Third trimester	First Paper Research and Write; PhD Thesis structuration	Second Paper Research and Write;	PhD Thesis Write
Fourth trimester	PhD Thesis structuration; Qualification	Second Paper Research and Write;	PhD Thesis Write; PhD Thesis Presentation

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Semester Schedule

First Article Schedule	Activities
September	• Conclusion of the courses; • Paper structure definition • **Delivery**: Paper structure • **Delivery:** WMoDCS
October	• Implementation • Paper Writing; • **Delivery**: State of art
November	• Implementation • Paper Writing; • **Delivery**: First section
December	• Implementation • Paper Writing; • **Delivery**: Second section
January	• Implementation • Paper Writing; • **Delivery**: Full Paper first version
February	• Revision of the paper • **Delivery:** Final Version

References

➡ An efficient and secure protocol for checking remote data integrity in multi-cloud environment

➡ Addressing Semantics Standards for Cloud Portability and Interoperability in Multi Cloud Environment

➡ A Learning-based Dynamic Load Balancing Approach for Microservice Systems in Multi-cloud Environment

➡ Durable Implementation of Multi-cloud Storage with Assured Integrity for Sensitive Information

➡ MULTS: A Multi-cloud Fault-tolerant Architecture to Manage Transient Servers in Cloud Computing

➡ Hybrid encryption framework for securing big data storage in multi-cloud environment

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