

Towards Cloud-centric Distributed Database Evaluation

Scope

The area of cloud computing also pushed the evolvement of distributed databases, resulting in a variety of distributed database systems, which can be classified in relational databases, NoSQL and NewSQL database systems. In general all representatives of these database system classes claim to provide elasticity and "unlimited" horizontal scalability. As these characteristics comply with the cloud, distributed databases seem to be a perfect match for Database-as-a-Service systems (DBaaS).

Problem Statement

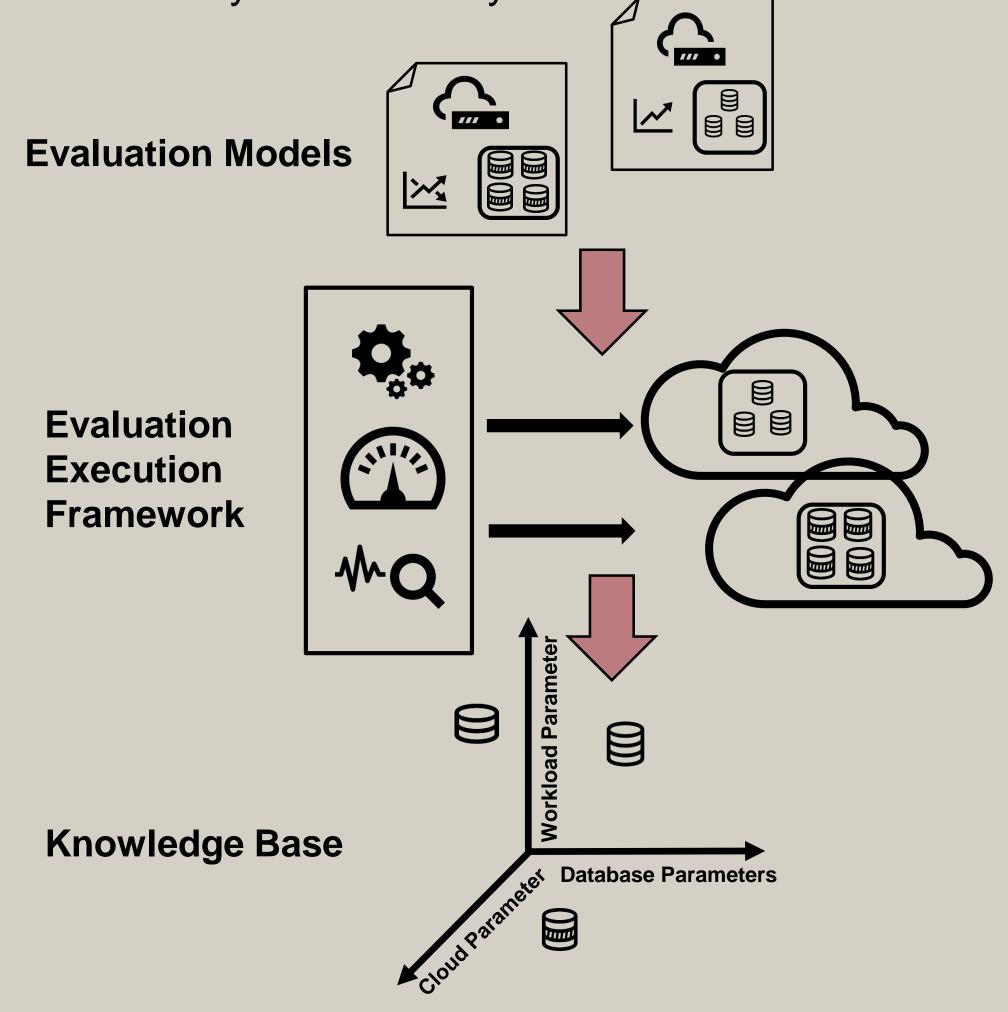
The selection of a distributed database for implementing a DBaaS system is a crucial task as there are **significant differences** in the **elasticity** and **scalability** across existing distributed databases. In order to ease the database selection, distributed databases require an evaluation with respect to their elasticity and scalability.

As evaluating distributed databases already requires the consideration of multiple factors on **database** and **workload level**, the cloud stack adds additional complexity on the **infrastructure level**. Hence, an advanced evaluation framework to enable comparable and reproducible evaluations of distributed databases in the cloud is required.

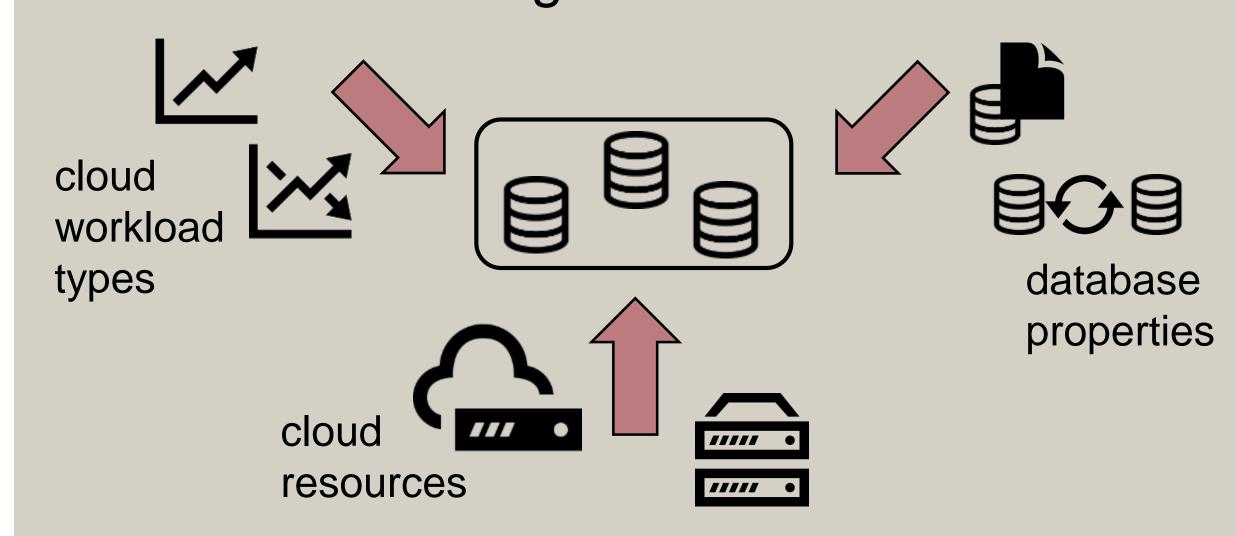
Approach

A cloud-centric evaluation framework for distributed databases comprising

- a model-driven evaluation methodology
- an evaluation execution framework
- a resulting knowledge base for distributed database scalability and elasticity



Factors Influencing Distributed Databases



Open Research Questions

- 1. Which cloud characteristics are required for sustainable evaluation models?
- 2. How to execute evaluation models in a database and cloud independent manner?
- 3. How to correlate evaluation results and monitoring data to meaningful scalability/elasticity knowledge

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