

Towards Cloud-centric Distributed Database Evaluation

Scope

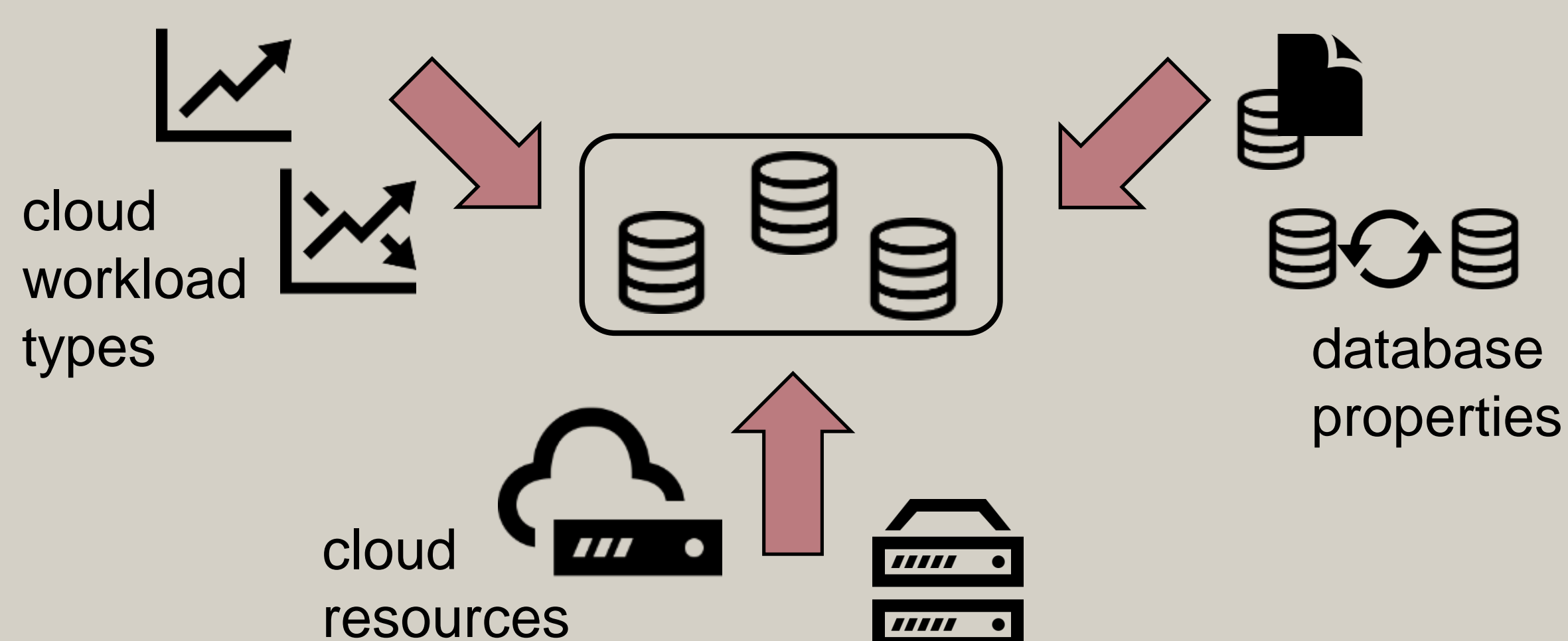
The area of cloud computing also pushed the evolvement of distributed databases, resulting in a variety of distributed database systems, which can be classified in **relational databases**, **NoSQL** and **NewSQL** database systems. In general all representatives of these database system classes claim 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.

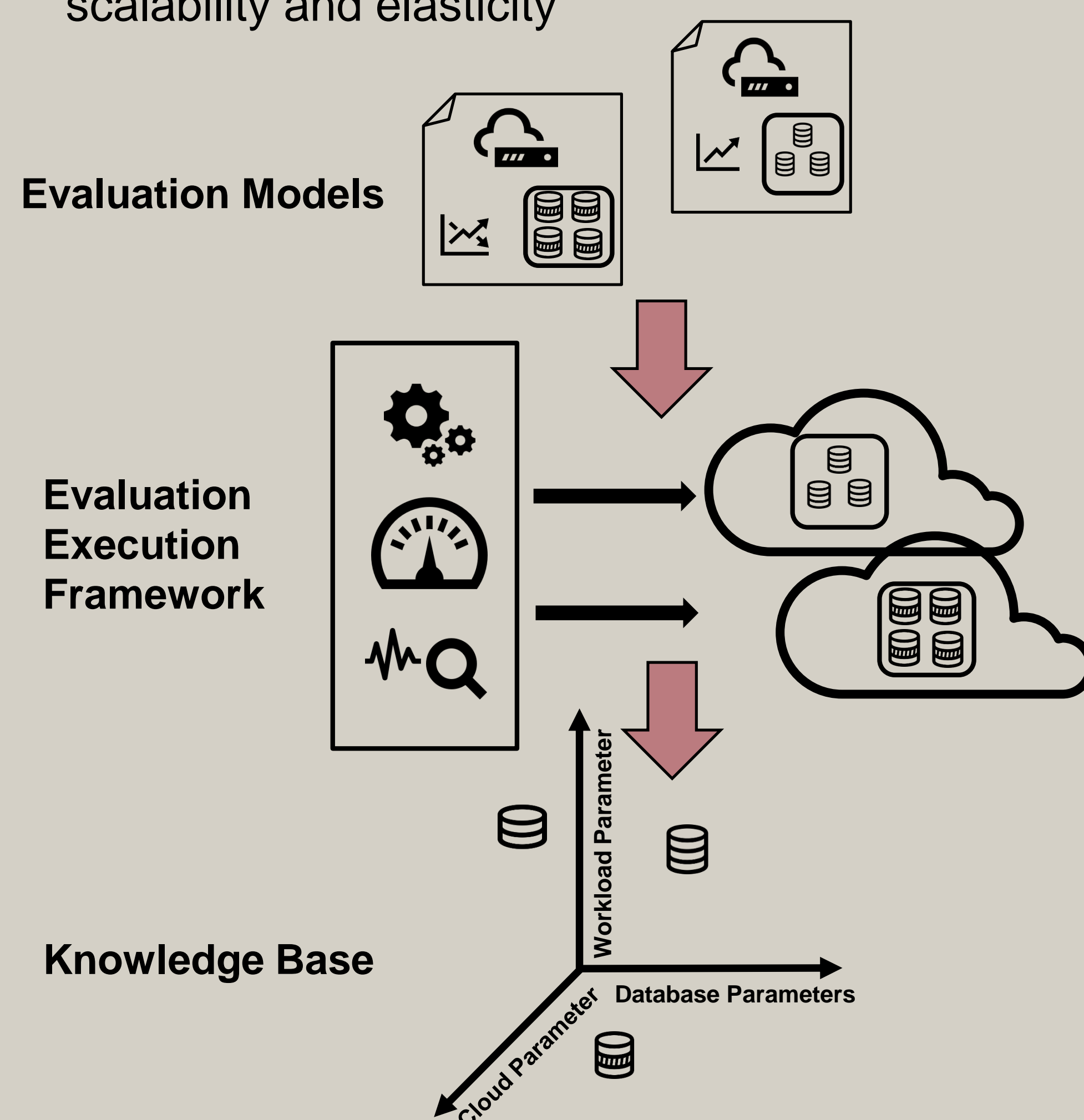
Factors Influencing Distributed Databases



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



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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