

Automated Postgres Failover and Caching

“Accelerating Data for the Backend”



A few quotes to start

"You can't manage what you can't measure."

- Peter Drucker, Management consultant & Author

"~~Unix~~ Postgres is user-friendly. It's just very selective about who its friends are."

- Anonymous, in The Art of UNIX Programming (2003)
by Eric S. Raymond

"All problems in computer science can be solved by another level of indirection."

- David Wheeler, CS Visionary

"There are two hard things in computer science: cache invalidation, naming things, and off-by-one errors."

- Phil Karlton (Netscape),
and Leon Bambrick added the "and off-by-one errors"

Executive Summary

Who: Anyone with Postgres or other databases that wants to improve performance, cost and reliability

Problem:

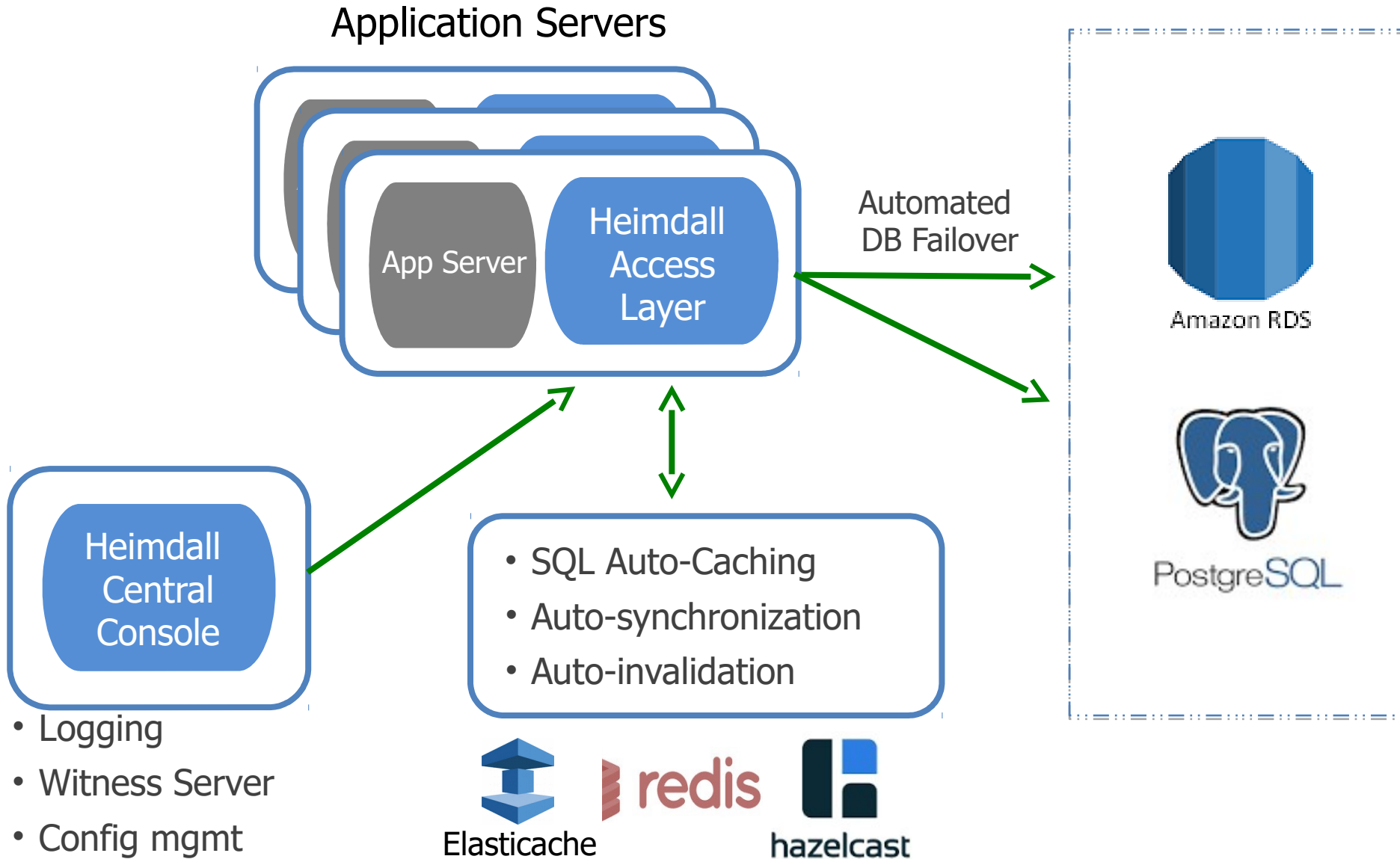
- Inefficient interaction between app-database
- Network latency
- Poor SQL visibility
- Automated failover

Solution: Off-the-shelf data access layer

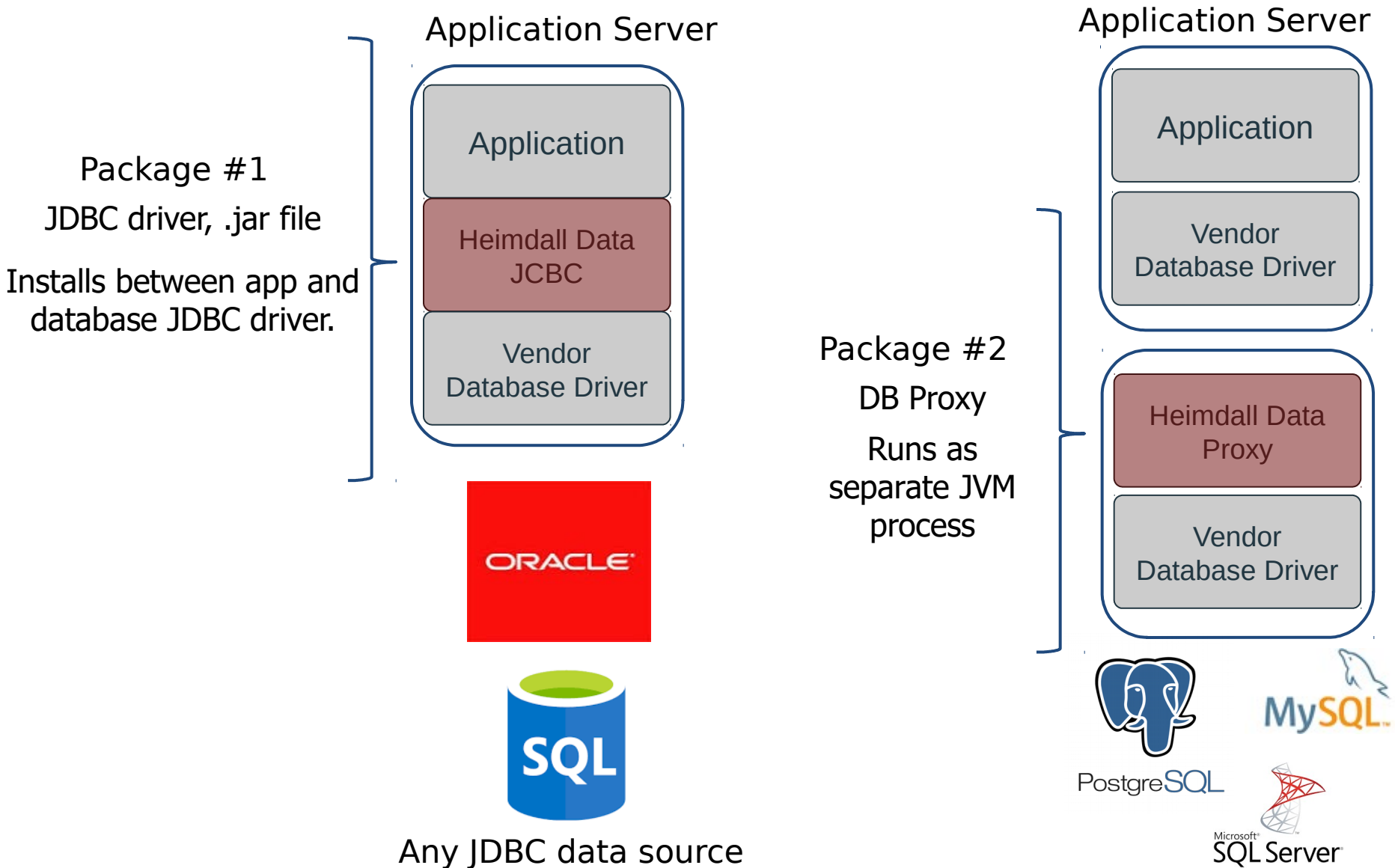
— Heimdall Data Intro

- Heimdall is a **Data Access Layer** that optimizes SQL without code changes
- Heimdall is a **Database proxy** that transparently:
 - Auto-cache / auto-invalidates
 - Read / write splits
 - Automated DB failover

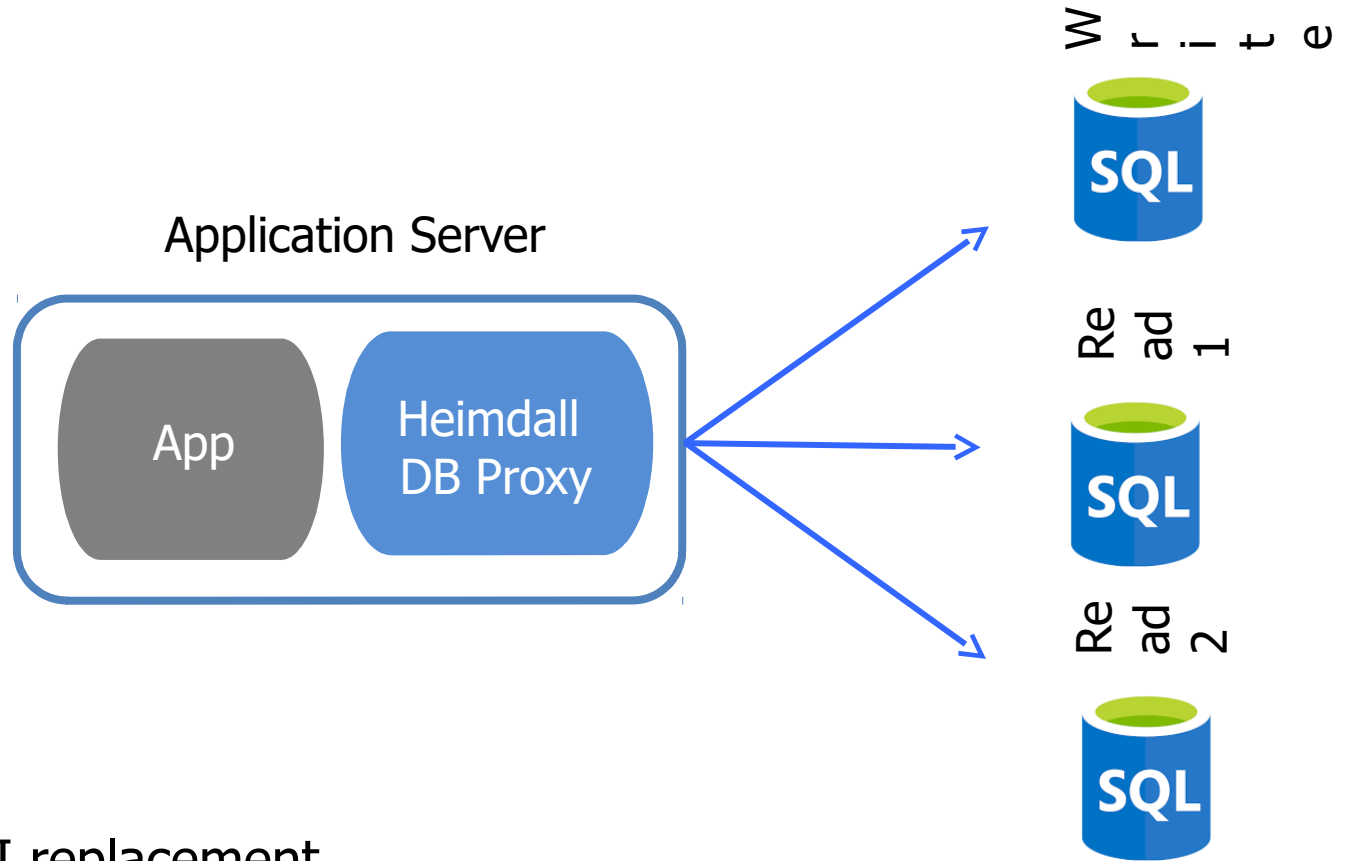
Application Side - SQL Optimization



Packaging Options



Use case #1: Automated Postgres Failover

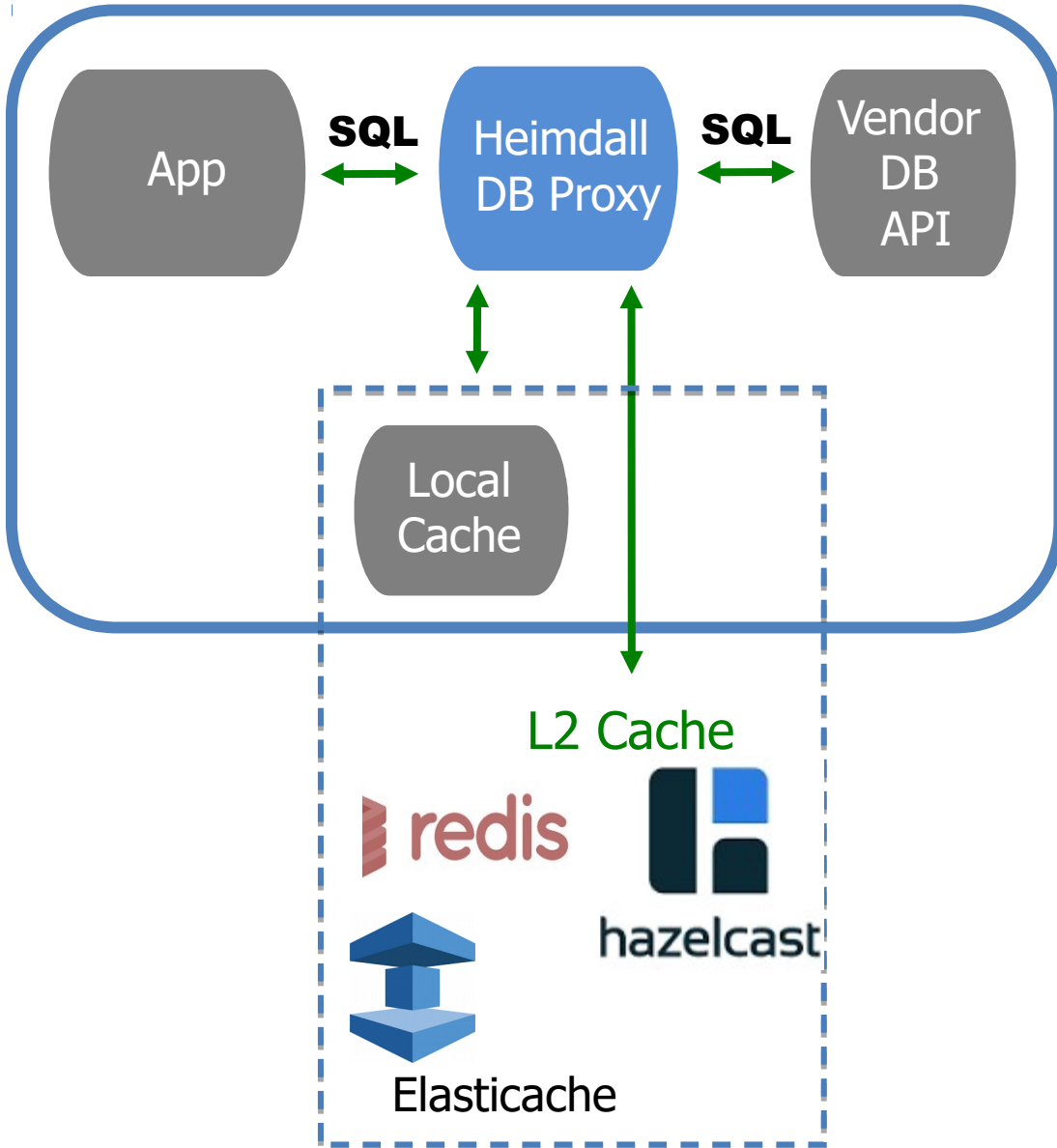


Customer benefit:

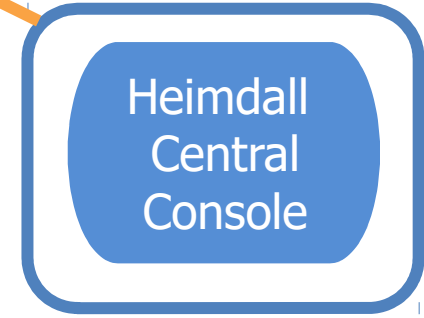
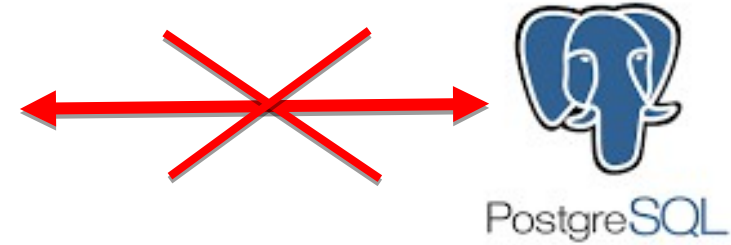
1. Simple Pgpool-II replacement
2. Scale out the database with no application changes (read/write splits)

Use case #2: SQL Auto-caching

Application Server



Removes network latency



How it Works

- 1) Heimdall proxy intercepts and forwards SQL traffic between app & database.
- 2) Auto-caches SQL results
- 3) Insures data consistency across cache nodes
- 4) Compatibility:
 - Any ORM
 - Any SQL database

What to cache?

Uses real-time analysis and statistics on:

- Query frequency and variability
- Relative performance of Cache vs. Database

Provides:

- Caching only if there is a performance benefit
- Cache recommendations and analytics

— Live Demo

In less than 5 minutes:

- Install PostgreSQL cluster w/ Docker
- Install Heimdall from scratch
- Configure Heimdall
- Demonstrate failover

Also demonstrate:

- Greenplum failover
- Live application demonstration

Next Steps

- Free download at: www.heimdalldata.com
- Available on AWS and Azure Marketplaces
- Also available for free Webex POC installs
- Questions?

Thank You

