

# ProxySQL Use Case Scenarios

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Alkin Tezuyosal  
René Cannaò



# Who we are

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- **Alkin Tezuysal**  
Sr. Technical Manager, Percona  
[@ask\\_dba](https://twitter.com/ask_dba)



- **René Cannaò**  
MySQL SRE, Dropbox / ProxySQL  
[@proxysql](https://twitter.com/proxysql)



# ProxySQL Users



RAMBLER&Co



# Other ProxySQL Sessions

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## ProxySQL Tutorial

David Turner, René Cannaò, Derek Downey

Monday April 24th, 1:30PM - 4:30PM - Ballroom D



# Other ProxySQL Sessions (2)

# Use ProxySQL to Improve Your MySQL High Availability Solution

## Marco "The Grinch" Tusa

Tuesday April 25th , 11:30AM - 12:20PM - Ballroom D

## **Percona XtraDB Cluster 5.7 with ProxySQL for your high availability and clustering needs**

Ramesh Sivaraman, Krunal Bauskar

Tuesday April 25th , 4:20PM - 4:45PM - Room 209

# ProxySQL & Orchestrator integrations

Shlomi Noach, René Cannaò

Tuesday April 25th, 6:00PM - 7:00PM - Ballroom E



# Other ProxySQL Sessions (3)

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## Advance Sharding Solution with ProxySQL

Marco "The Grinch" Tusa

Tuesday April 25th, 4:50PM - 5:15PM - Ballroom A

## MySQL Load Balancers - MaxScale, ProxySQL, HAProxy, MySQL Router & nginx - a close up look

Krzysztof Książek

Wednesday April 26th, 11.10AM - 12.00PM - Ballroom D

## Inexpensive Datamasking for MySQL with ProxySQL - data anonymization for developers

Frédéric Descamps, René Cannaò

Thursday April 27th, 11.00AM - 11.50AM - Ballroom F



# Top 5 reasons to use ProxySQL

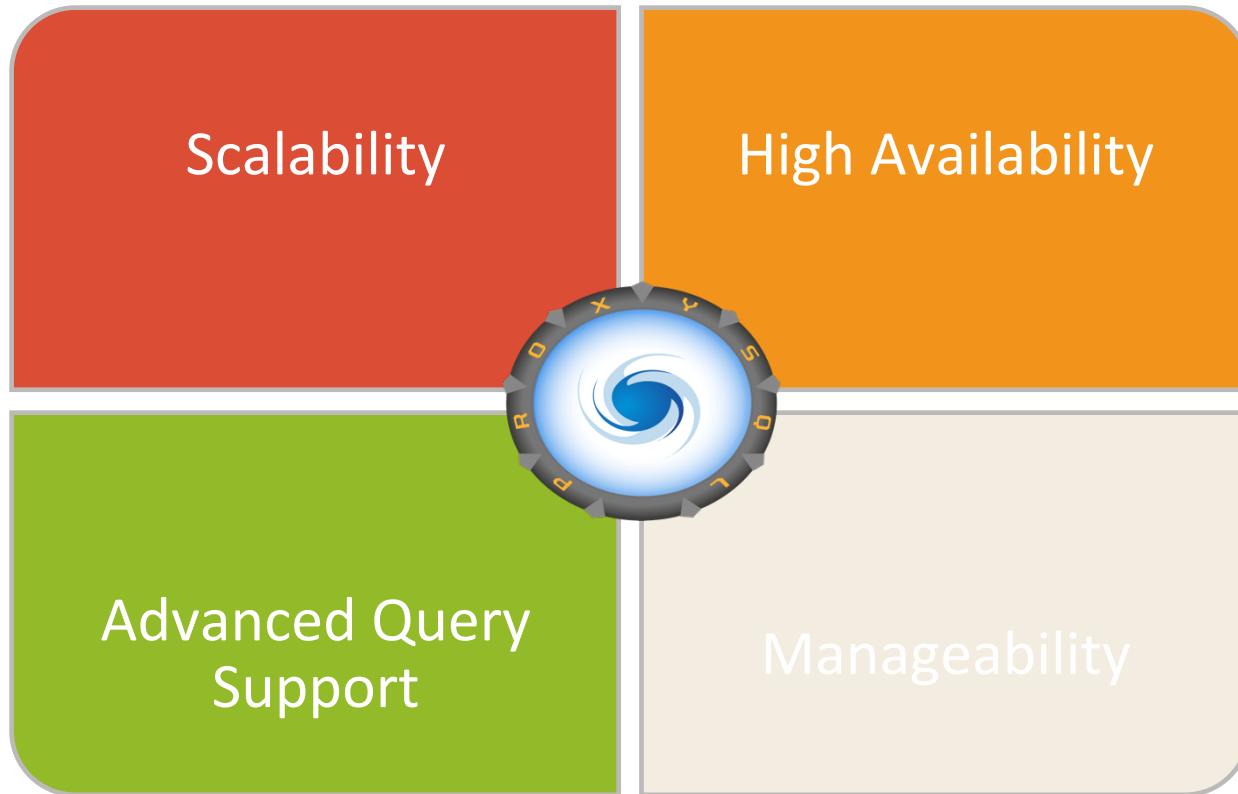
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- Improve database operations.
- Understand and solve performance issues.
- Create a proxy layer to shield the database.
- Add High-Availability to database topology.
- Empower the DBAs with great tool.

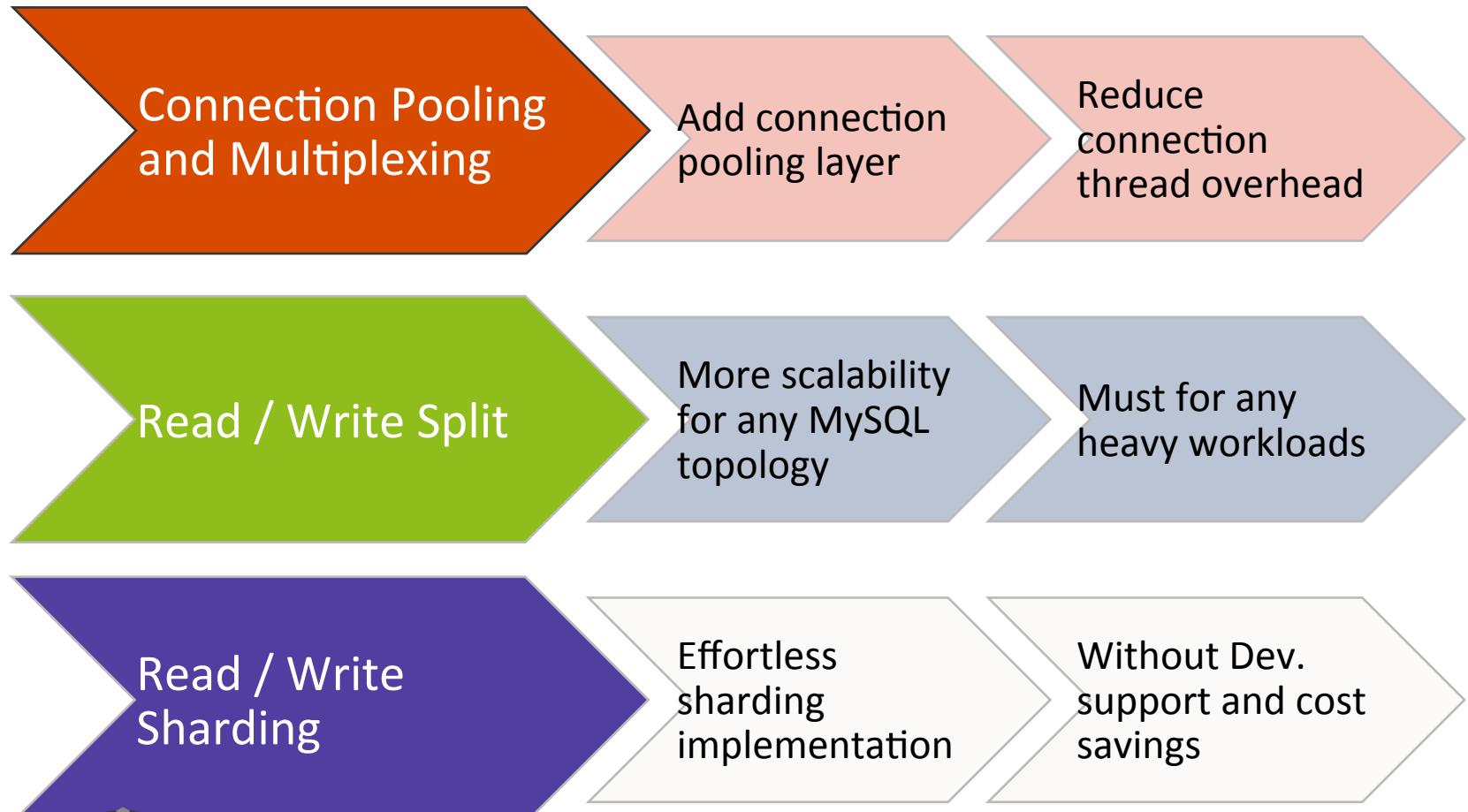


# ProxySQL Highlights

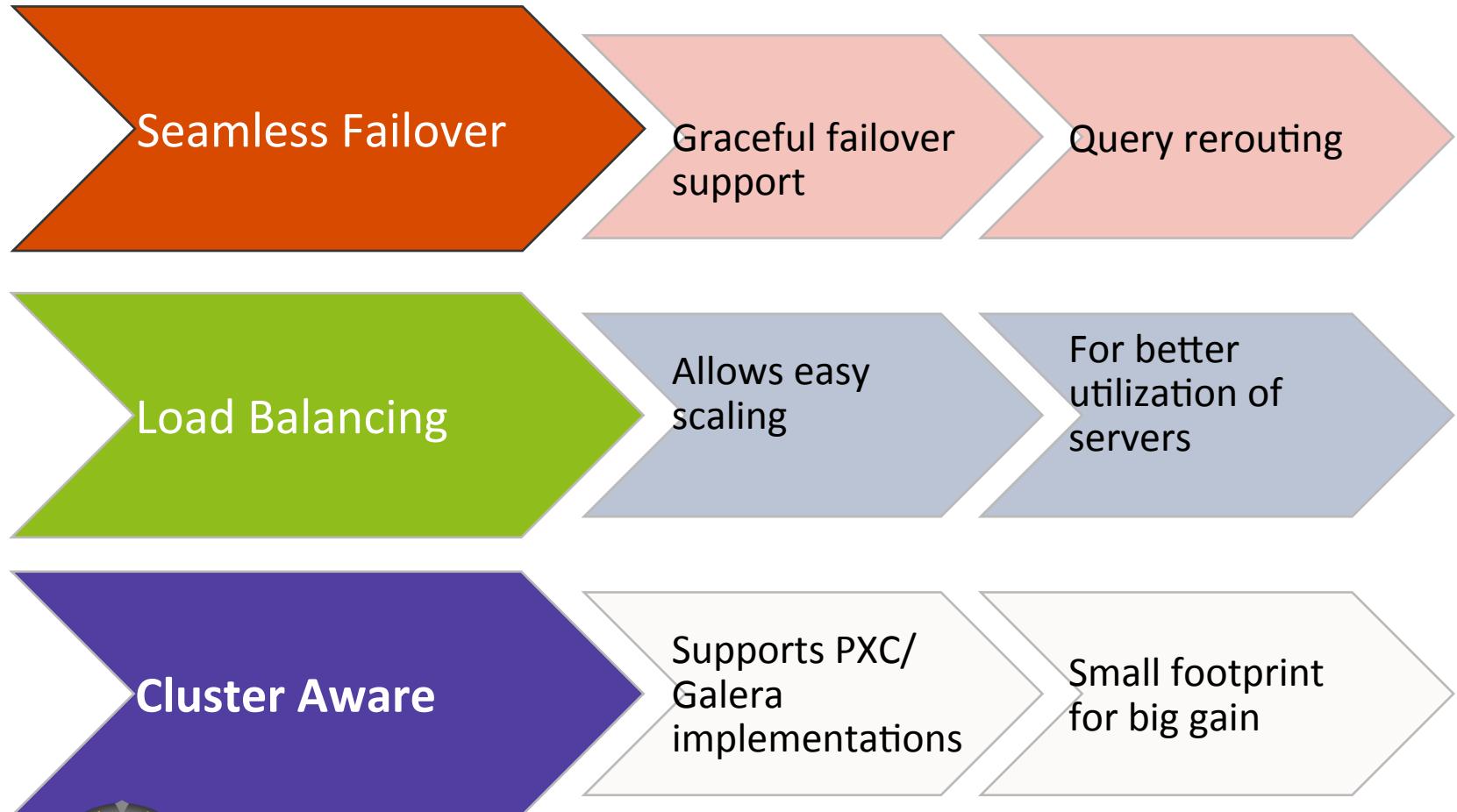
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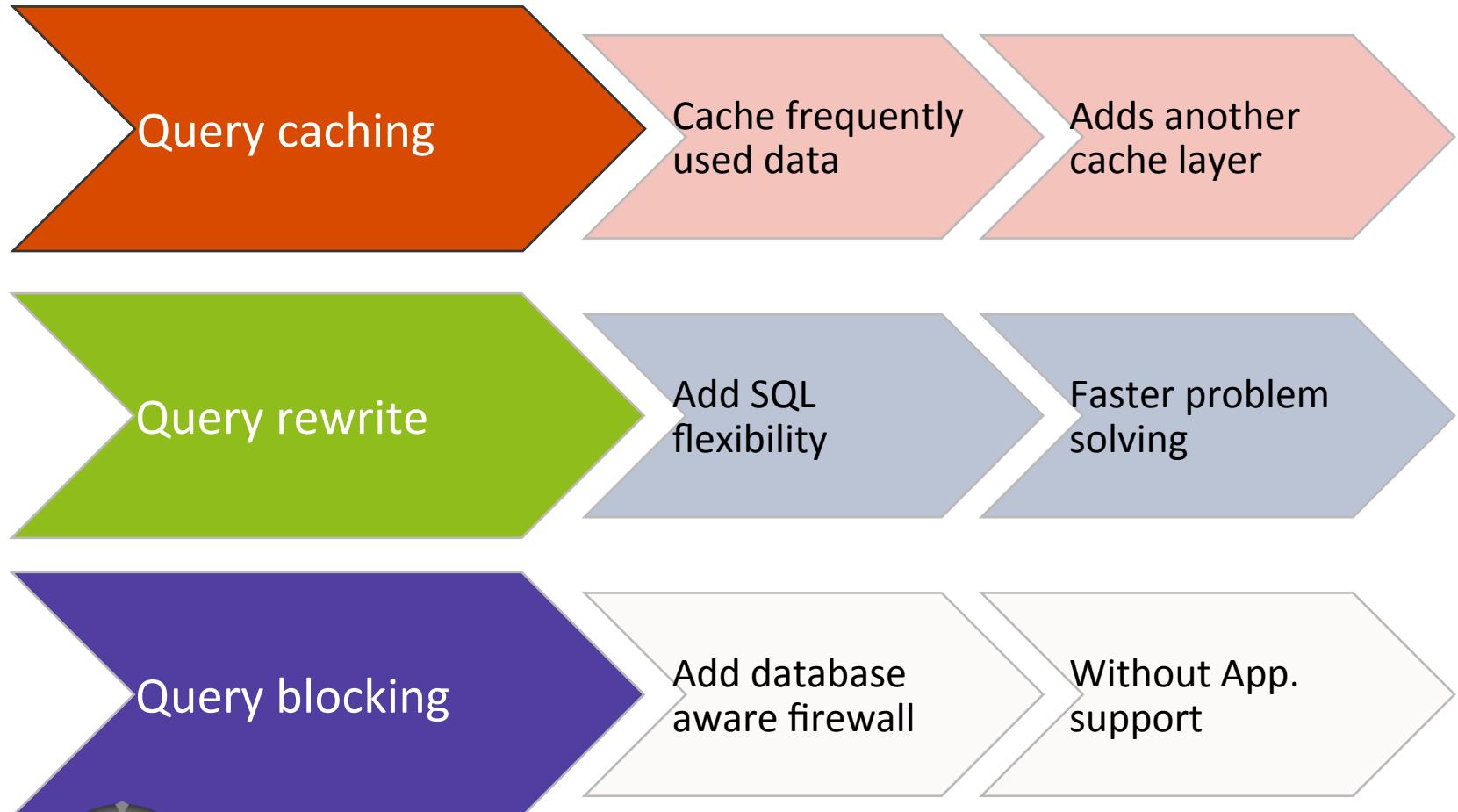
# Use case overview - Scalability



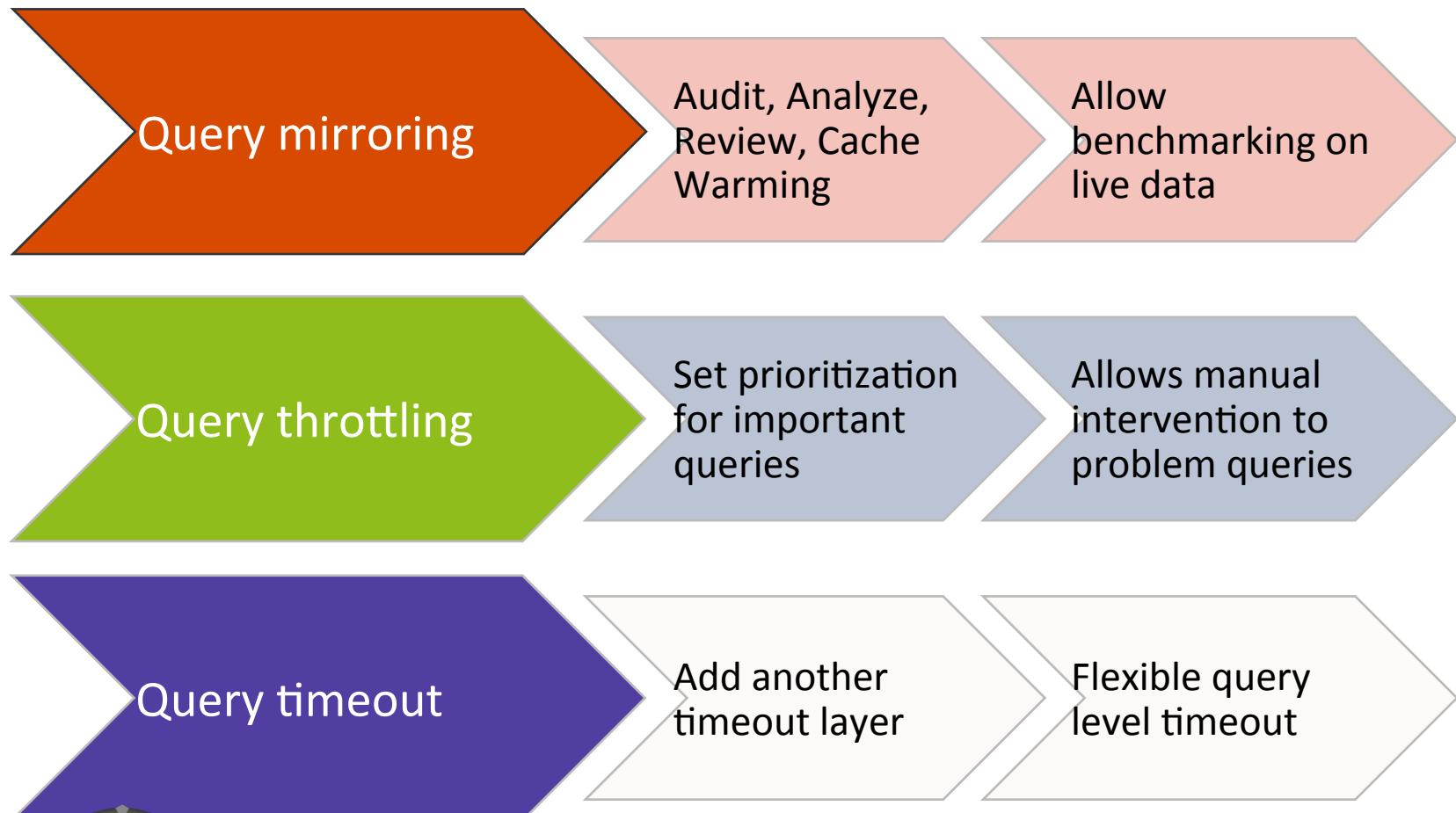
# Use case overview - High Availability



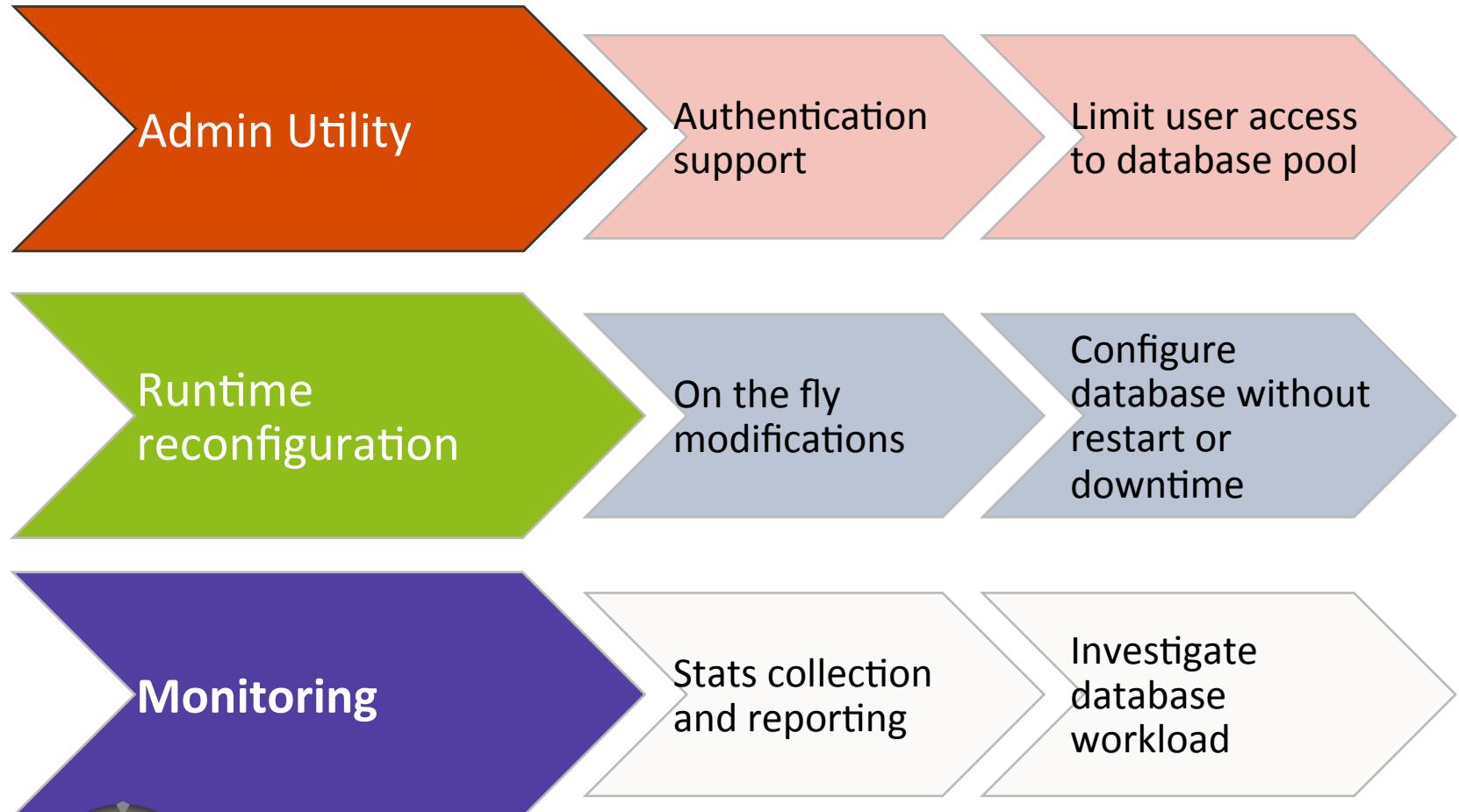
# Use case overview - Advanced Queries



# Use case overview - Advanced Queries



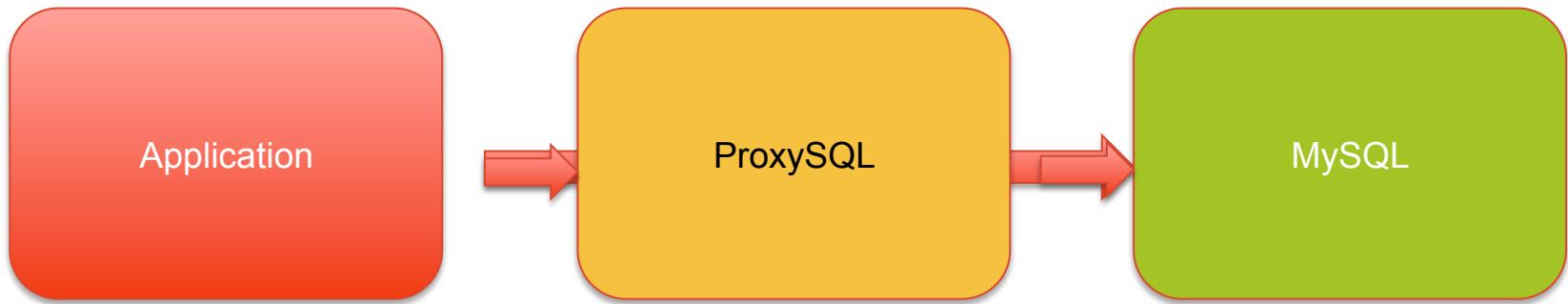
# Use case overview - Manageability



# Scalability with ProxySQL - Connection Pooling

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- Any application without persistent connection to database
- PHP applications to be specific without built in connection pool



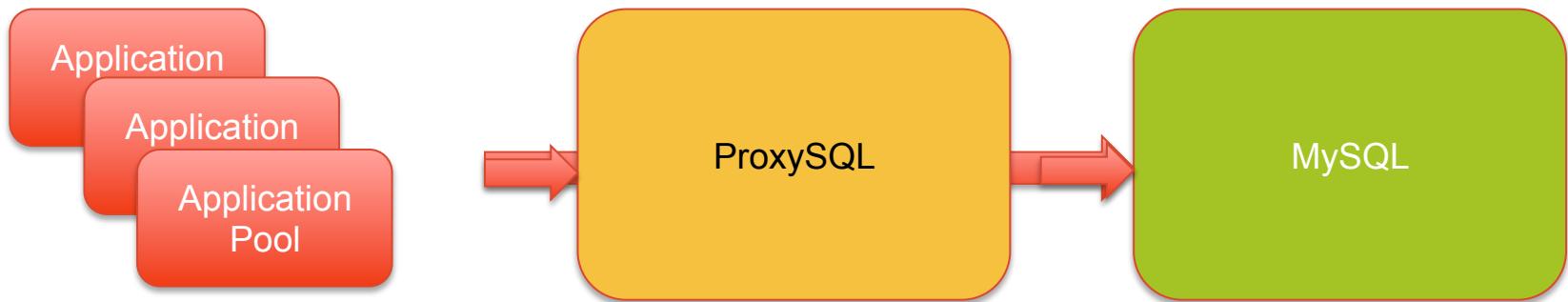
- Reduces number of new connections to the database



# Scalability with ProxySQL – Connection Multiplexing

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- Any application with persistent connection to database
- Java applications to be specific with built in connection pools

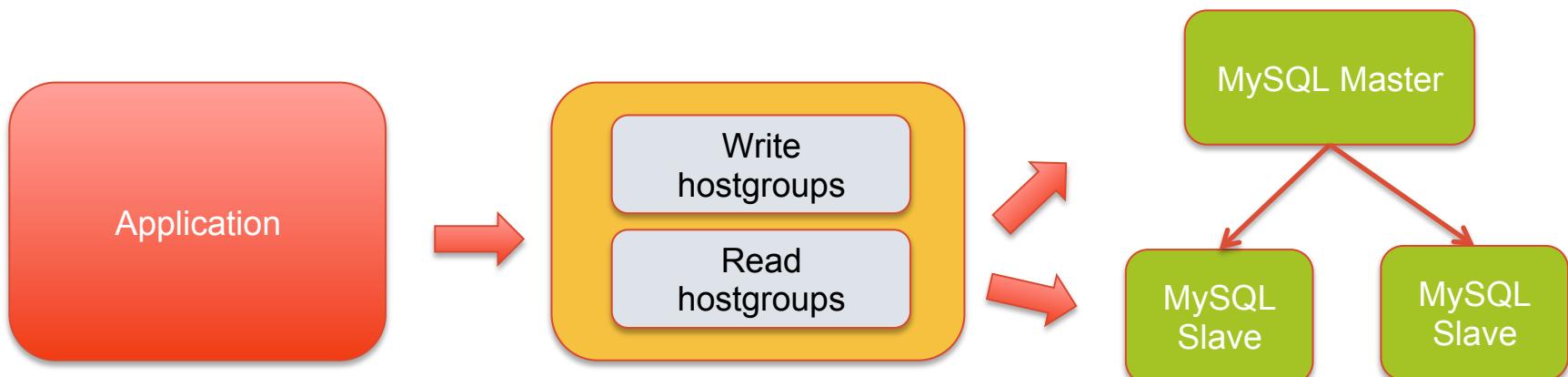


- Reduce connections similar to Aurora
- Testing being performed for 300K database connections



# Scalability with ProxySQL - Read/Write Split

- On the fly Read / Write implementation
- Use `read_only` flag to switch traffic



- Load balancing made easy



# Scalability with ProxySQL – User and schema level sharding

- Granular sharding per username and schema
- Backend pooling based on user activity to specific schema



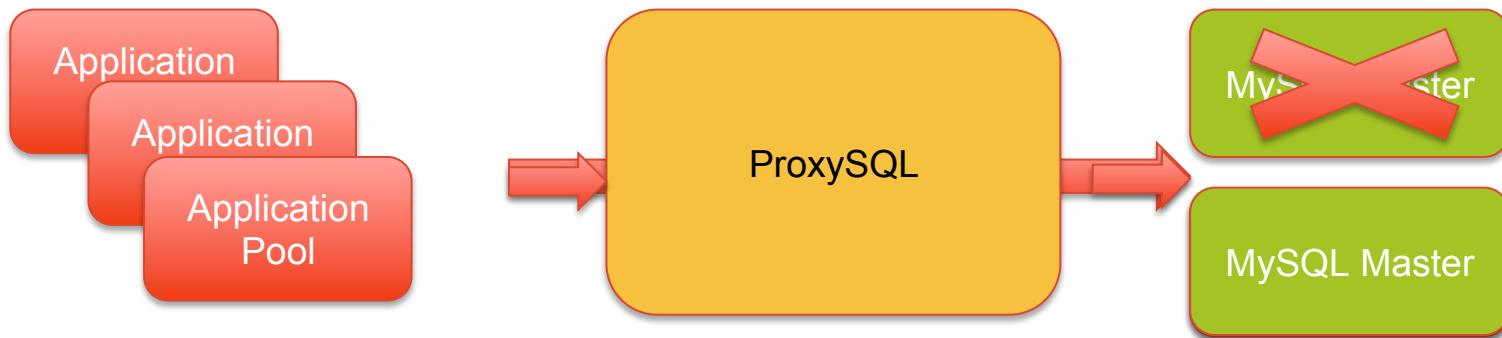
- Use advanced sharding to parallelize queries
- Scale beyond the sharding per host limitations.



# High Availability with ProxySQL – Seamless failover

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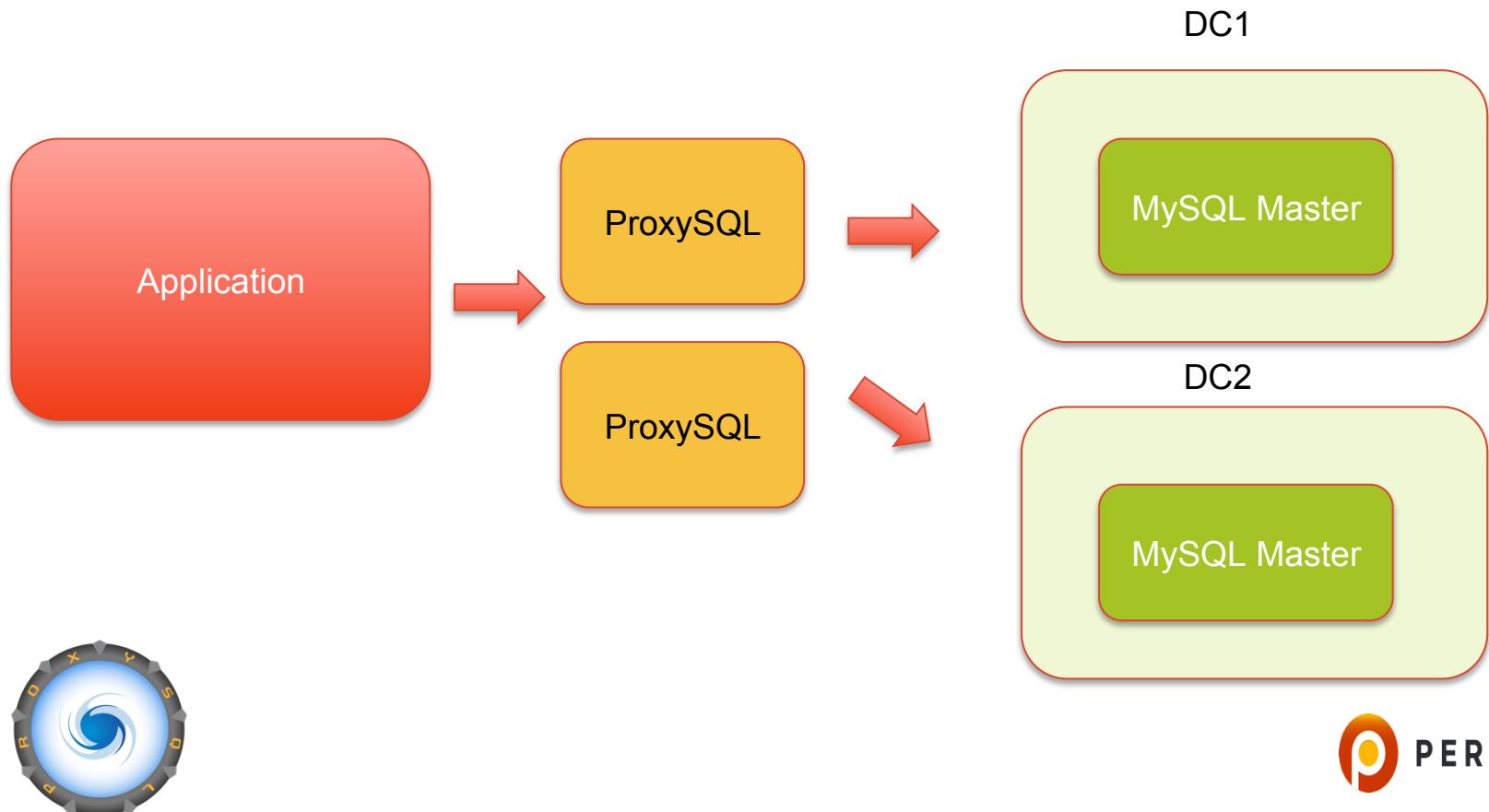
- Neither VIP setup nor service discovery needed
- Use `read_only` flag to switch traffic



- Integration with other HA Managers

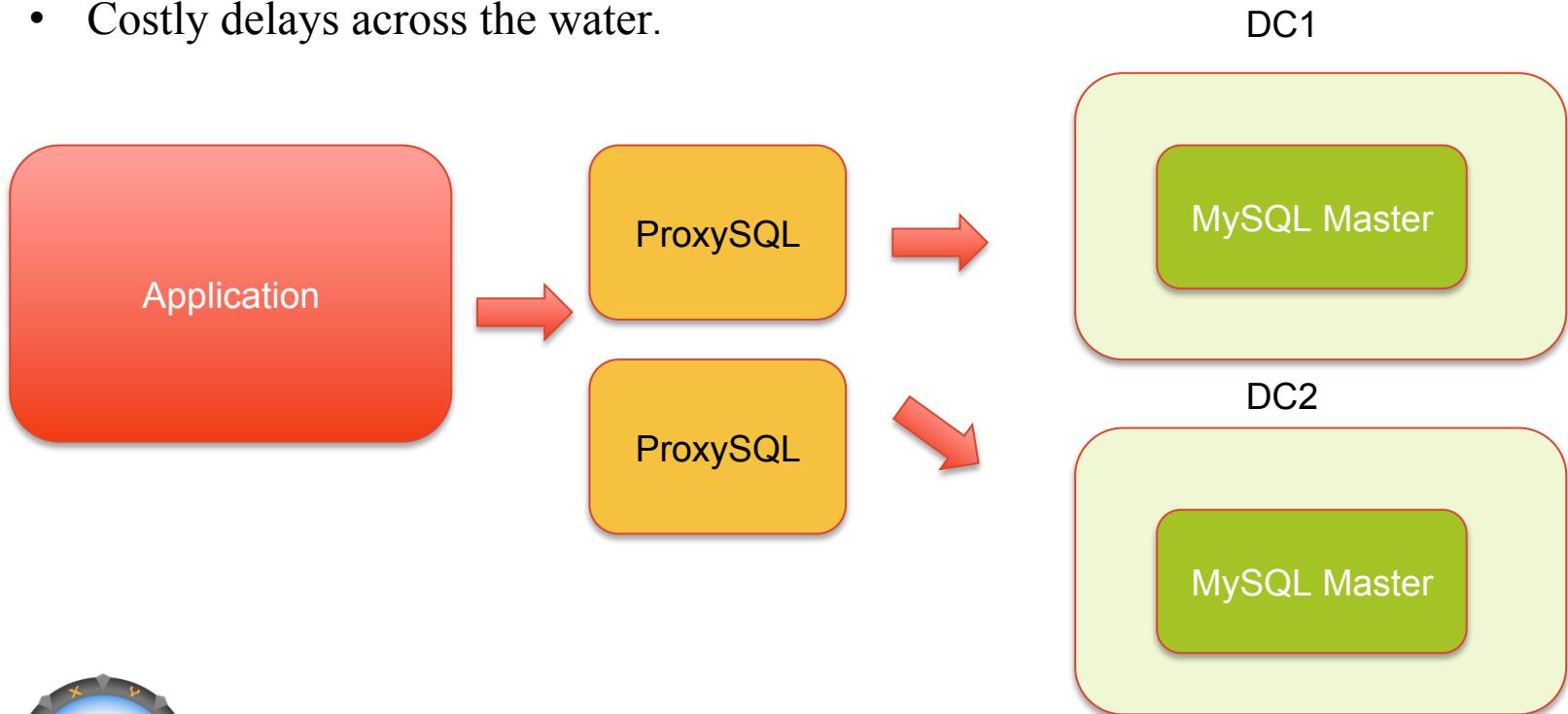


# High Availability with ProxySQL – DC migration



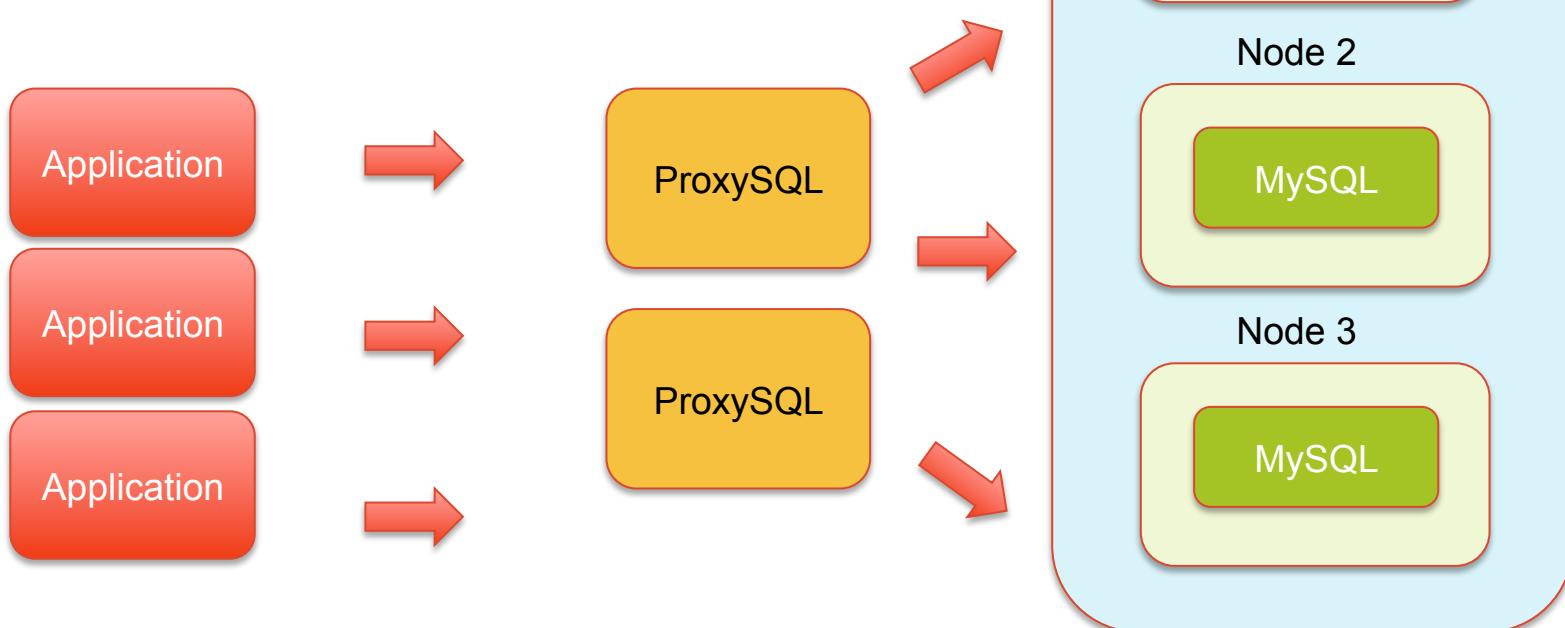
# High Availability with ProxySQL – Improve Multi DC implementation

- No connection pools latency on SSL connections.
- Costly delays across the water.



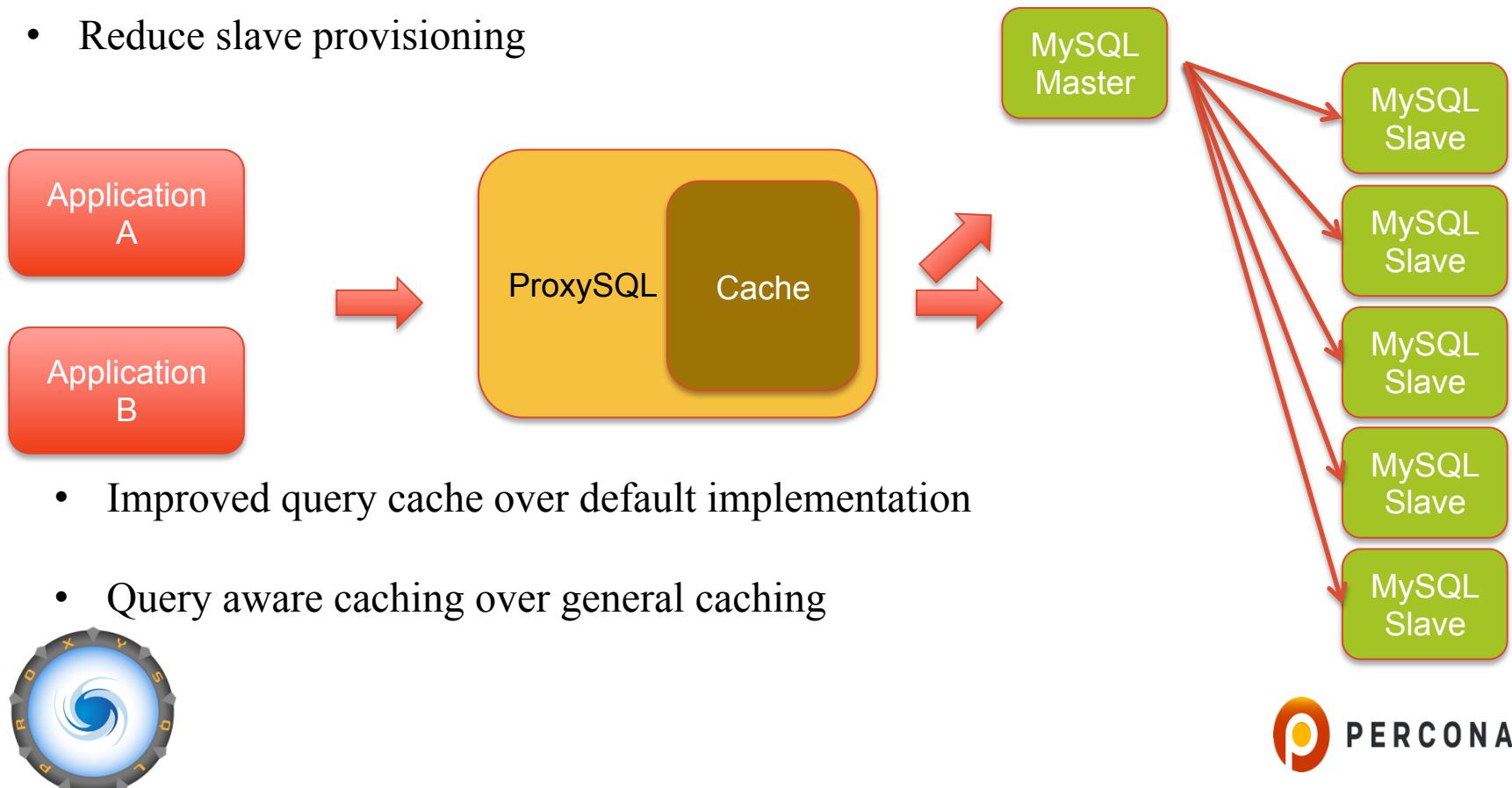
# High Availability with ProxySQL – Adoption to Clustering

- PXC / Galera / Group Replication



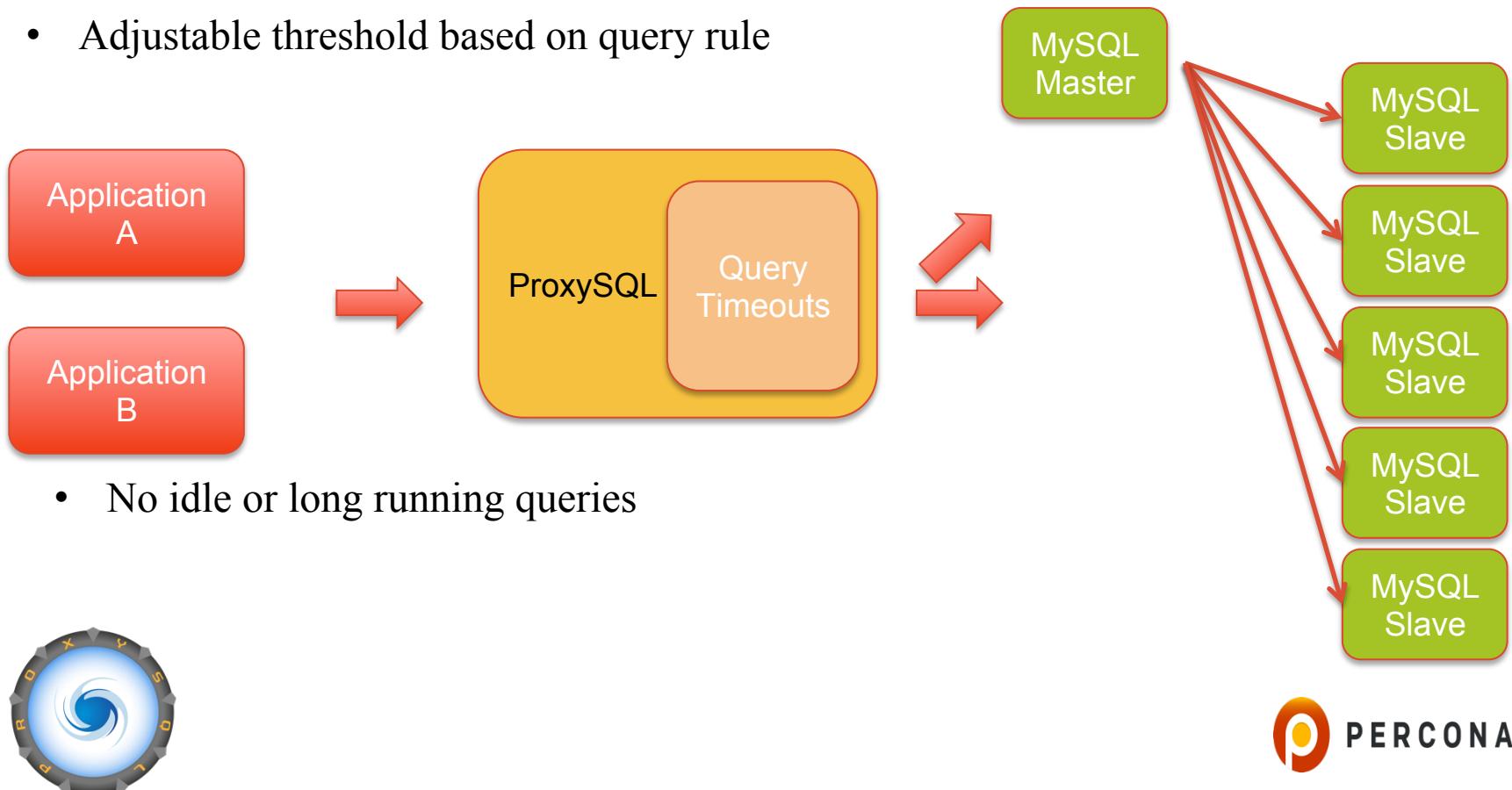
# Advanced Queries with ProxySQL – Caching

- Improve performance on read intensive workloads
- Reduce slave provisioning



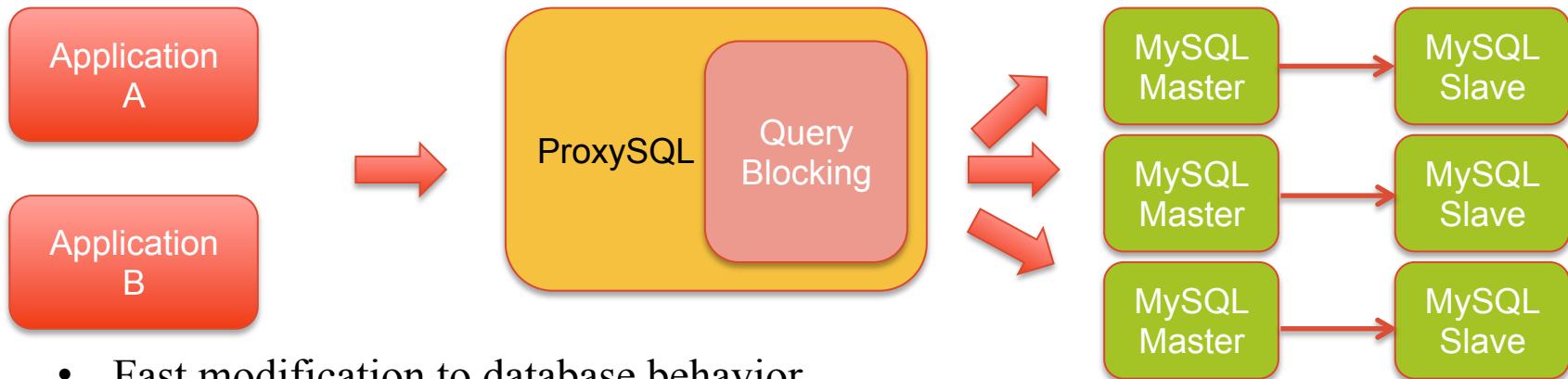
# Advanced Queries with ProxySQL – Query Timeout

- Built in query killer a.k.a query sniper
- Adjustable threshold based on query rule



# Advanced Queries with ProxySQL – Firewall

- Protect database from unwanted traffic
- Stop unwanted user, account , application (new code)

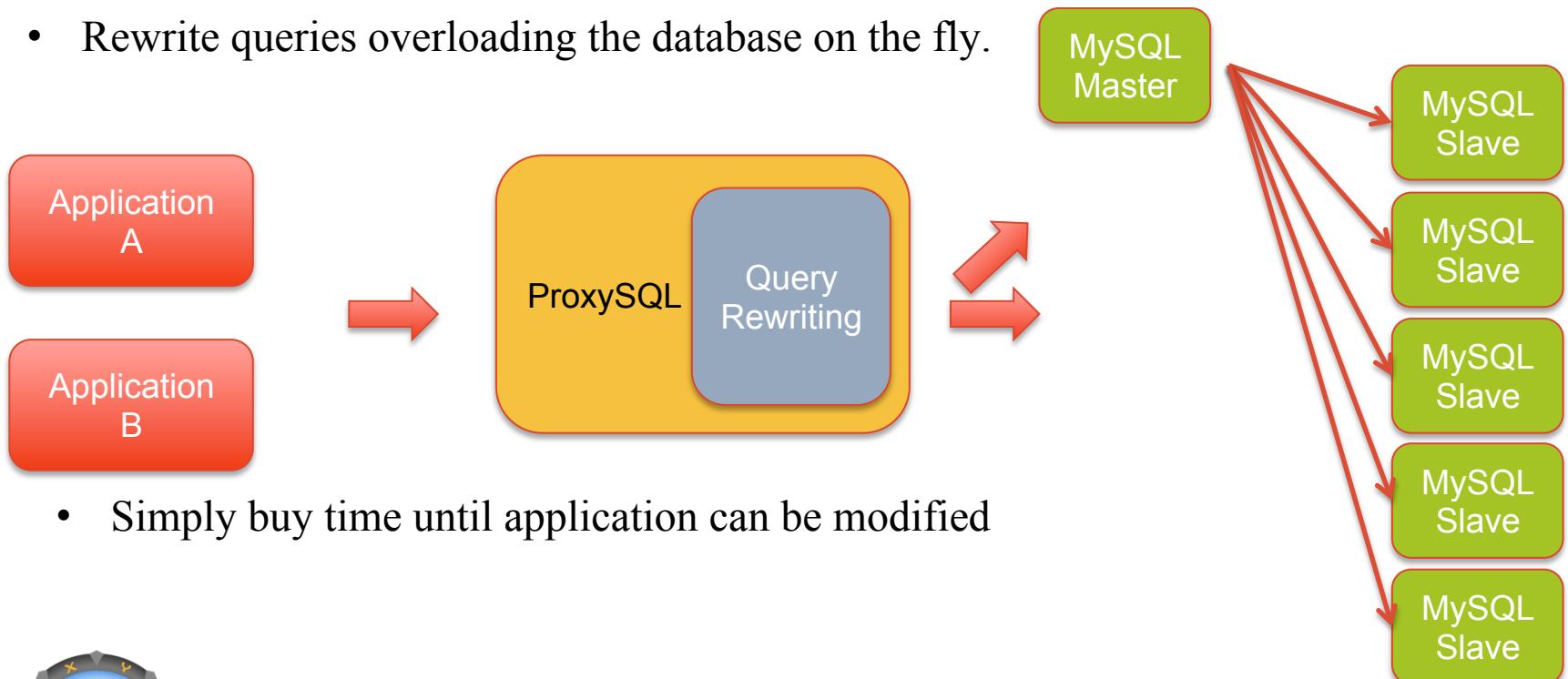


- Fast modification to database behavior
- Added protection for DDOS and other attacks.



# Advanced Queries with ProxySQL – Query rewrite engine

- Most wanted feature by DBAs
- Rewrite queries overloading the database on the fly.

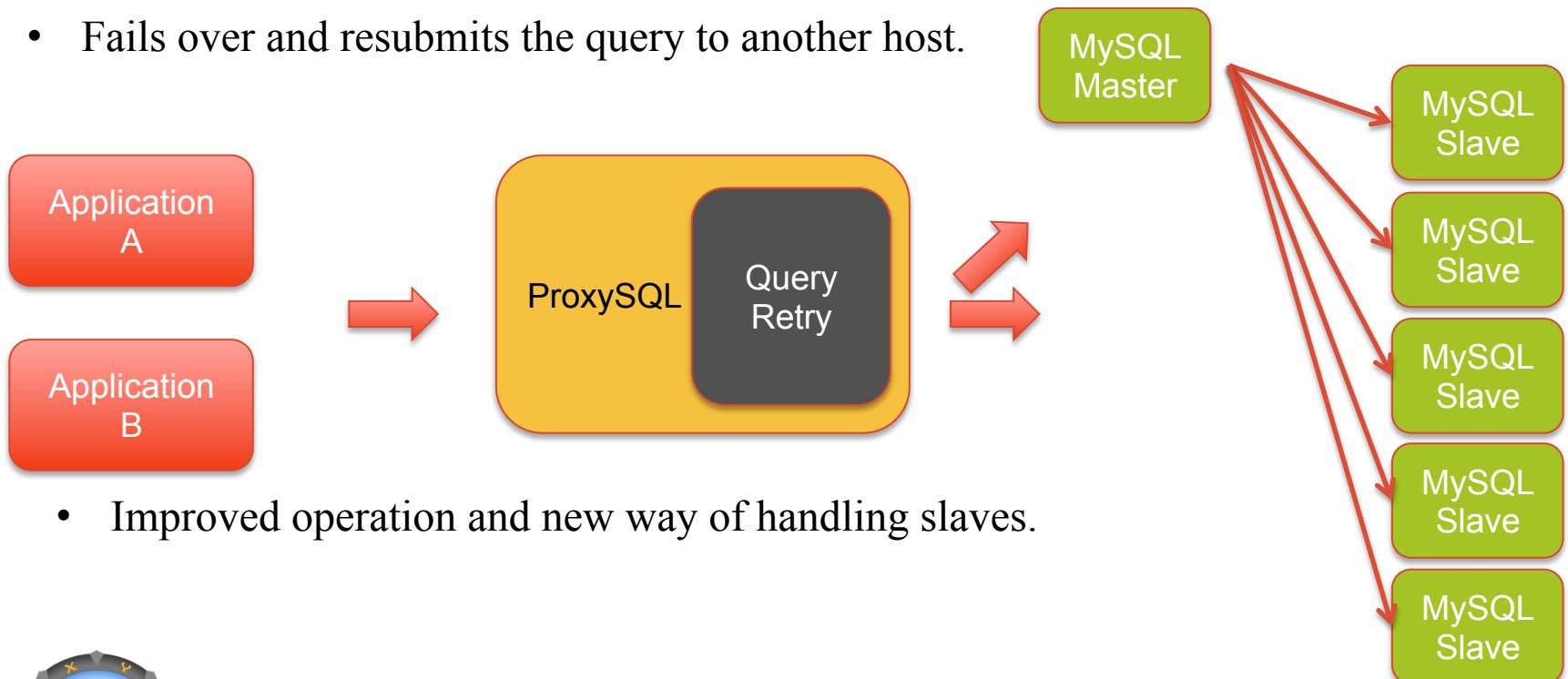


- Simply buy time until application can be modified



# Advanced Queries with ProxySQL – Query retry

- Server failures or maintenance do not lose a query.
- Fails over and resubmits the query to another host.

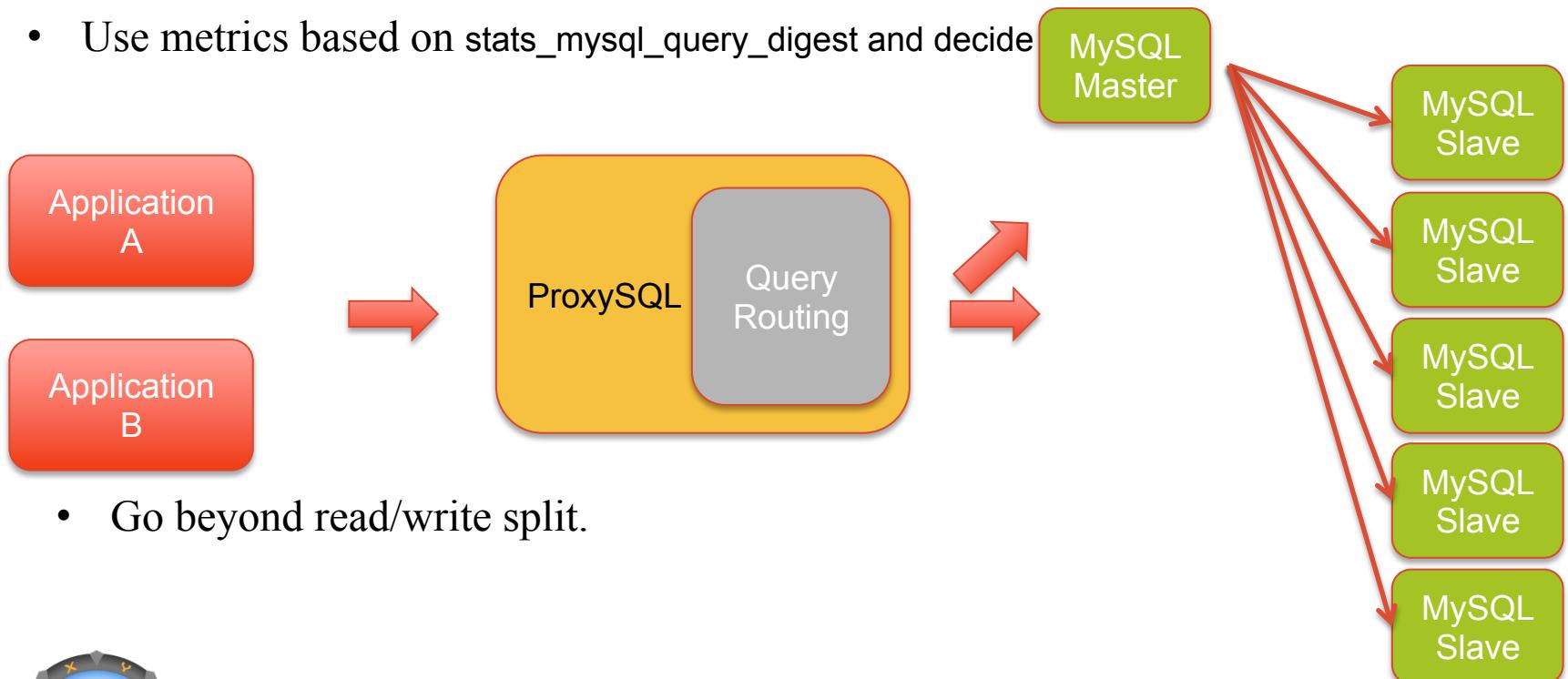


- Improved operation and new way of handling slaves.



# Advanced Queries with ProxySQL – Query routing

- Selective routing based on importance.
- Use metrics based on `stats_mysql_query_digest` and decide

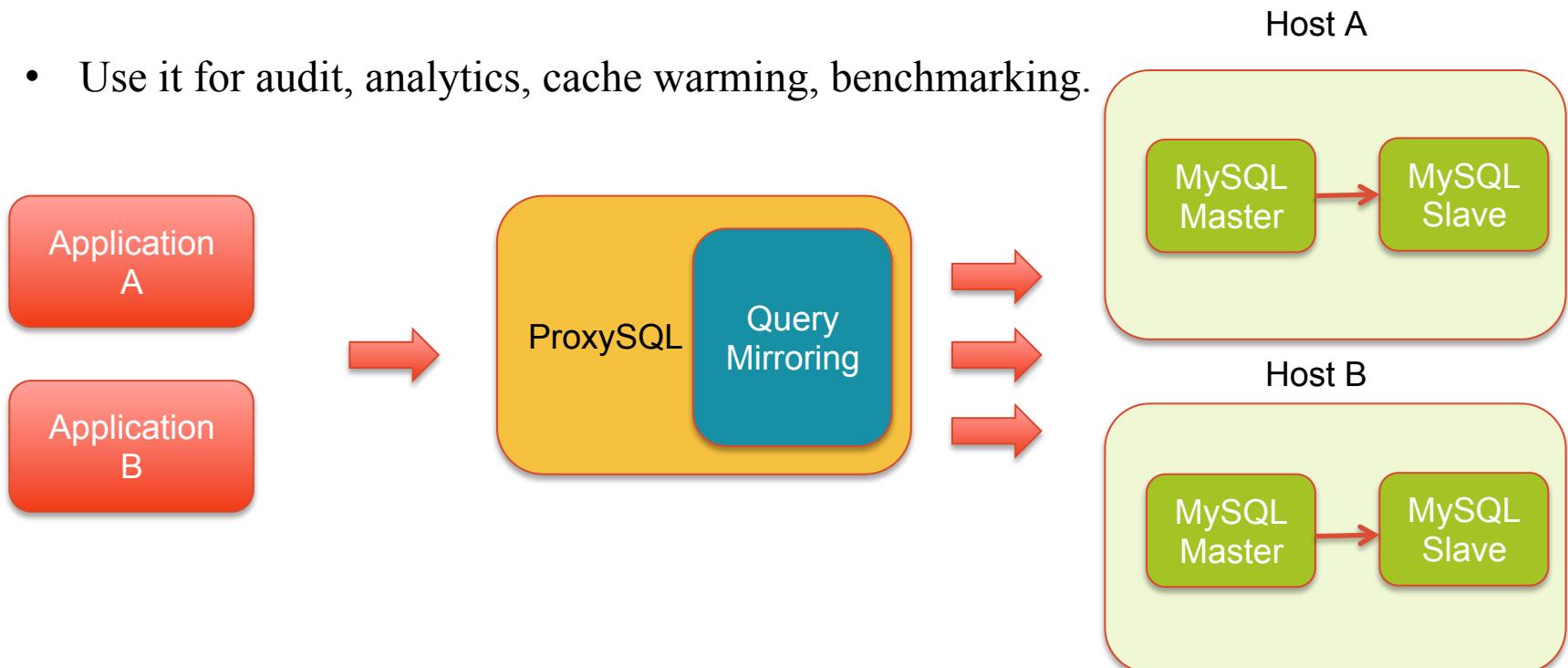


- Go beyond read/write split.



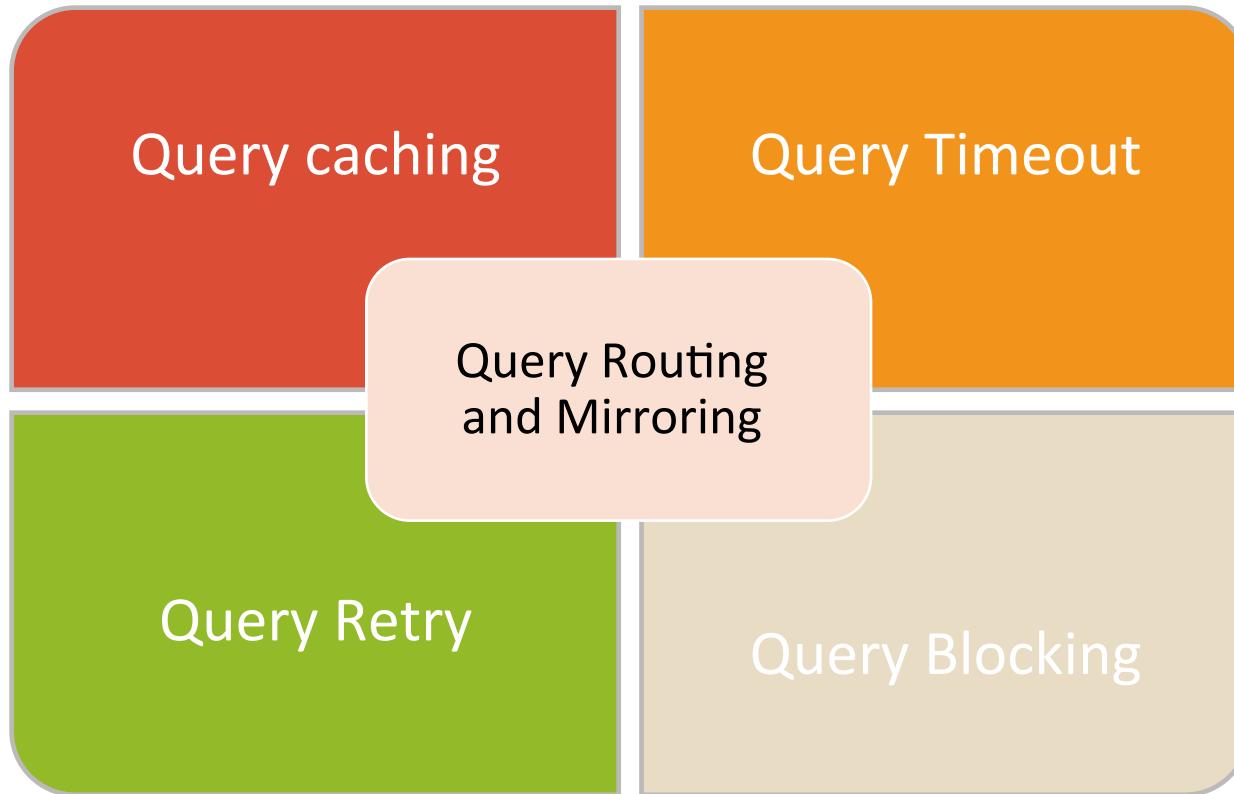
# Advanced Queries with ProxySQL – Query mirroring

- Mirror incoming queries to different back ends
- Use it for audit, analytics, cache warming, benchmarking.



# Advanced Queries with ProxySQL

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# Clustered ProxySQL at scale

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Tested with:

- 8 app servers with 3k clients' connections each (24k total)
- 4 middle layer proxysqls processing 4k connections each from local proxysqls (16k total)
- 256 backends/shard (meaning 256 routing rules) processing 600 connections each (150k total)

Single ProxySQL was tested with up to 150k connections

At today, ProxySQL is able to process up to 750k QPS



# Questions

## ProxySQL

- THE DATA GATEWAY -

**HIGH PERFORMANCE**  
ProxySQL is a new Proxy with an advanced multi-core architecture. It's built from the ground up to support hundreds of thousands of connections currently, multiplexed to potentially hundreds of backend servers.

**SHARDING**  
ProxySQL is a very powerful platform able to cover multiple sharding scenarios with an advanced configuration based on the enormous flexibility of concatenating simple processing rules.

**FOR DBAs BY DBAs**  
Take back control of your MySQL cluster today. Scale and operate it smoothly. Unlock an unprecedented level of flexibility and performance. All the while getting the unlimited freedom that comes with a GPL License.

**High Performance MySQL Proxy when scalability matters**

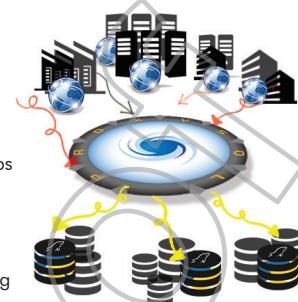
- ✓ Query caching
- ✓ Supports failover
- ✓ Traffic mirroring
- ✓ Real-time statistics
- ✓ Advanced configuration
- ✓ Advanced topology support

[WWW.PROXYSQL.COM](http://WWW.PROXYSQL.COM) #proxysql



## ProxySQL

**High Performance MySQL Proxy with a GPL License**



ProxySQL is a revolutionary proxy that helps you squeeze the last drop of performance out of your MySQL cluster, featuring High Availability, seamless failover with zero downtime, sharding, advanced routing, caching and much more without controlling the applications that generate the queries.

**Query Caching**  
Forget applications that generate load by inefficiently accessing the same results over and over again. ProxySQL quickly jumps in with its advanced rule engine. Results can also be cached for a configurable timespan, in native MySQL packets format.

**Application layer proxy**  
ProxySQL does not forward traffic blindly. It understands the MySQL protocol and acts accordingly. That's why it can easily serve advanced use-cases such as sticky transactions or real-time, in-depth statistics generation about the workload.

**Query Routing**  
Take an advanced case, where different classes of queries need to be routed to different MySQL clusters, with different configurations. Solve it with ProxySQL's hostgroup concept. Based on an advanced matching engine, it is able to route queries transparently towards the destination cluster that can execute them most efficiently.

**Firewall**  
In case of offending queries that cause problems to the DB (SQL injection or inefficient retrieval of information via SELECT \* without WHERE, for example), ProxySQL acts as a gatekeeper between the application and the DB, allowing DBAs to react quickly.

 PERCONA

# Rate Our Session!

Schedule  
Timezone: Europe/Berlin +02:00

MON 3 TUE 4 WED 5

11:20

ClickHouse: High Performance Distributed Database 11:20 - 12:10, Matterhorn 2 **TAP THE SESSION**

Introducing gh-ost: triggerless, painless, trusted online schema migrations 11:20 - 12:10, Matterhorn 2 **TAP TO RATE & REVIEW**

MongoDB query monitoring 11:20 - 12:10, Matterhorn 3

MySQL: Load Balancers - MaxScale, ProxySQL, HAProxy, MySQL Router &amp; nginx - a close up look 11:20 - 12:10, Zurich 1

Securing your MySQL/MariaDB data 11:20 - 12:10, Zurich 2

MySQL, and Ceph: A tale of two friends

← Details

Introducing gh-ost: triggerless, painless, trusted online schema migrations

⌚ 11:20 → 12:10  
📍 Matterhorn 2

Rate & Review **TAP TO RATE & REVIEW**

gh-ost is a MySQL tool which changes the paradigm of MySQL online schema changes, designed to overcome today's limitations and difficulties in online migrations.

SPEAKERS

 **Shawn Nease**  
Senior Infrastructure Engineer  
GitHub

 **Tom Krueper**  
Sr. Database Infrastructure Eng.  
GitHub

X Rate & Review

Tap a star to rate

Feedback (optional)

Anonymously

**SUBMIT**



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PERFORMANCE  
MATTERS