ScaleArc for MySQL, v 3.x

Improve Application Uptime and Performance

Applications today are hamstrung by database architecture, limited by being tied to a database server on a 1:1 basis and not able to utilize the power of distributed databases/clusters without considerable changes. Ignite's ScaleArc database load balancing software breaks that 1:1 mapping, enabling consumer-grade apps - apps that are never down, always fast, and scale anywhere - with no code changes.

Ignite's ScaleArc software inserts transparently between application servers and database servers, providing an abstraction layer that shields applications from database infrastructure. You can enable automated failover and zero-downtime maintenance, scale out the database structure, and support cloud migration with no changes to the application. Ignite's ScaleArc software is available for MySQL, SQL Server, and Oracle databases.

Transparent Deployment with Redundancy

ScaleArc deploys as a highly redundant pair of software appliances, sitting in line between the application and the database. Simply point the app's connection strings at ScaleArc, and the software intelligently routes SQL queries to your database on behalf of the app. ScaleArc's replication-aware load balancing and failover framework ensures your load gets distributed across the servers while ensuring the most current data is served to applications, and failover is simplified. In single server deployments, ScaleArc's connection management and caching improve performance, offload the database, and increase app availability.

Leveraging ScaleArc's software allows your application to gain these sophisticated capabilities without any changes, so you're up and running with compelling new functionality in as little as 15 minutes.

Automated Failover with Reduced App Errors

ScaleArc software understands your database topology, monitoring your servers and automatically migrating client connections and traffic from a failed database node to a healthy node in the cluster. During failover of a primary/master node, the ScaleArc software uses a query queue to hold incoming write queries in memory until another server is promoted and can accept that traffic. This architecture dramatically reduces app errors and prevents apps from hanging or having to be restarted. The only errors the application gets are from queries that were mid-flight to the failed server, ensuring transactional integrity and no double writes.

Zero-downtime Maintenance

Ignite's ScaleArc solution lets you adopt a zero-downtime maintenance architecture for your database stack, allowing you to gracefully stop sending traffic to a specific server in a cluster before you perform maintenance on it. You can patch, update schema, and perform other maintenance on that
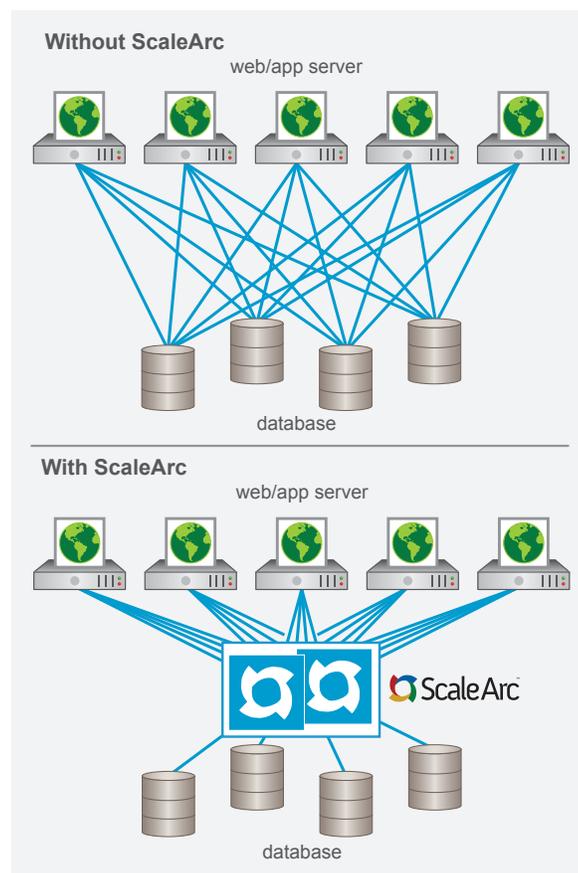

Figure 1: The ScaleArc software provides an abstraction layer that shields apps from the database infrastructure.
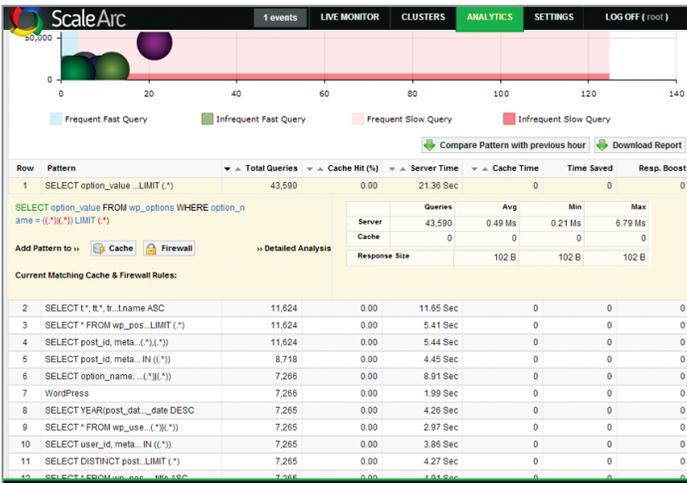
Figure 2: ScaleArc analytics enable you to rapidly identify problem queries, such as slow, frequent queries. You can also take rapid action on these insights, adding queries to cache or blocking them.

specific server, and when done bring it back into the cluster to receive traffic. With no need to take apps offline, it's the end of maintenance windows.

Replication-aware Load Balancing

Once you've scaled out, the ScaleArc software will automatically optimize application performance by taking server response time into account when directing traffic. The software allocates more load to the server that will respond fastest, and since ScaleArc is monitoring replication lag, it'll never send a query to a server that is lagging behind on replication beyond the threshold you configured.

Scalability with No Application Changes

Typically, to get an application to scale across multiple database servers requires a lot of reprogramming and complex techniques such as sharding. With ScaleArc, when you add a new server to a database cluster, it immediately becomes available to your applications as added capacity. ScaleArc can also cache the most frequently requested queries, such as metadata or static queries, and serve them at lighting-fast speeds. You gain the advantage of increased scalability without taking your app developers off the task of building new functionality. Additionally, ScaleArc has advanced auto cache invalidation methods that enable a true ACID compliant cache layer.

ScaleArc for MySQL 3.x Features

AVAILABILITY

Zero-downtime maintenance	Replication monitoring
Auto failover	Query firewall
Surge protection	

PERFORMANCE

Authentication offload - old and new password formats	Query response caching (in memory, up to 1 TB) including stored procedures and prepare statements
Read/write split including prepare statements	Auto cache invalidation
Dynamic load balancing	SSL offload
Query routing	Connection pooling

ANALYTICS

SQL analytics	SNMP
Historical stats	SCOM
Live monitors	RESTful API

Database versions supported:

- MySQL 5.1, 5.5, 5.62
- Percona XtraDB Cluster 5.6.20
- Galera 3.25
- MariaDB 10.0.3, 10.0.24, 10.1.14

System requirements:

- Minimum of 2 CPUs, 2 GB RAM, and 200 GB storage for dev or test instances
- 4 CPUs, 4 GB RAM, 240 GB for OS and 1 TB storage for SQL logs is recommended for production instances
- Intel x86 server platforms with hyper threading turned off yield the best performance

On-prem, Cloud, and Hybrid Deployments

Cloud deployments often pose a challenge for database performance and scalability. Database instances are typically smaller, and hybrid deployments, such as database on prem and app in the cloud, can introduce performance problems.

ScaleArc solves the challenges of cloud and hybrid deployments and makes it easy to migrate workloads into the cloud. You can easily aggregate the capacity of smaller database instances to serve the needs of apps designed to work with a single large database server.

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TECHNOLOGIES

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