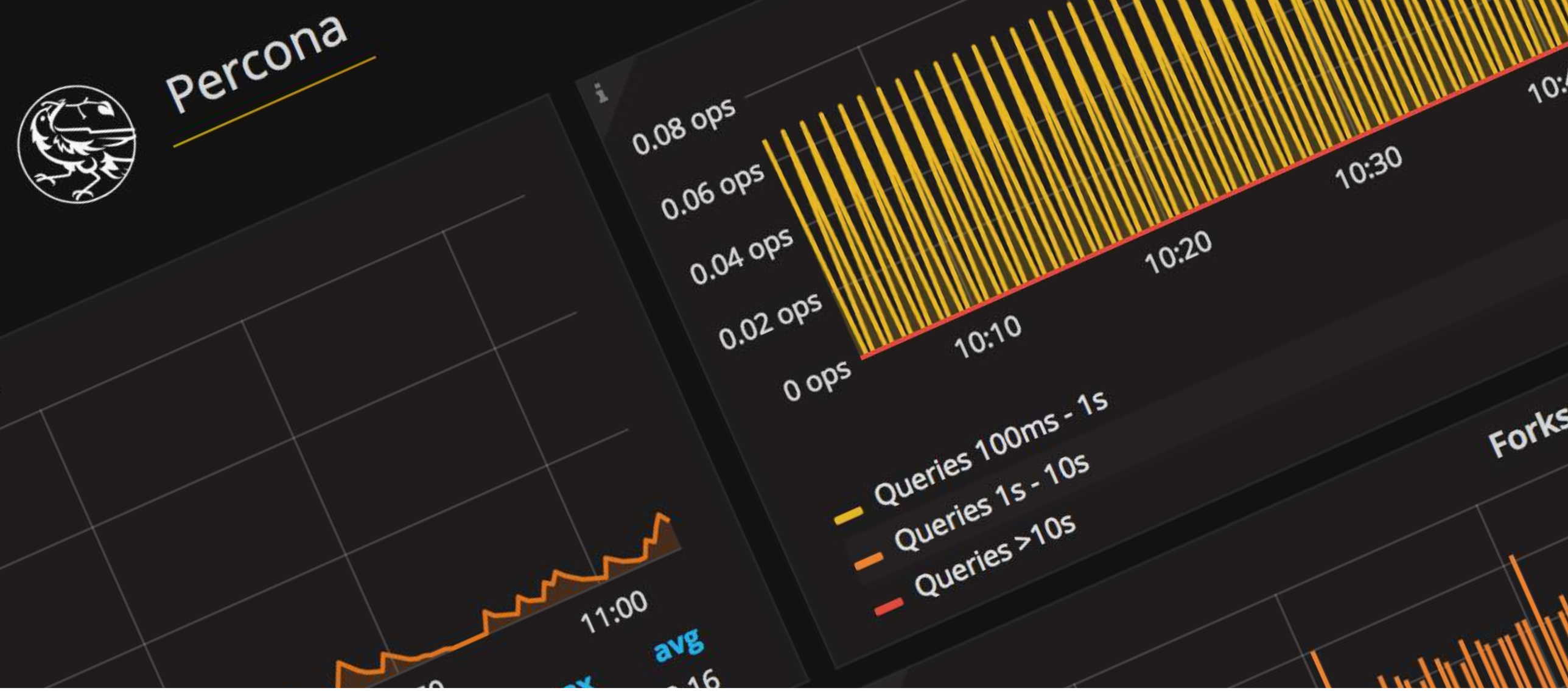


PMM ARCHITECTURE

Mykola Marzhan

Mykola Marzhan
Release Engineer, Percona

I have been working as Release Engineer/Release Manager/ DevOps for 10 years.

I have been developing monitoring systems since 2004.

I love 7 year old daughter, downhill skiing, inline skates, organize community events etc.

PERCONA

Monitoring and Management

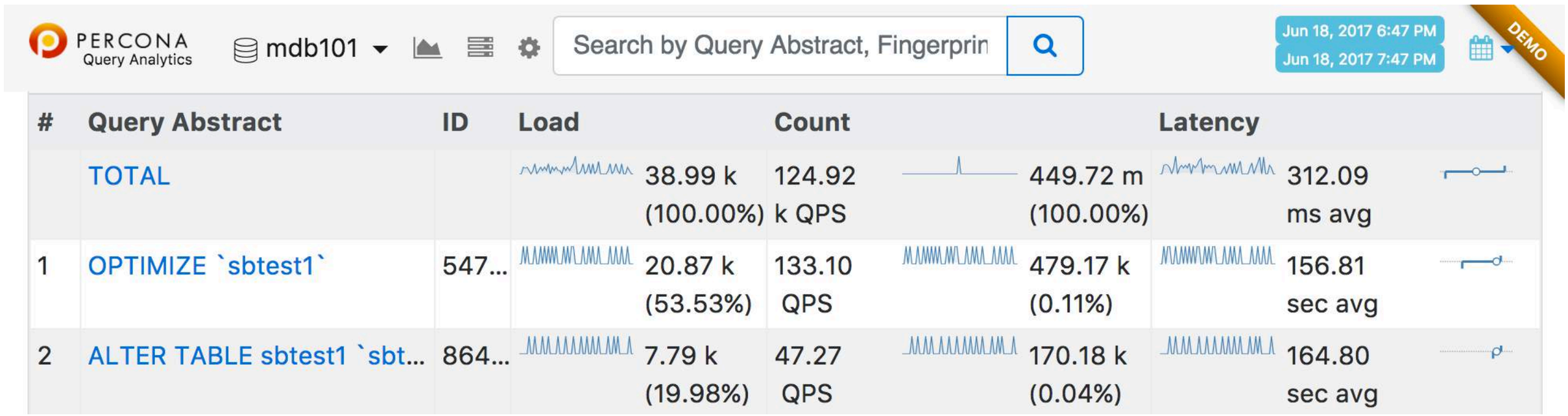
is a free and open-source solution for managing and monitoring performance on MySQL and MongoDB, and provides time-based analysis of performance to ensure that your data works as efficiently as possible.

Source: https://www.percona.com/doc/percona-monitoring-and-management/index.html

QUERY ANALYTICS

METRICS MONITOR

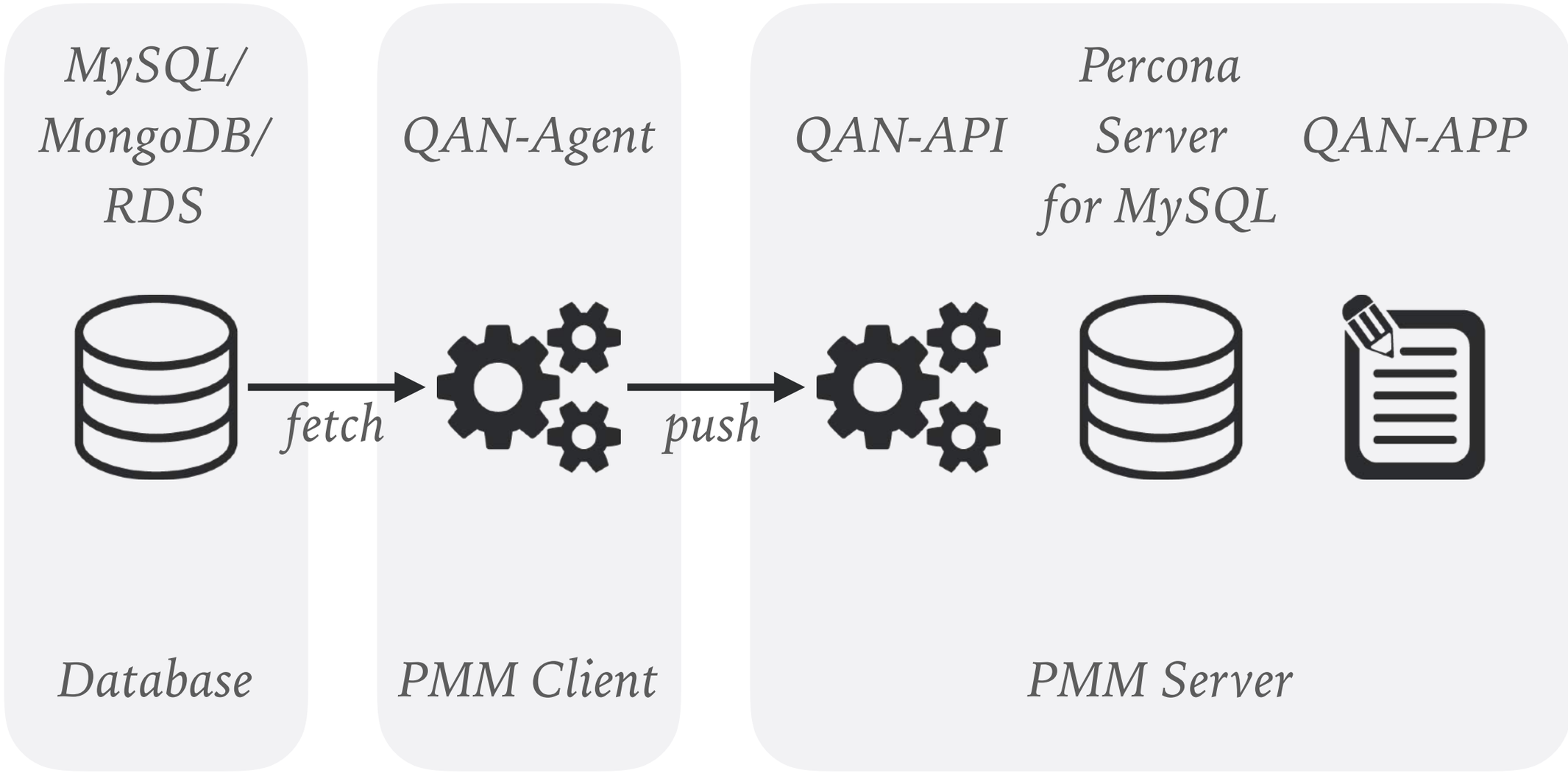
QUERY ANALYTICS



Query Analytics enables database administrators and application developers to analyze MySQL queries over periods of time and find performance problems. Query Analytics helps optimize database performance by making sure that queries are executed as expected and within the shortest time possible.

Source: https://www.percona.com/doc/percona-monitoring-and-management/using.html

QUERY ANALYTICS



Icons: https://www.iconfinder.com/

QAN AGENT

Daemon (golang):

- connects to MySQL or MongoDB database
- reads queries from performance schema or slow log
- collects query performance data
- push data to QAN API

Source: https://github.com/percona/qan-agent

QAN API

Daemon, REST API service (golang):

- receive data from QAN Agent
- save data to Percona Server for MySQL database
- return data to QAN APP

Source: https://github.com/percona/qan-api

QAN APP

Web Interface (AngularJS):

- show data from QAN API

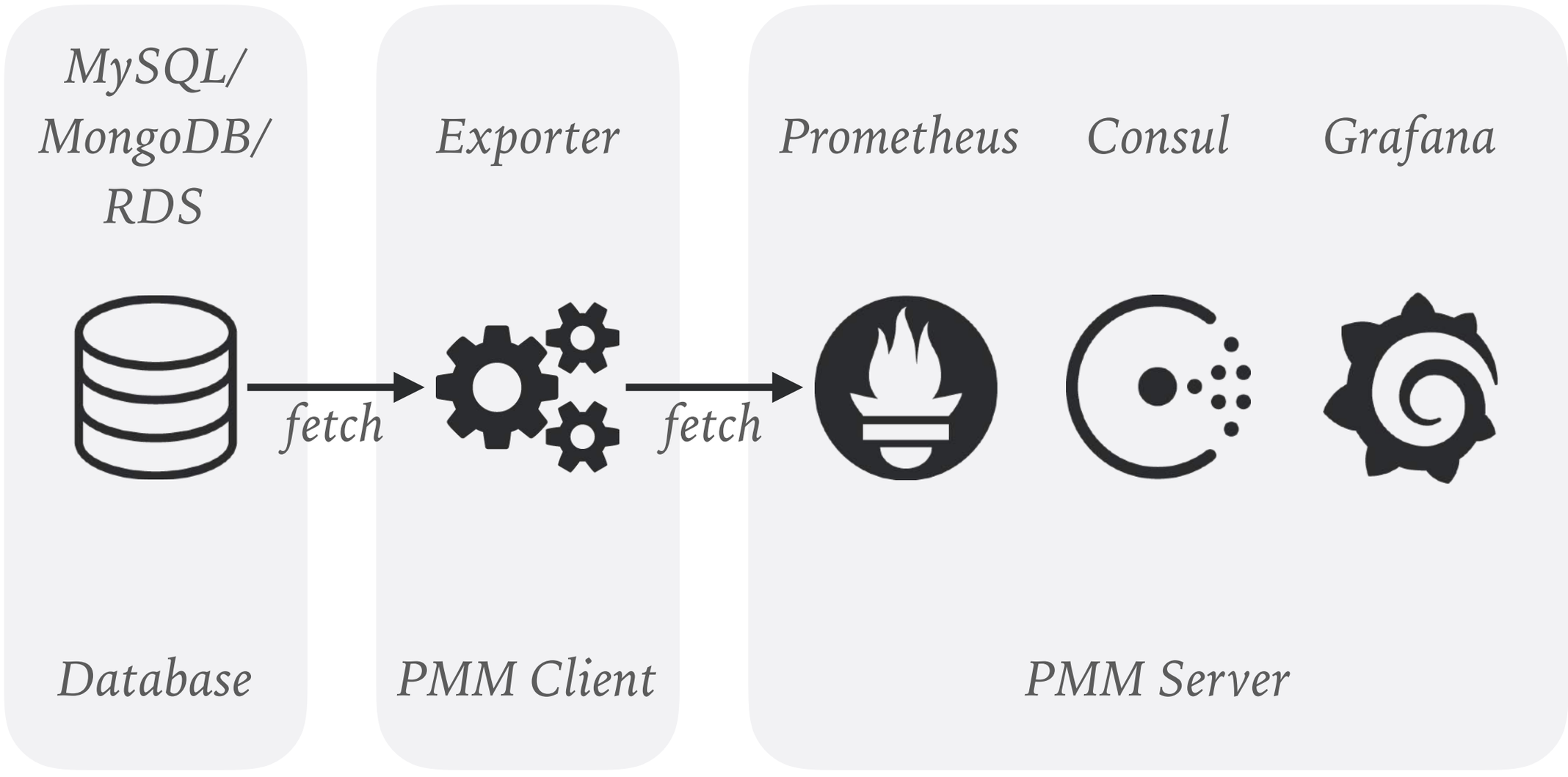
Source: https://github.com/percona/qan-app

METRICS MONITOR

provides a historical view of metrics that are critical to a database server. Time-based graphs are separated into dashboards by themes: some are related to MySQL or MongoDB, others provide general system metrics.

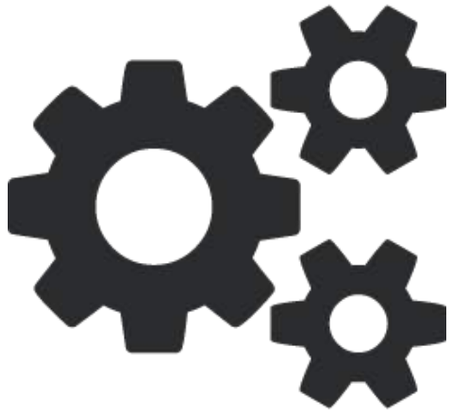
Source: https://www.percona.com/doc/percona-monitoring-and-management/using.html

METRICS MONITOR



Icons: https://www.iconfinder.com/

MYSQLD_EXPORTER/MONGODB_EXPORTER

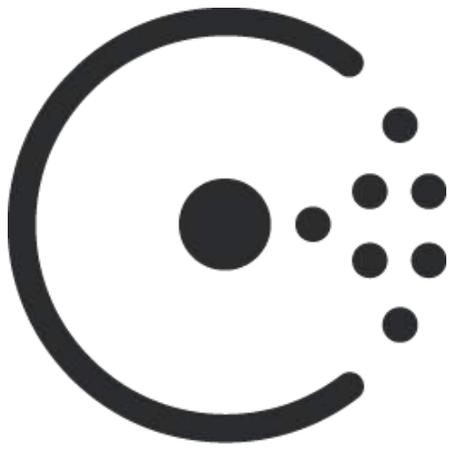


Daemon, REST API service (golang):

- connects to database
- reads database metadata
- return data to Prometheus on API call

Source: https://github.com/percona/mongodb_exporter https://github.com/percona/mysqld_exporter

CONSUL



The tool for service discovery and configuration.
REST API service, Database (golang):

- receive configuration from pmm-admin tool
- save configuration to own database
- return configuration to Prometheus

Source: https://github.com/hashicorp/consul/

PROMETHEUS

The monitoring system and time series database.

Metrics collector, Database, REST API service (golang):

- find targets in Consul
- pull metrics from exporters
- save metrics on the disk
- return metrics to Grafana

Source: https://github.com/prometheus/prometheus

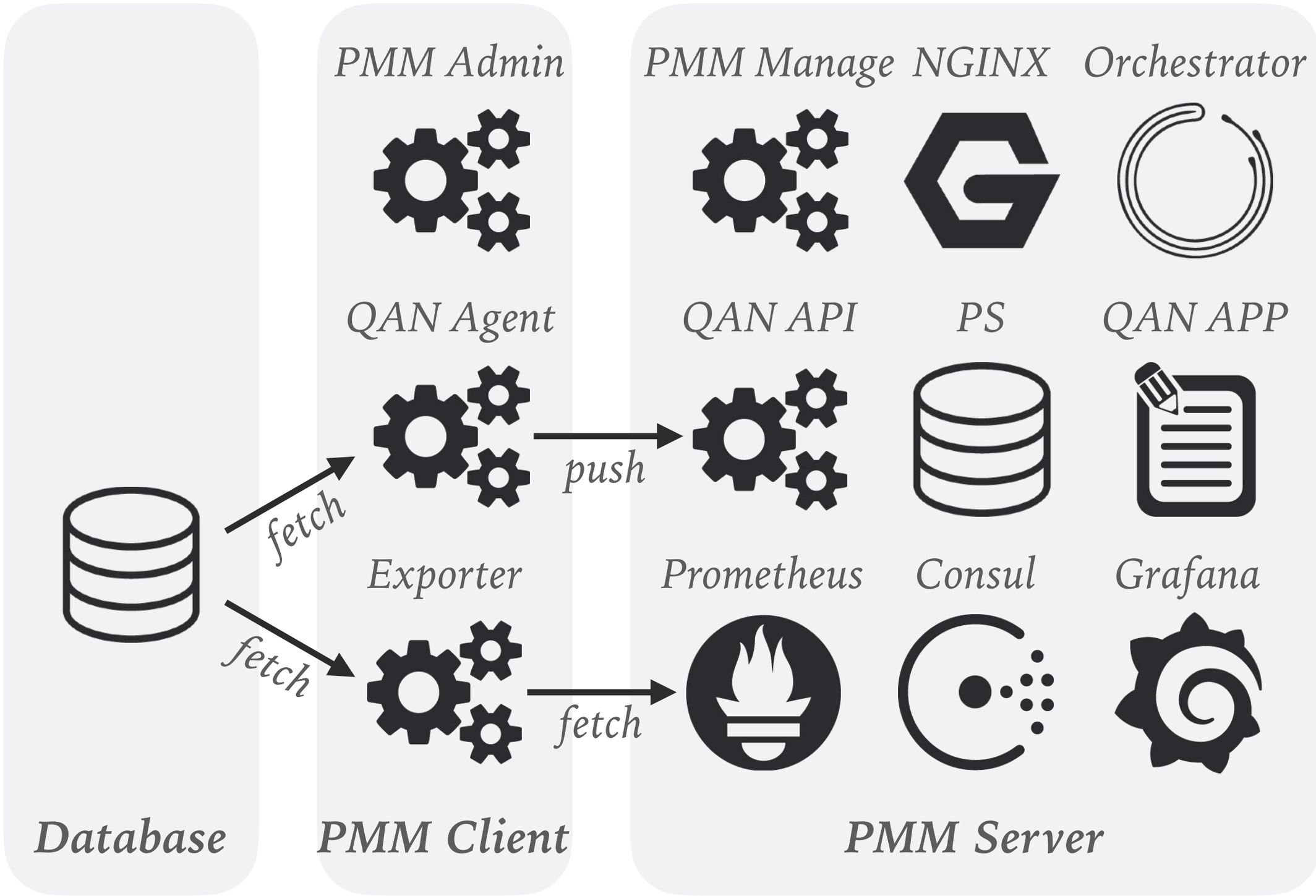
GRAFANA

The tool for beautiful monitoring and metric analytics & dashboards.
Web Interface, REST API service (AngularJS, golang):

- show nice graphs
- fetches data from Prometheus
- fetches data from AWS CloudWatch

Source: https://github.com/grafana/grafana

PERCONA MONITORING AND MANAGEMENT



Icons: https://www.iconfinder.com/

ORCHESTRATOR

MySQL replication topology visualization and management tool (golang):

- discover replication topology directly from MySQL
- can change replication topology
- monitor replication failures
- can perform automatic recovery

Source: https://github.com/github/orchestrator

PMM ADMIN

Command line helper (golang):

- checks database and network connectivity
- configures QAN Agent and Exporters
- sends configuration to QAN API and Consul

Source: https://github.com/percona/pmm-client

PMM CLIENT

- TAR
- RPM
  - RedHat/CentOS 6
  - RedHat/CentOS 7
- DEB
  - Debian 7 (Wheezy)
  - Debian 8 (Jessie)
  - Debian 9 (Stretch) (coming soon)
  - Ubuntu 12.04 LTS (Precise Pangolin)
  - Ubuntu 14.04 LTS (Trusty Tahr)
  - Ubuntu 16.04 LTS (Xenial Xerus)
  - Ubuntu 16.10 (Yakkety Yak)

HOW TO SETUP PMM-CLIENT

- sudo yum -y install \
  http://www.percona.com/downloads/percona-release/redhat/0.1-4/percona-release-0.1-4.noarch.rpm
- sudo yum -y install pmm-client
- sudo pmm-admin config --server 10.0.2.15
- sudo pmm-admin add mysql
- sudo pmm-admin check-network

Source: https://github.com/percona/mongodb_exporter https://github.com/percona/mysqld_exporter

PMM SERVER

- Docker
- Amazon Machine Images (AMI)
- Open Virtualization Format (OVF)

HOW TO SETUP PMM SERVER

- curl -sSL https://get.docker.com/ | sh
- sudo usermod -aG docker your-user
- sudo systemctl start docker
- docker create \
  -v /opt/prometheus/data \
  -v /opt/consul-data \
  -v /var/lib/mysql \
  -v /var/lib/grafana \
  --name pmm-data \
  percona/pmm-server:1.1.5 \
  /bin/true
- docker run -d \
  -p 80:80 \
  --volumes-from pmm-data \
  --name pmm-server \
  --restart always \
  percona/pmm-server:1.1.5

Source: https://github.com/percona/mongodb_exporter https://github.com/percona/mysqld_exporter

Q&A

PERCONA MONITORING & MANAGEMENT

Mykola Marzhan