

Percona + Grafana + Prometheus = Love

How We Integrate Grafana with Prometheus for Easy MySQL and MongoDB Monitoring

Peter Zaitsev

CEO, Percona

GrafanaCon

30 November 2016, NYC



About Percona

We Exist to help you to
succeed with MySQL and
MongoDB

Support Broad Ecosystem

Percona
Server for
MySQL

MySQL

MariaDB

AWS for
MySQL and
Aurora

MongoDB

Percona
Server for
MongoDB

Google
CloudSQL

Percona Software – 100% Open Source

Percona Server
for MySQL

Percona Server
for MongoDB

Percona XtraDB
Cluster

Percona
Xtrabackup

Percona Toolkit

Percona
Monitoring and
Management

Services

- Support
- More than Support (Percona Care)
- Managed Services (Percona Care Ultimate)
- Consulting



PERCONA
Care

Build



Fix



Optimize



Manage



We resolve complex Data Layer problems

**We need deep insights
into Database Operation**

Existing Solutions are

Commercial

- MySQL Enterprise Monitor
- MongoDB Ops Manager
- MonYog

Cloud Only

- VividCortex
- DataDog
- NewRelic

Open Source Solutions

Great Components exist

Need to put together for complete solution

Typically Lacks Depth in Database Insights

Our Requirements

Free and Open Source Solution

In The Cloud and on Premises

Easy to Install

Monitor Development and Production

Modern Systems: Well Defined Roles

Data
Capture

Storage and
Processing

Visualization

Data Capture “Telemetry”

Requirements

- High Level of Details
- Low Overhead
- Support for your technology

Solutions

- Statsd
- Collectd
- Prometheus Exporters
- InfluxDB Telegraf
- Intel Snap

Storage and Processing

Requirements

- High Performance (ingest and queries)
- Efficient Storage
- Powerful Query Language

Solutions

- OpenTSB
- InfluxDB
- Prometheus
- ElasticSearch
- Graphite (Whisper)
- Riak TS

Visualization/Dashboards

Requirements

- Visualization/Usability
- Support Multiple Sources
- Extensibility

Technologies

- Chronograf
- Kibana
- Graphite
- Grafana

What Makes Grafana Special

Grafana does not focus on data capture or storage

Focus on Visualization only

Supports Plugins

Supports Multiple Data Sources

Integrates with Other visualization tools (Graphite, OpenNMS, Zabbix)

Greatest momentum in the Community

Why Prometheus

Data Model

- Any number of Key-Value Pairs
- Great for complex relationships in Database World

Query Language

- Very Expressive
- Custom designed for problem space
- Operates on the whole “data universe”

Efficiency

- High Ingestion Speeds
- High Compression
- Excellent compression

Grafana+Prometheus+Custom=PMM



PERCONA

Monitoring and Management

Note: Name is futureproof, currently doing Monitoring not Management

PMM at Glance

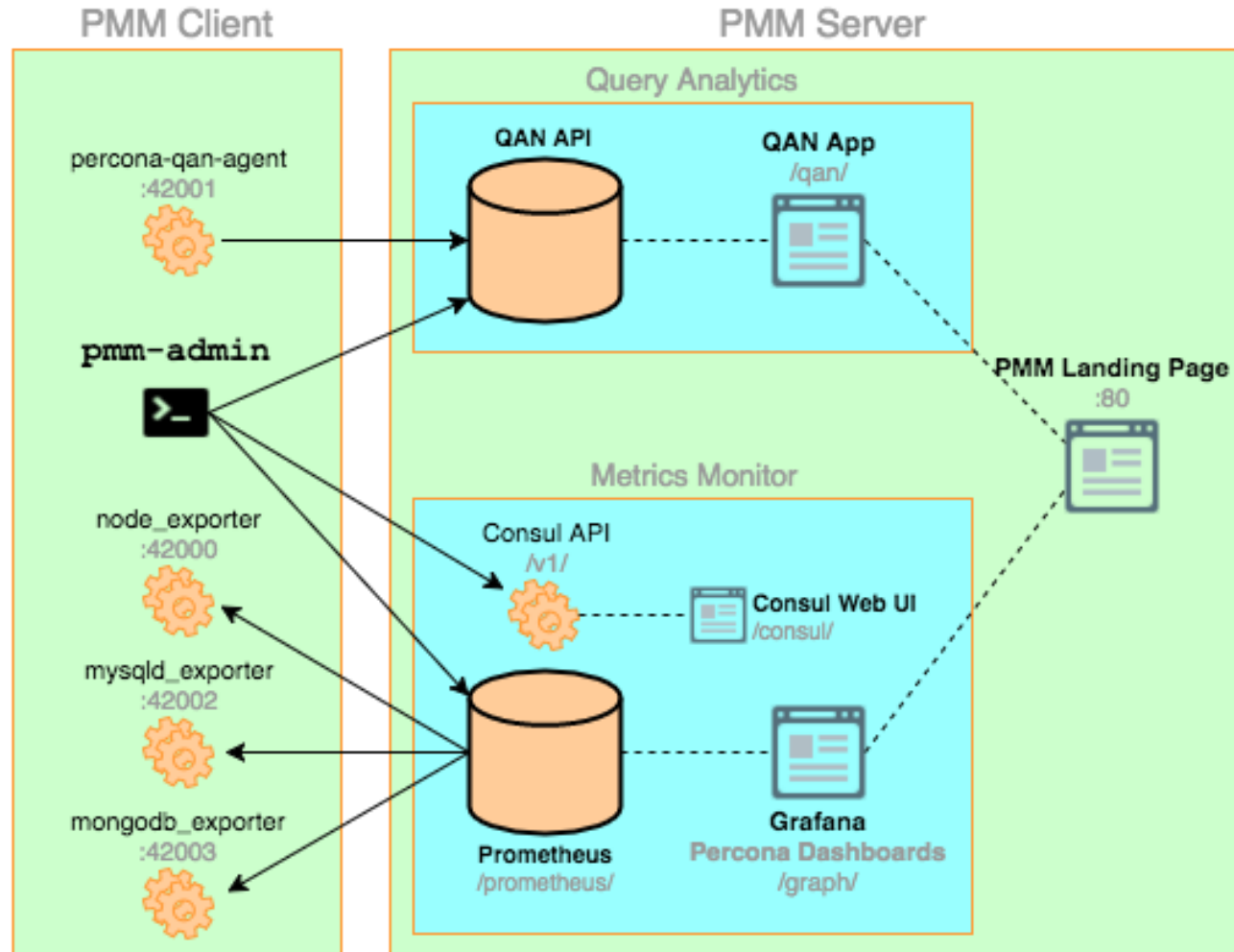
Easy to use Monitoring Solution for MySQL and MongoDB

100% Free and Open Source

Using Best in Class components as Grafana and Prometheus

Custom Percona Development for Query Insights

Inside PMM



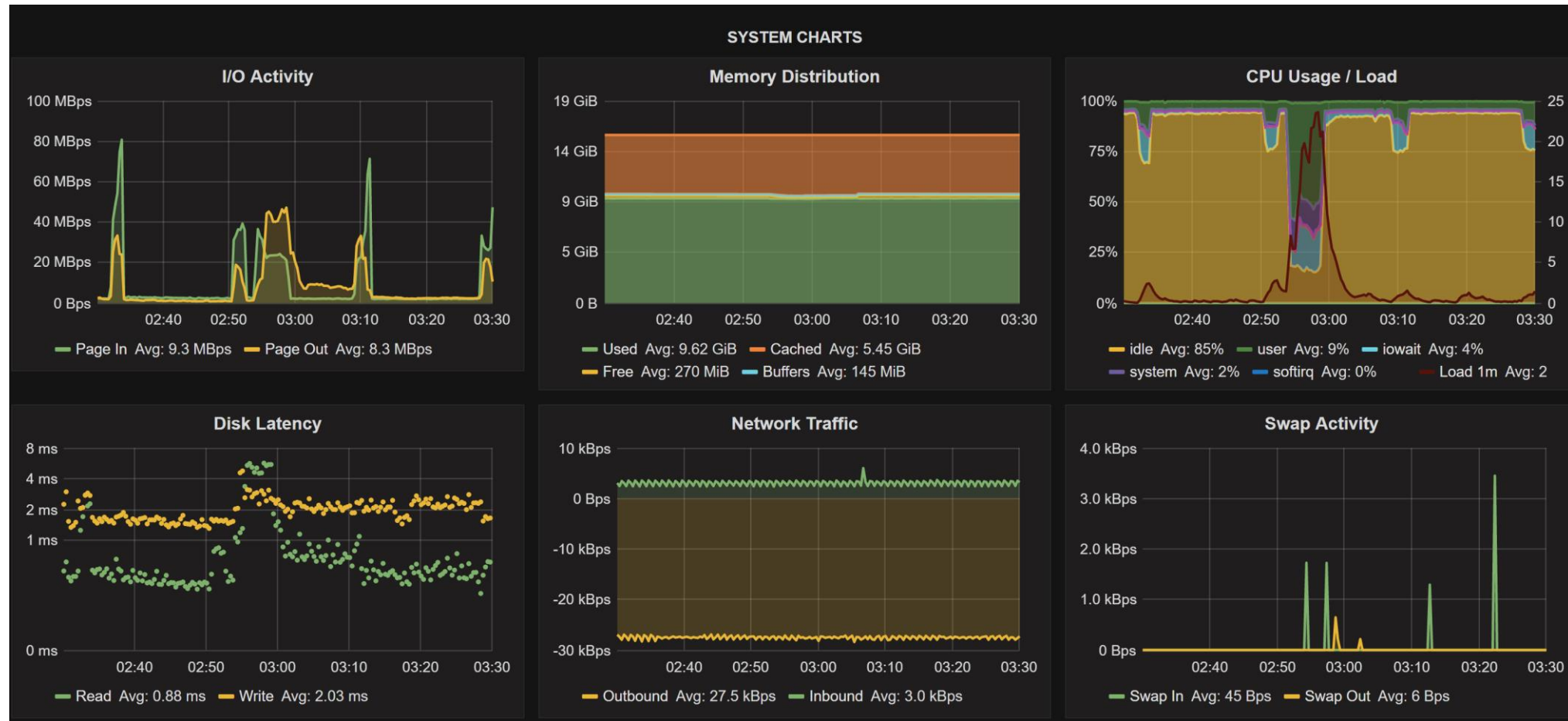
For the User ?

Get Docker Container for “Server Part”

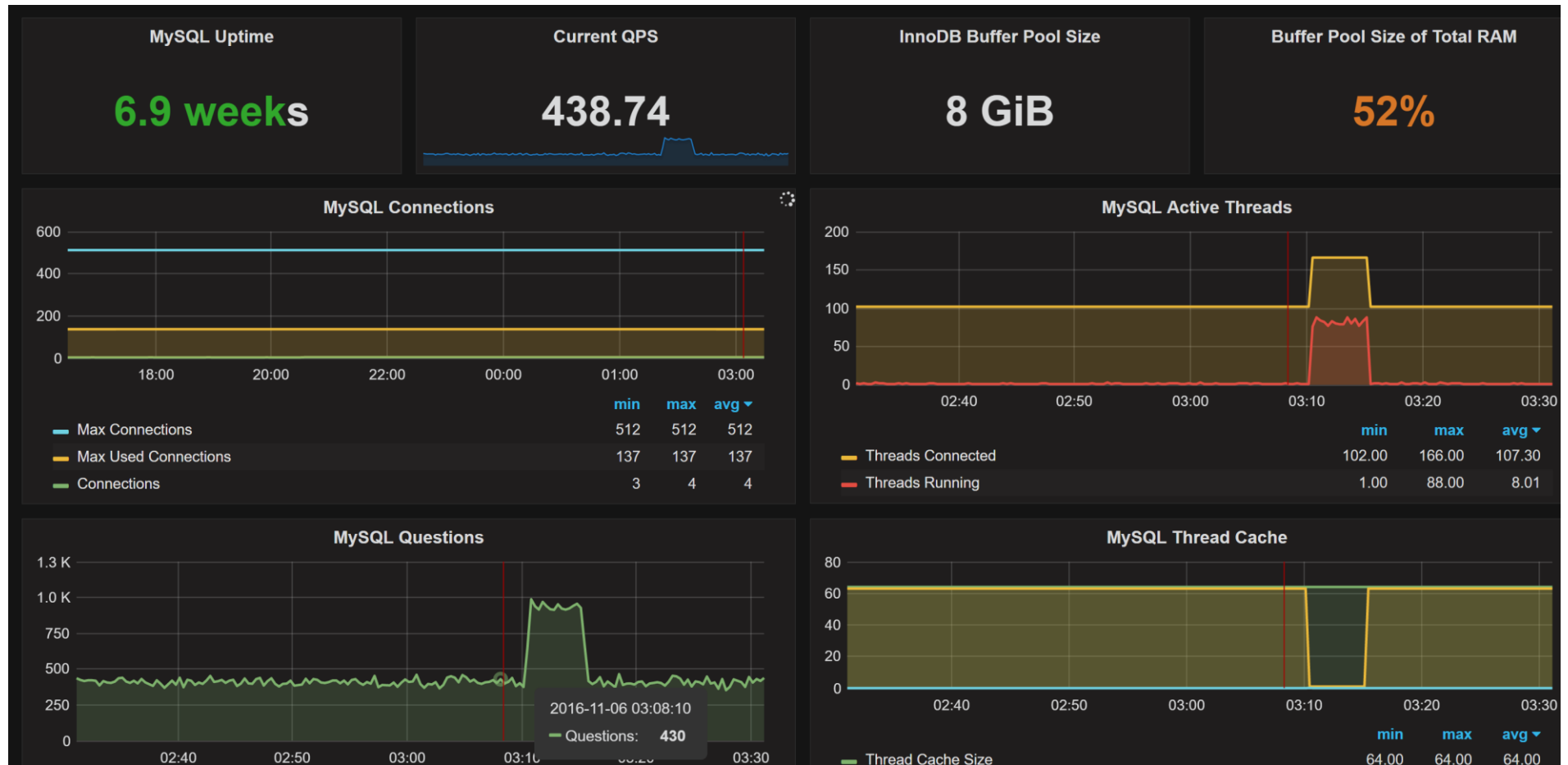
Install the “Agent” on MySQL or MongoDB Servers

Point the agent to the right server location

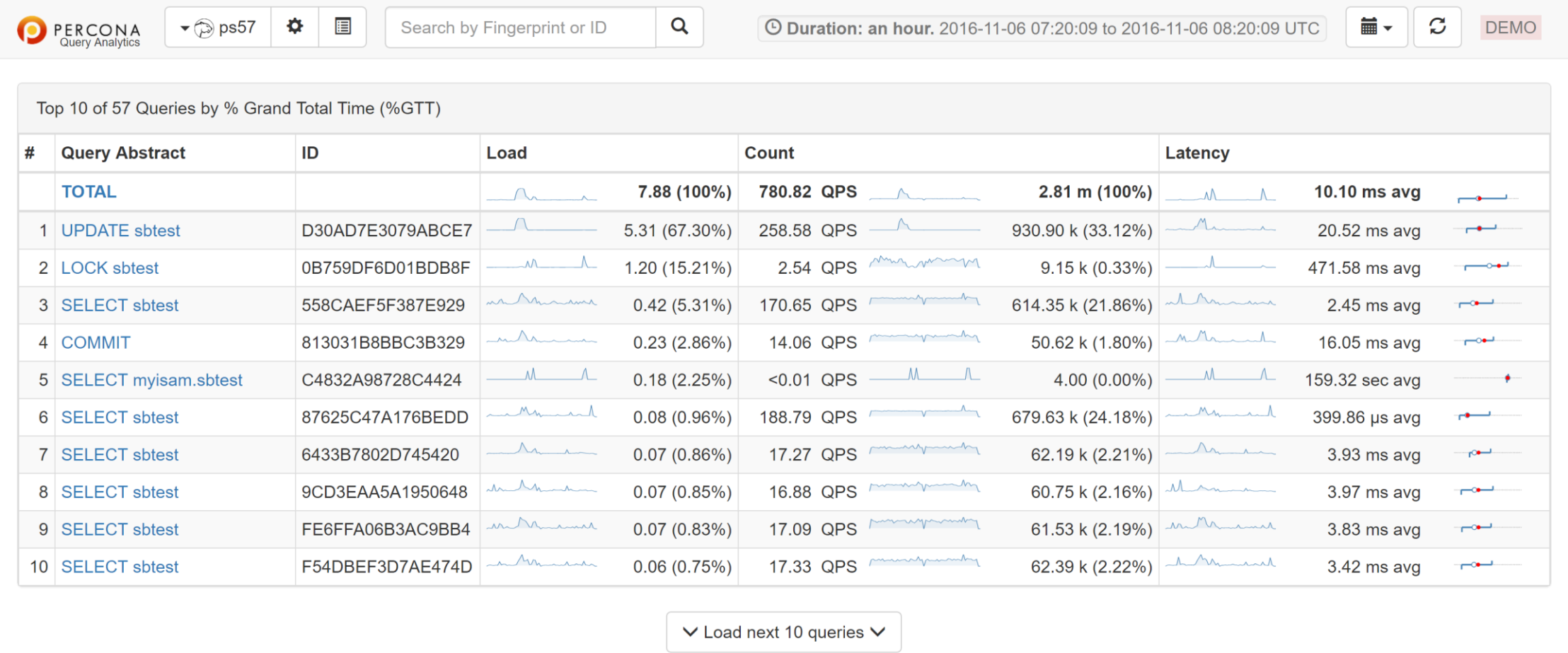
Insights on Operating Systems layer



Insights on MySQL Layer



Find **What** queries are causing load

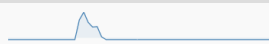


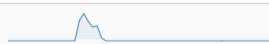

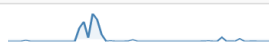








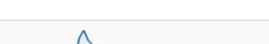

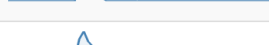



Why are they causing this load

UPDATE sbtest

D30AD7E3079ABCE7

Selected query class: 930.90 k Queries (258.58 QPS, 67.30%, 5.31 Load) | Total: 2.81 m Queries (780.82 QPS, 100.00%, 7.88 Load)

Metrics	Rate/Sec	Sum	Per Query Stats
Query Count	259.12 (per sec) 	932.85 k 32.40% of total	
Query Time	5.31 load (67.16%) 	19101.45 sec 67.16% of total	5.25 ms avg 
Lock Time	1.38 (avg load) 	4965.60 sec 51.50% of total 15.13% of query time	793.79 µs avg 
Innodb Row Lock Wait	<0.01 (avg load) 	28.14 sec 42.03% of total 1.44% of query time	75.79 µs avg 
Innodb IO Read Wait	<0.01 (avg load) 	35.85 sec 2.47% of total 10.93% of query time	573.60 µs avg 
Innodb Read Ops	2.48 (per sec) 	8.91 k 1.86% of total	0.00 avg 
Innodb Read Bytes	39.61 KB (per sec) 	139.25 MB 1.86% of total 16.00 KB avg io size	3.50 KB avg 
Innodb Distinct Pages	-	-	6.03 avg 
Bytes Sent	13.18 KB (per sec) 	46.35 MB 1.72% of total	52.00 Bytes avg 
Rows Examined	258.17 (per sec) 	929.43 k 0.64% of total 0.00 per row sent	0.88 avg 

... And **How** to Fix Them

EXPLAIN											
Database: <input type="text" value="innodb"/>				<input type="button" value="EXPLAIN"/>							
Id	SelectType	Table	Partitions	CreateTable	Type	PossibleKeys	Key	KeyLen	Ref	Rows	Extra
1	SIMPLE	sbtest1			const	PRIMARY	PRIMARY	4	const	1	

CREATE

STATUS

```
CREATE TABLE `sbtest1` (  
  `id` int(10) unsigned NOT NULL AUTO_INCREMENT,  
  `k` int(10) unsigned NOT NULL DEFAULT '0',  
  `c` char(120) NOT NULL DEFAULT '',  
  `pad` char(60) NOT NULL DEFAULT '',  
  PRIMARY KEY (`id`),  
  KEY `k_1` (`k`)  
) ENGINE=MyISAM AUTO_INCREMENT=100000001 DEFAULT CHARSET=latin1 |
```

CREATE

STATUS

Name	Value
Name	sbtest1
Engine	MyISAM
Version	10
RowFormat	Fixed
Rows	100.00 m
AvgRowLength	189.00 Bytes
DataLength	17.60 GB
MaxDataLength	756.00 GB
IndexLength	1.70 GB

Find out More

- Talk to us at the Booth
- Check out our live demo <http://pmmdemo.percona.com>



PERCONA

Monitoring and Management



Database Performance Matters