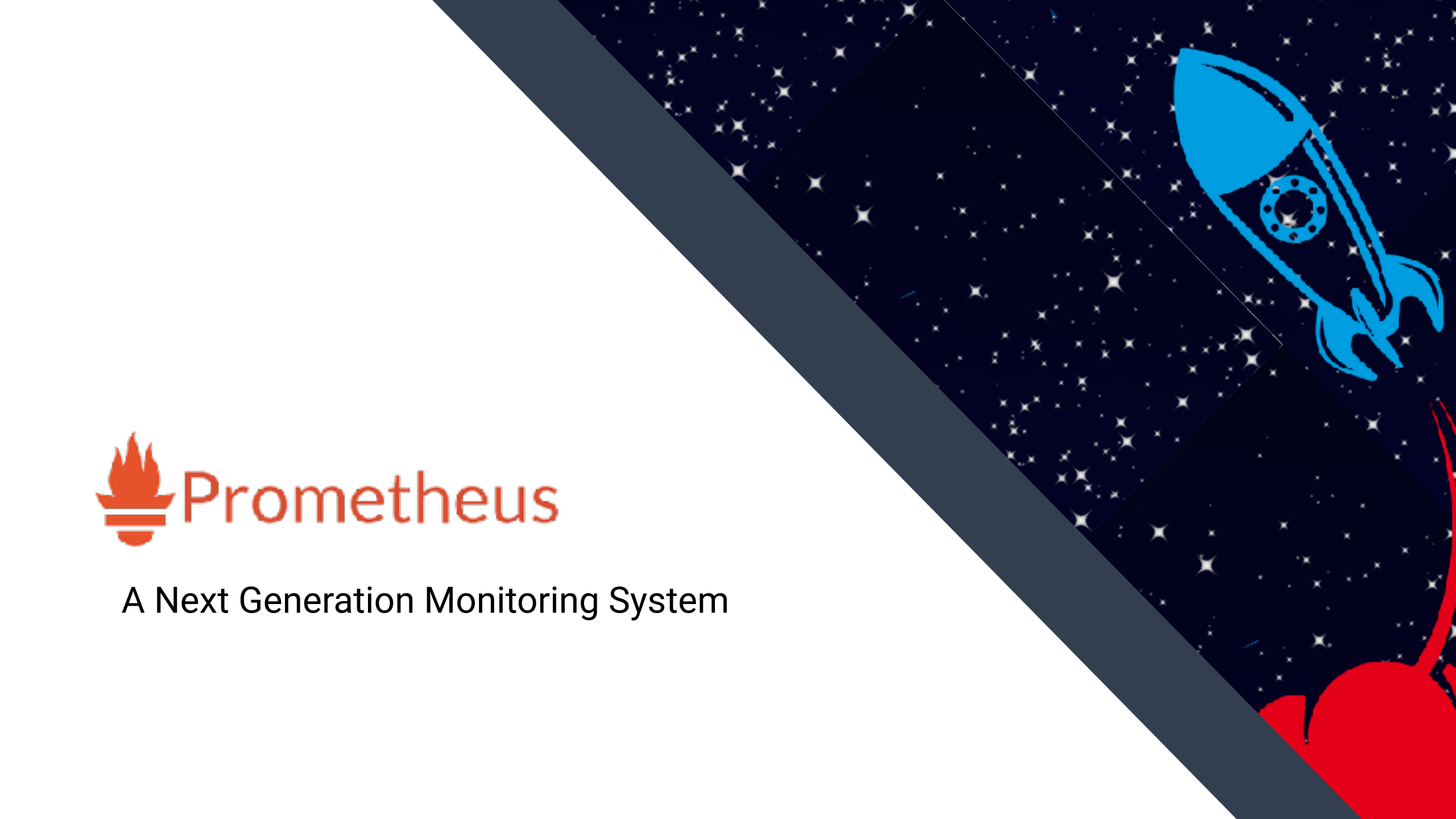


Prometheus

A Next Generation Monitoring System

Who am I?

Richard Steinbrück
MC Store

DevOps, Automation, Puppet, Ansible, Monitoring …

MediaMarktSaturn
1st Tech Summit

Why monitor?

There are many reasons to monitor a system, including:

Analyzing long-term trends

- How big is my database and how fast is it growing?

Comparing over time or experiment groups

- How much better is my memcache hit rate with an extra node? Is my site slower than it was last week?

Alerting

- Something is broken, and somebody needs to fix it right now!

Building dashboards

- Dashboards should answer basic questions about your service

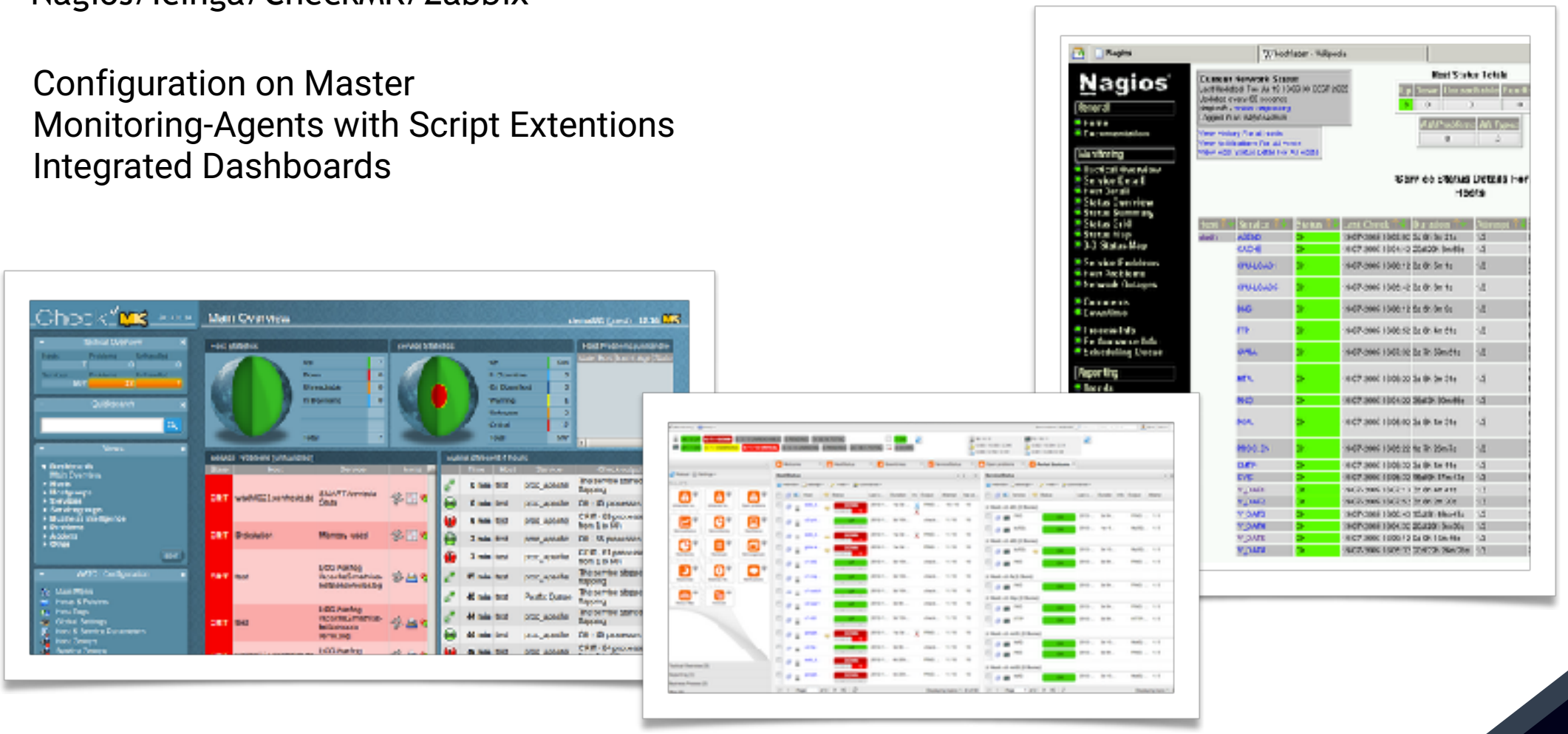
Conducting ad hoc retrospective analysis

- Our latency just shot up; what else happened around the same time?

How Monitoring looks today?

Nagios/Icinga/CheckMK/Zabbix

Configuration on Master
Monitoring-Agents with Script Extentions
Integrated Dashboards



Prometheus

Inspired by Google's Borgmon monitoring system

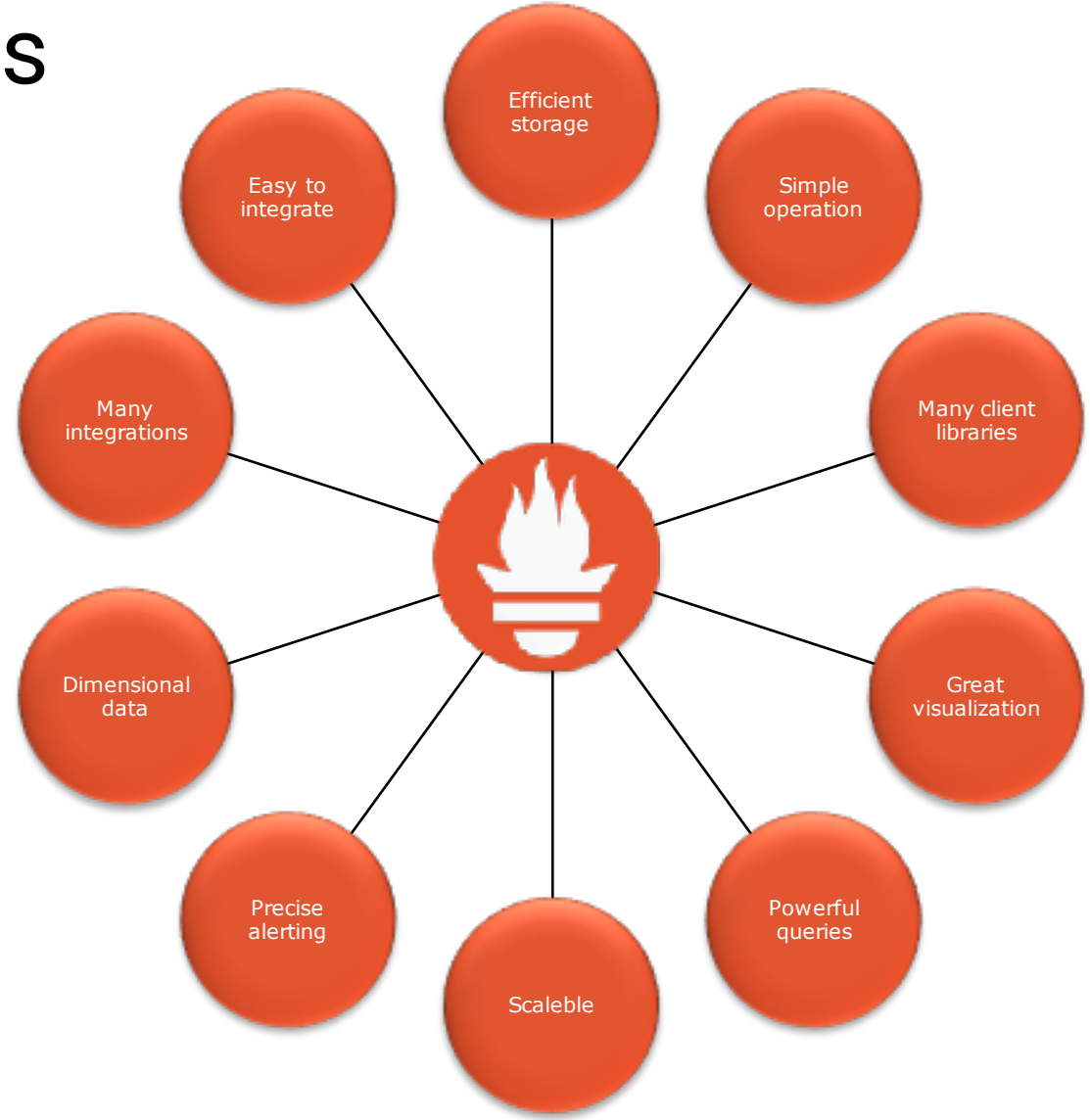
Started in 2012 by ex-Googlers working in Soundcloud as an open source project.

Mainly written in Go. Version 1.0 released in 2016

500+ Companies using it including Digital Ocean, CoreOS, Airtame and Jodel

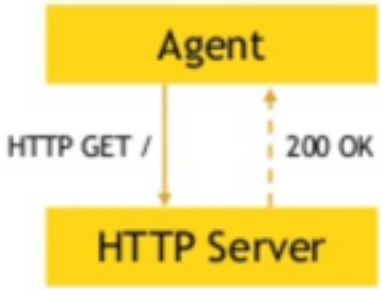
MediaMarktSaturn
1st Tech Summit

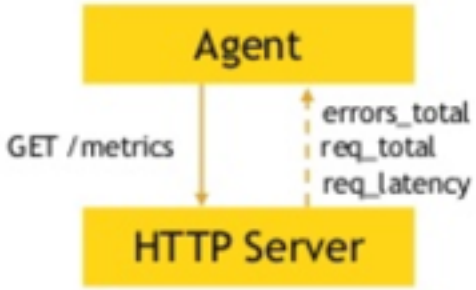
Selling Points



MediaMarktSaturn
1st Tech Summit

Blackbox vs. Whitebox Monitoring





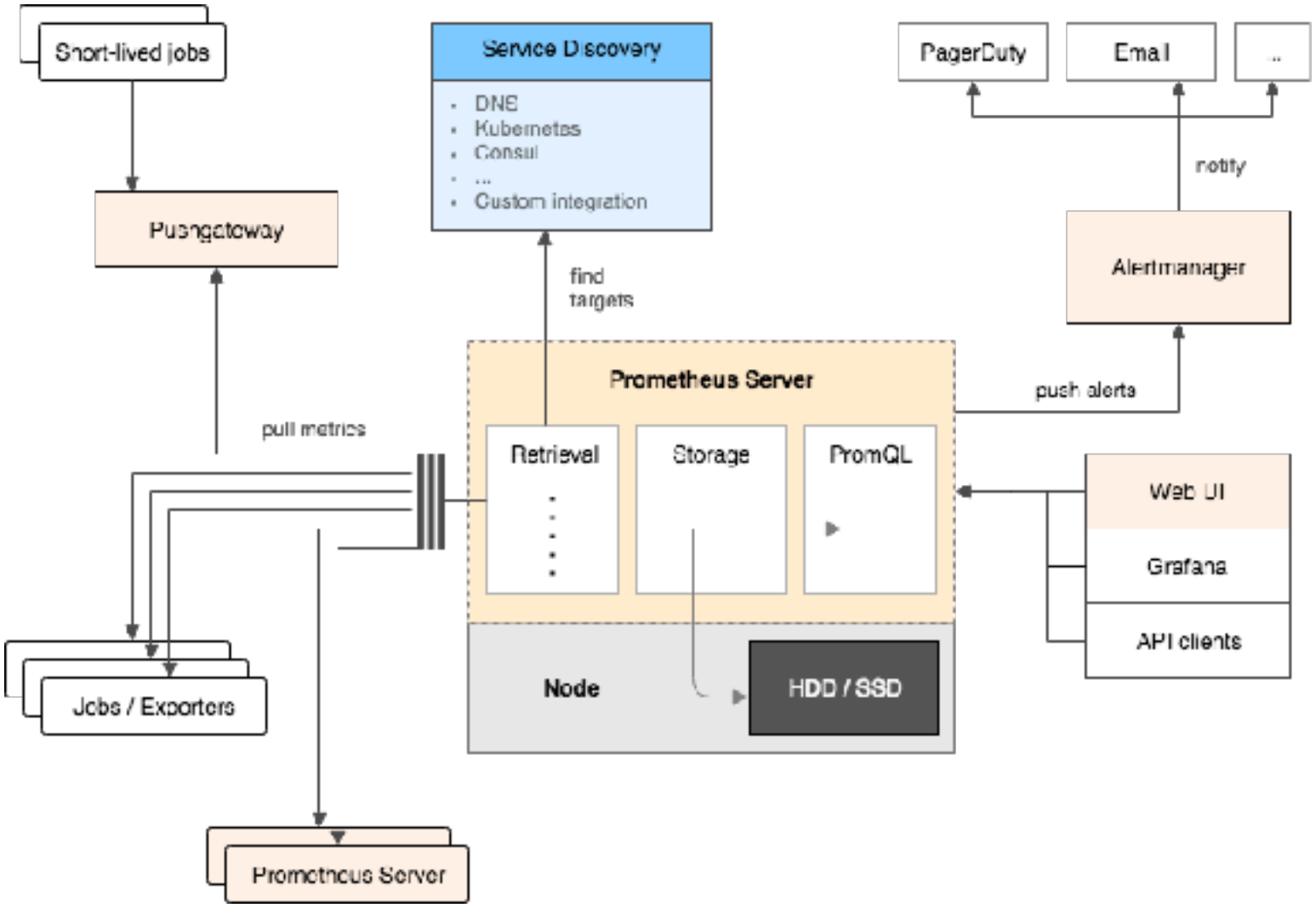
MediaMarktSaturn
1st Tech Summit

DO

ONE THING

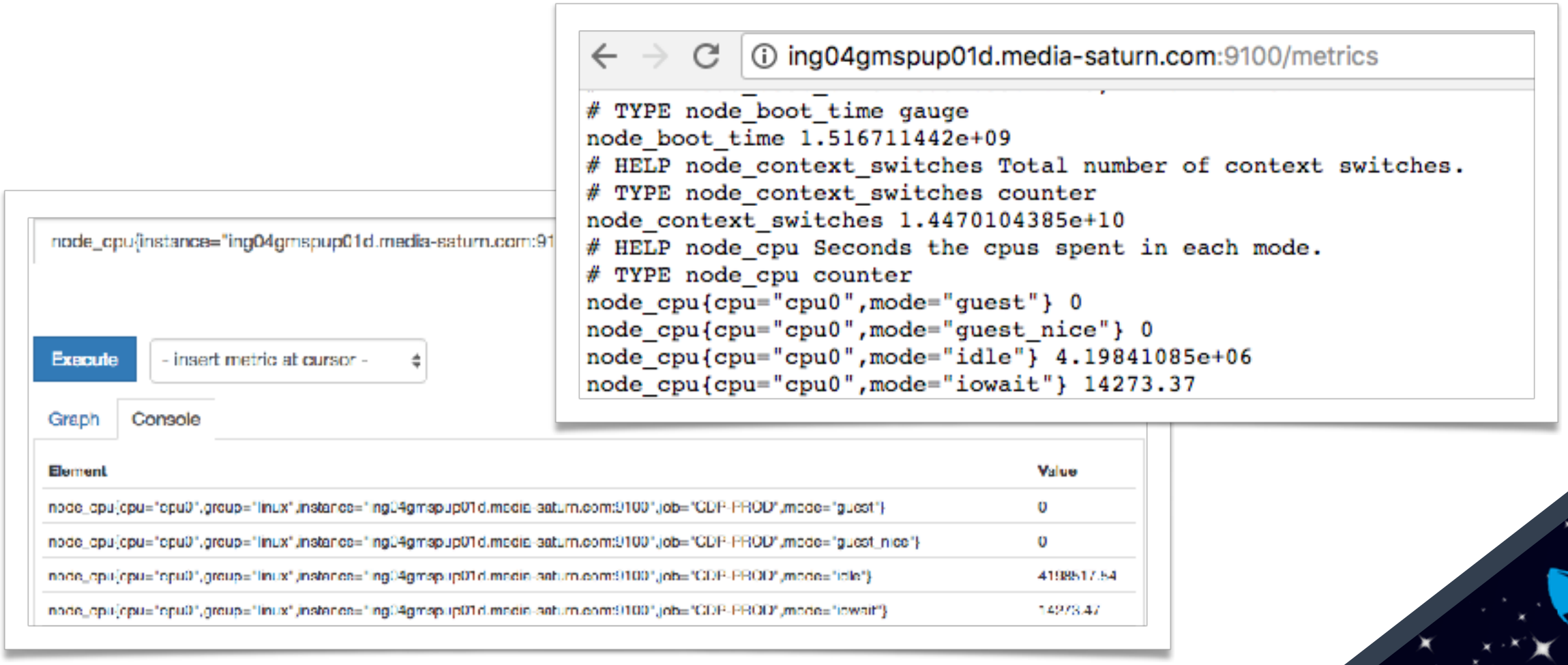
AND DO IT WELL!

Architecture - Overview



MediaMarktSaturn
1st Tech Summit

Architecture - Exporter



MediaMarktSaturn
1st Tech Summit

Easy to Integrate

For DEV's: Go, Java or Scala, Python, Ruby, Bash, C++, Common Lisp, Elixir, Erlang, Haskell, .NET / C#, Node.js, PHP, Rust

For OP's: Node_Exporter, WMI_Exporter, Nginx, Apache, MySQL, Postgres, AWS, Google Stackdrive Varnish, RabbixMQ, IPMI, MongoDB, JMX, SNMP, Jenkins, Docker, Nagios … and many more ;)

MediaMarktSaturn
1st Tech Summit

Architecture - Services Discovery

Microsoft Azure

Services Discovery configurations allow retrieving scrape targets from …
azure, consul, dns, ec2, openstack, file, gce, kubernetes, marathon, nerve, serverset, triton … and many more

ing04gmspup01d.media-saturn.com:9898/gmsrest/prometheussd/targets

```
- targets:
  - TQA-WIN-D00938.media-saturn.com:9182
  - TQA-WIN-D00940.media-saturn.com:9182
  - TQA-WIN-D00941.media-saturn.com:9182
  - TQA-WIN-D01026.media-saturn.com:9182
  - TQA-WIN-D01027.media-saturn.com:9182
  - TQA-WIN-D01046.media-saturn.com:9182
  - TQA-WIN-D01117.media-saturn.com:9182
  - TQA-WIN-D01128.media-saturn.com:9182
  - TQA-WIN-D01133.media-saturn.com:9182
  - TQA-WIN-D01141.media-saturn.com:9182
  - TQA-WIN-D01142.media-saturn.com:9182
  - TQA-WIN-D01154.media-saturn.com:9182
```

Query your data

Top 5 Docker images by CPU

```
topk(5,
  sum by (image)(
    rate(container_cpu_usage_seconds_total{
      image=~"prod.docker-hub.media-saturn.com/storeops/.*"}[5m])
  )
)
```

Disk Will Fill in 4 Hours

```
predict_linear(node_filesystem_free[1h], 4*3600) < 0
```

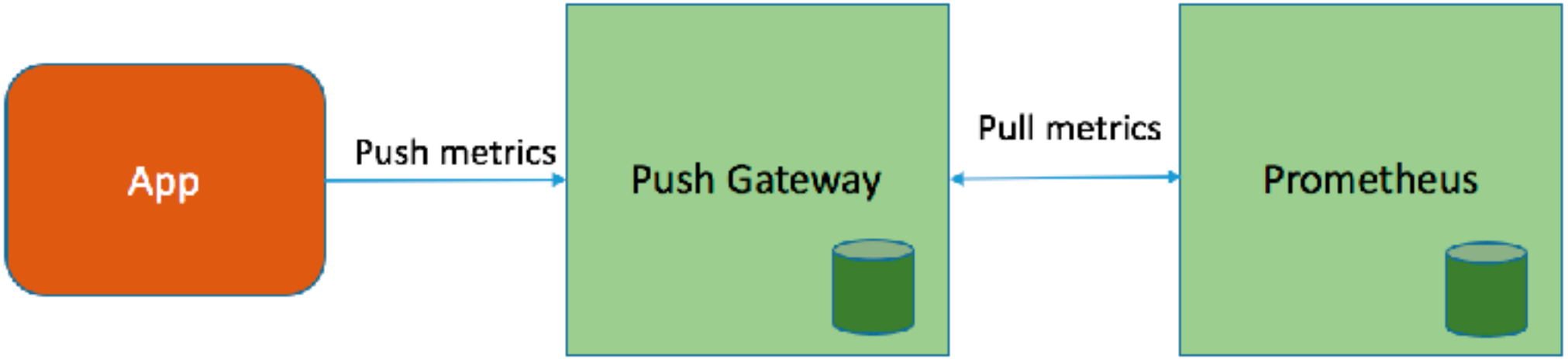
Which of your Alerts have been firing the most?

```
sum(
  sort_desc(sum_over_time(ALERTS{alertstate=firing}[24h]))
  ) by (alertname)
```


MediaMarktSaturn
1st Tech Summit

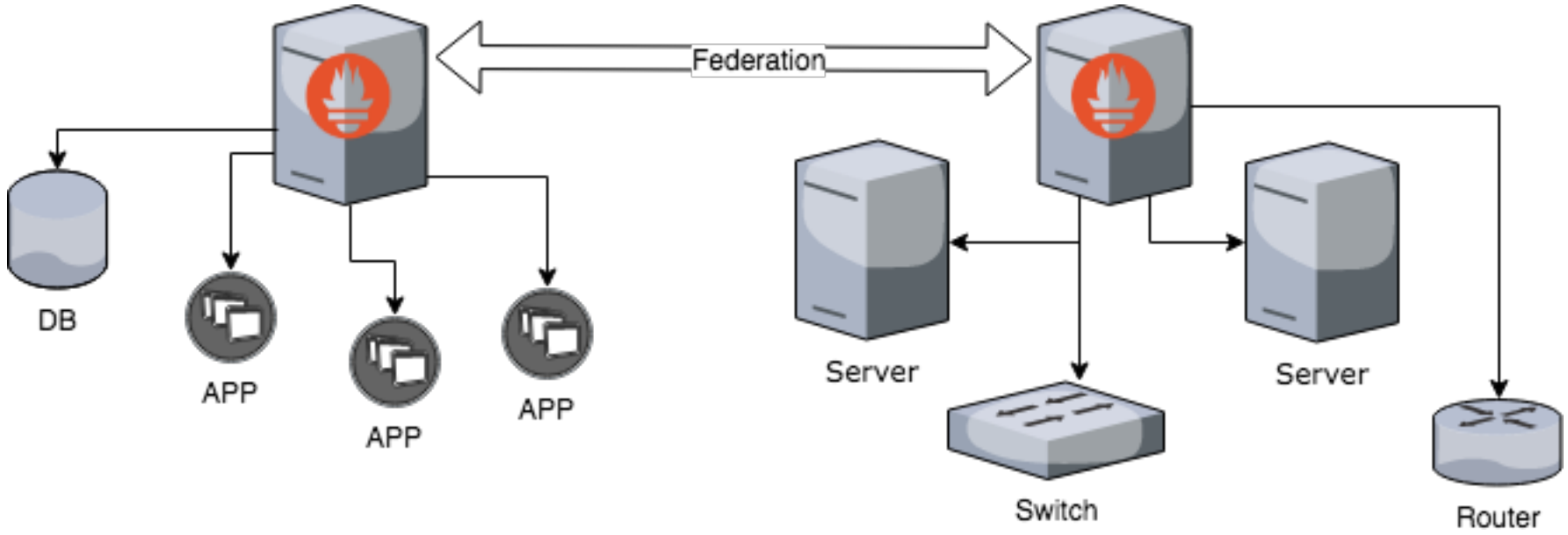
Architecture - Pushgateway

```
echo "some_metric 3.14" | curl --data-binary @- http://pushgateway:9091/metrics/job/some_job
```



MediaMarktSaturn
1st Tech Summit

Architecture - Federation



Federation allows a Prometheus server to scrape selected time series from another Prometheus server.

MediaMarktSaturn
1st Tech Summit

Alerting

```
- alert: InstanceDown
  expr: up == 0
  for: 1m
  labels:
    severity: critical
  annotations:
    description: "Instance {{ $labels.instance }} is down"

- alert: WebAppIsDown
  expr: probe_http_status_code != 200
  for: 30s
  labels:
    severity: warning
  annotations:
    description: "Webpage {{ $labels.instance }} is Down!
```


MediaMarktSaturn
1st Tech Summit

LIVE DEMO

Resources

Slides und Code: https://github.com/steinbrueckri/MS_TechSummit_2018
Query Examples: https://github.com/infinityworks/prometheus-example-queries

https://prometheus.io/

MediaMarktSaturn
1st Tech Summit