

Prometheus at Prezi

Replacing 10 years of anti-patterns



David Guerrero
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PromCon EU 2019
November 08
Munich





What's
Prezi?



What's Prezi?



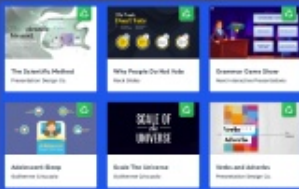
Create presentations



What's Prezi?



Create presentations



Browse presentations

Our scale



Our scale

100+ million users



Our scale

100+ million users

~15 engineering teams



Our scale

100+ million users

~15 engineering teams

~100 micro services



Our scale

100+ million users

~15 engineering teams

~100 micro services

 python™  Scala  GO

Web, desktop & mobile clients



Monitoring...



Monitoring...

10 years of
organic build up

+

Lack of best
practices



Monitoring...

10 years of
organic build up

+

Lack of best
practices



Services without dashboards or alerts

Thousands of alerts

Alert fatigue

Cause based alerts

Unstable

Many moving parts

High maintenance cost

Not ready for Kubernetes

Log based

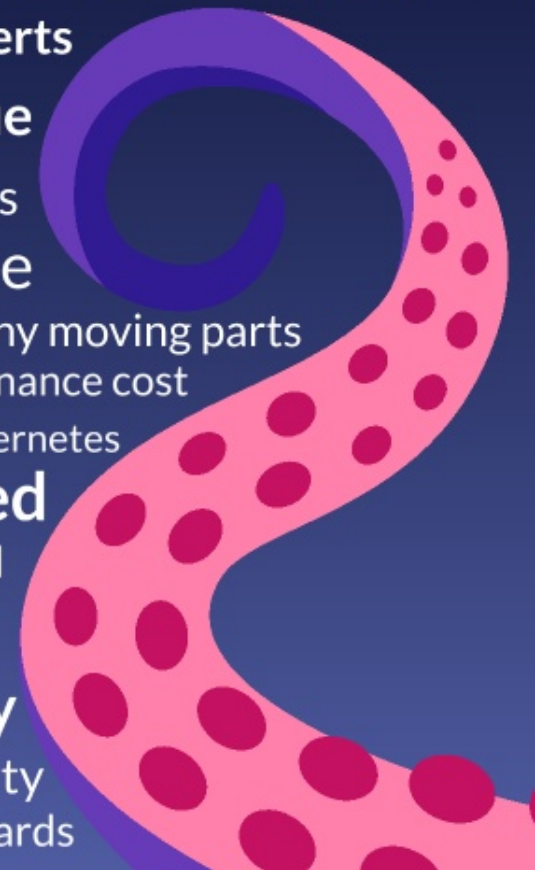
Icinga (nagios) based

1 minute resolution

2+ minutes of delay

Poor availability

Very slow dashboards



How did we get there?

Our previous architecture, from service to alert

How did we get there?

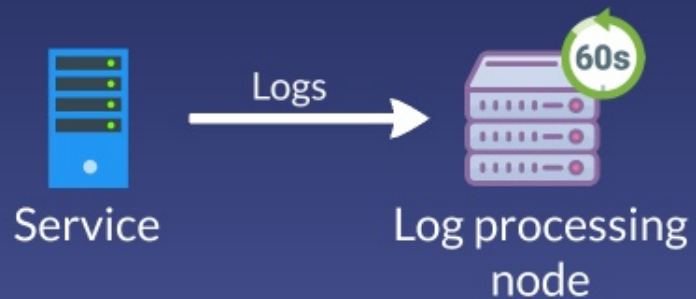
Our previous architecture, from service to alert



Service

How did we get there?

Our previous architecture, from service to alert



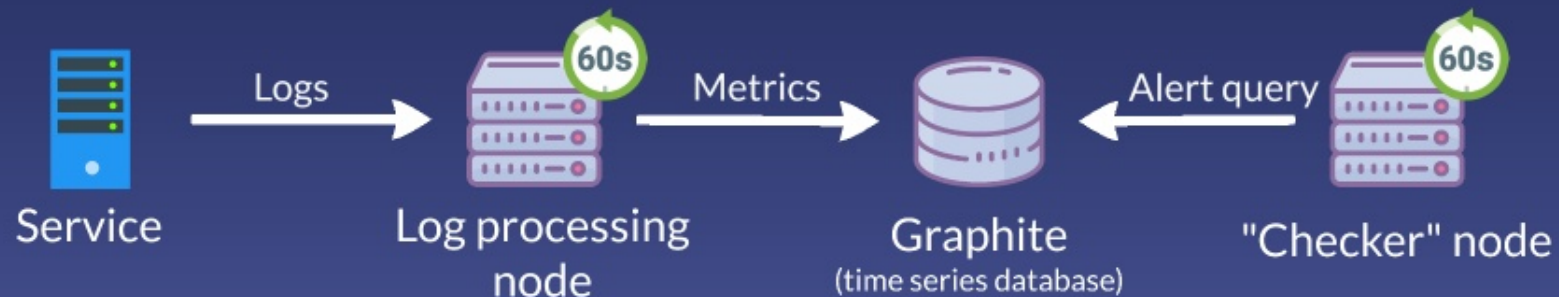
How did we get there?

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How did we get there?

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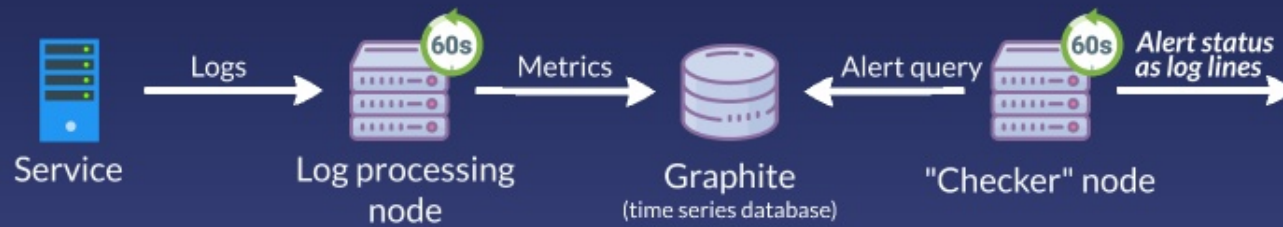
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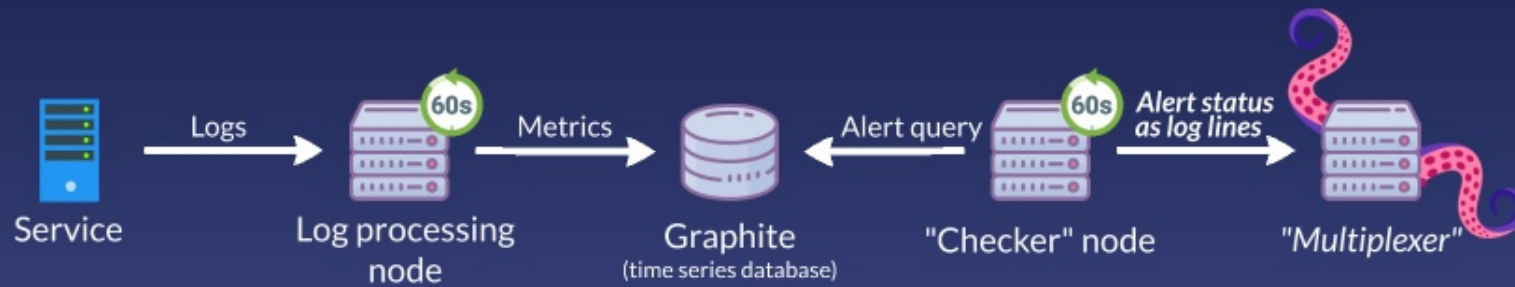
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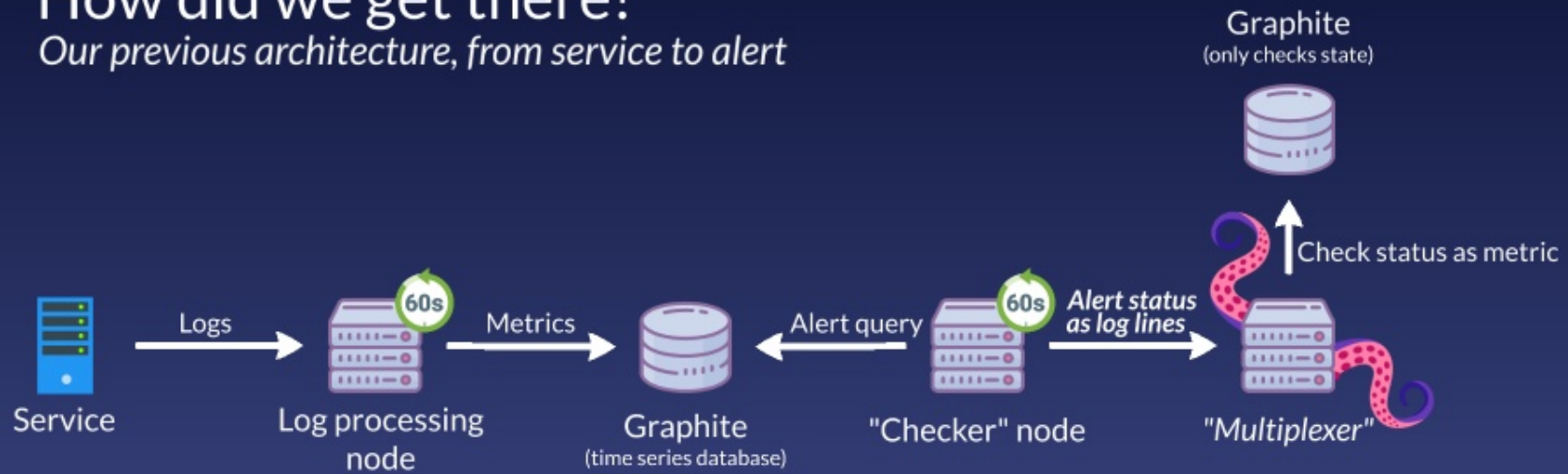
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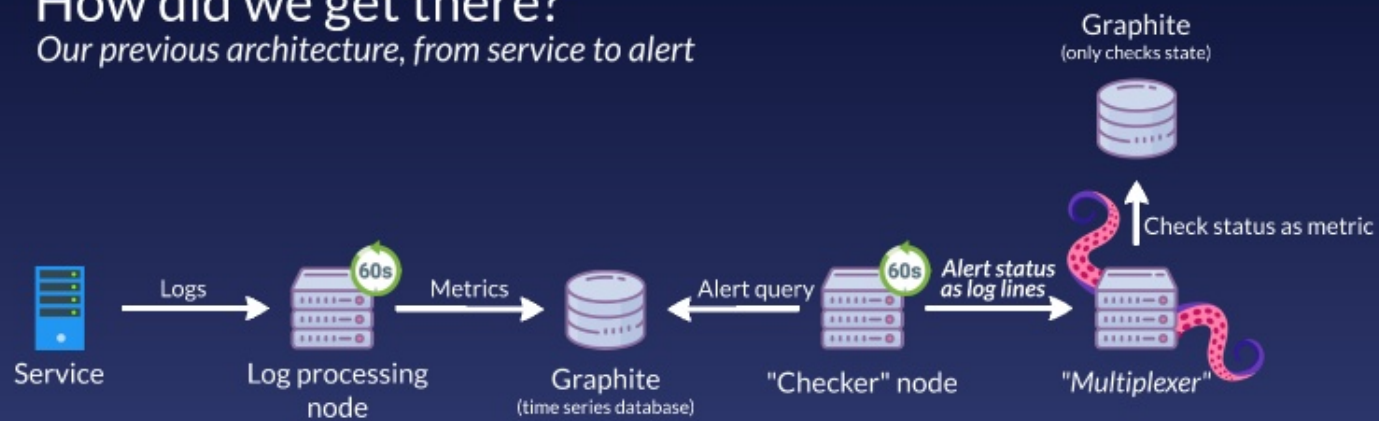
How did we get there?

Our previous architecture, from service to alert



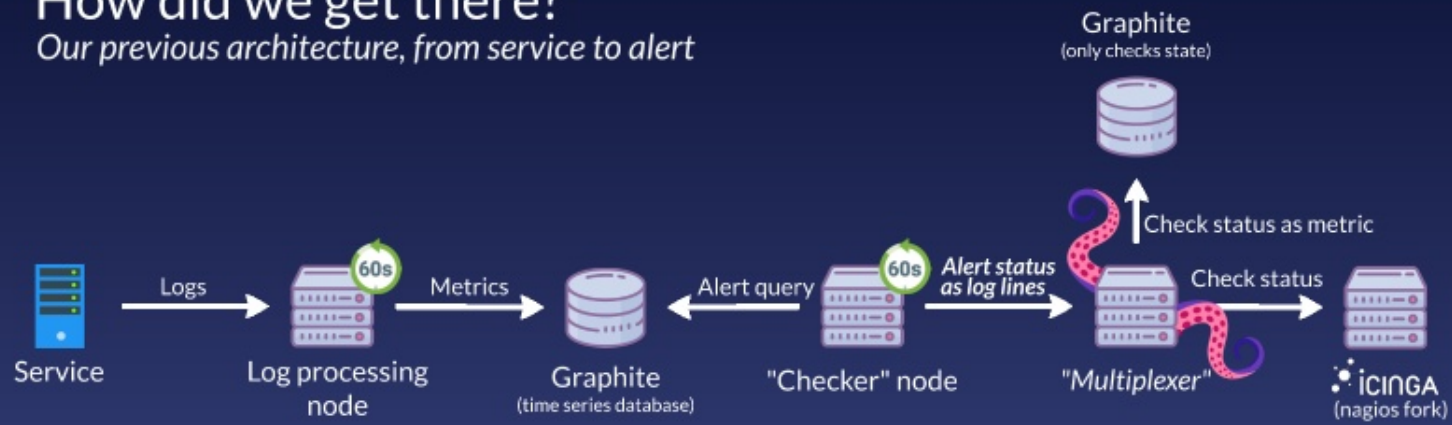
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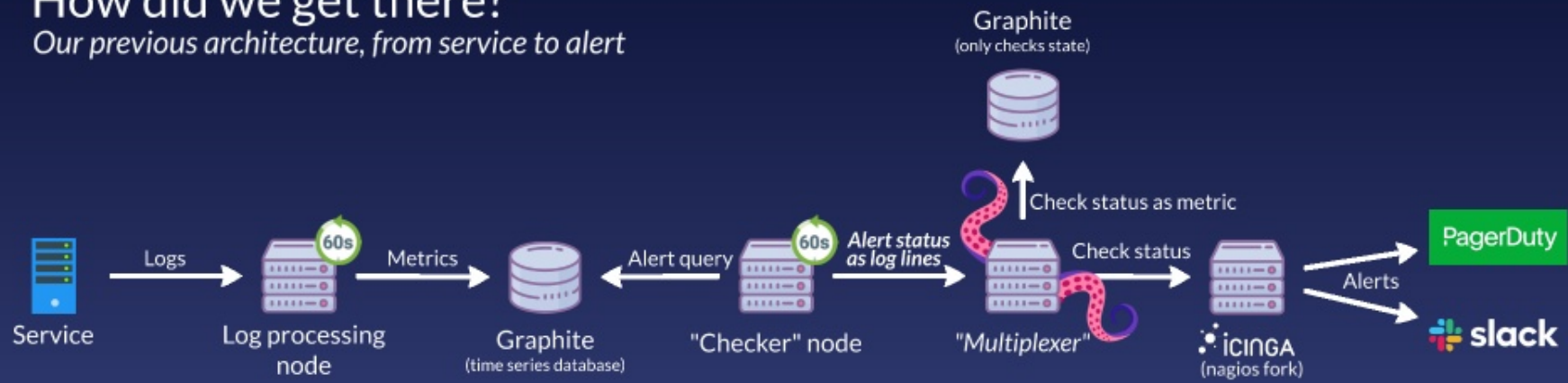
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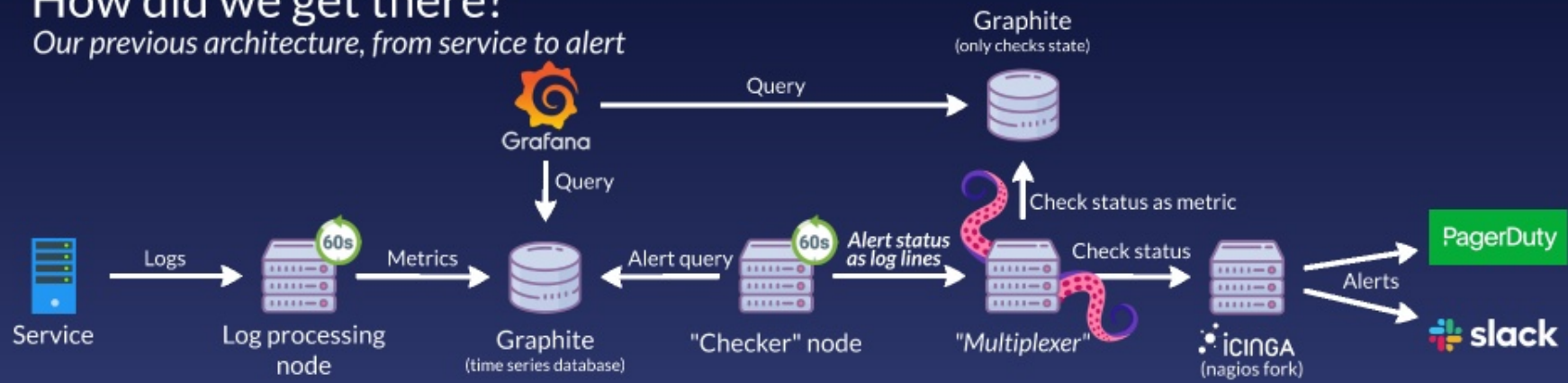
How did we get there?

Our previous architecture, from service to alert



How did we get there?

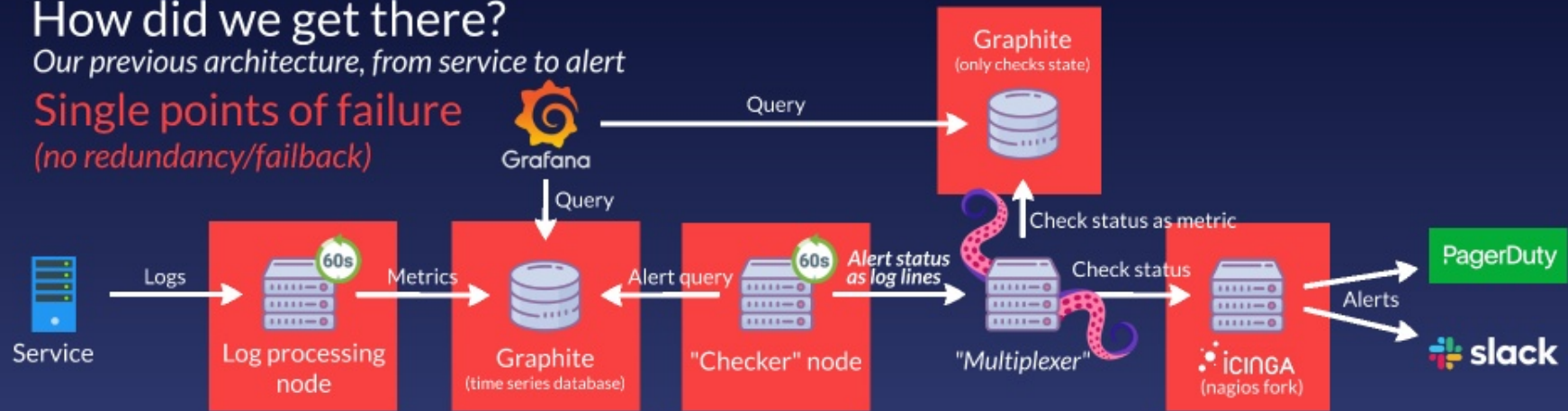
Our previous architecture, from service to alert



How did we get there?

Our previous architecture, from service to alert

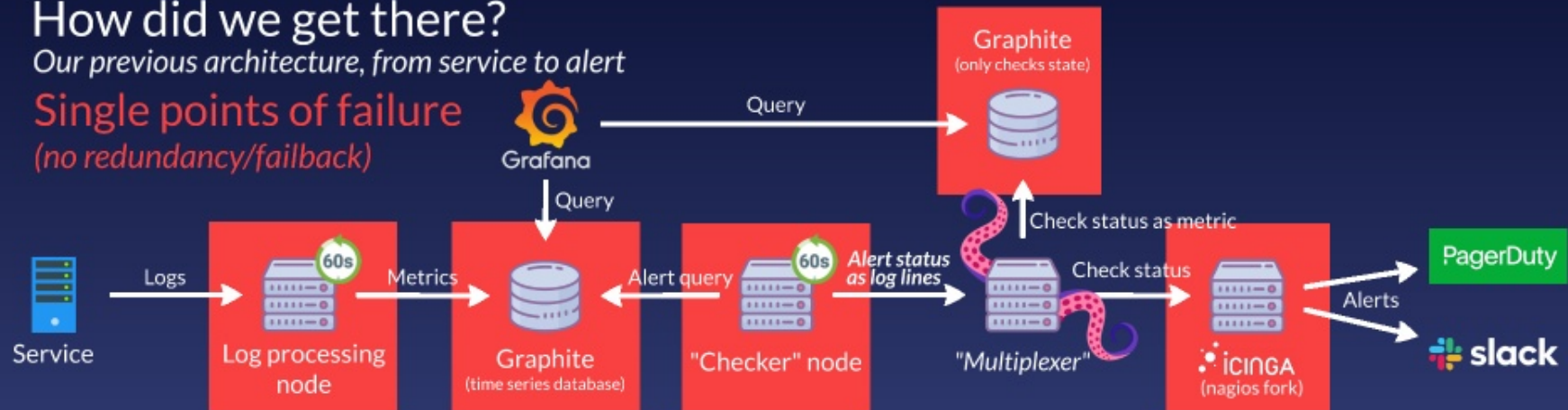
Single points of failure
(no redundancy/failback)



How did we get there?

Our previous architecture, from service to alert

Single points of failure
(no redundancy/failback)



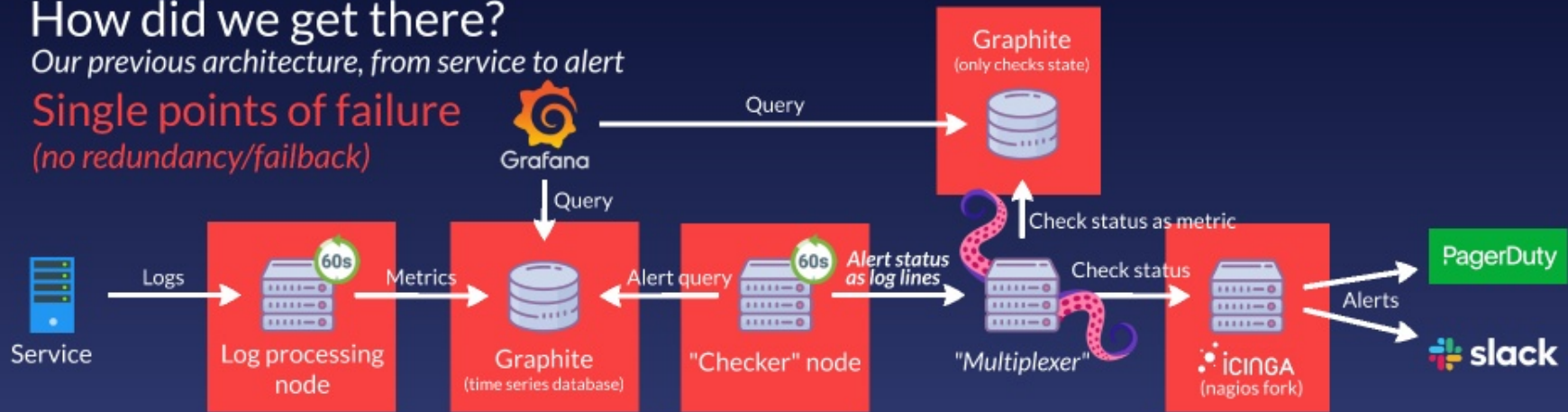
New generation

High availability setup

How did we get there?

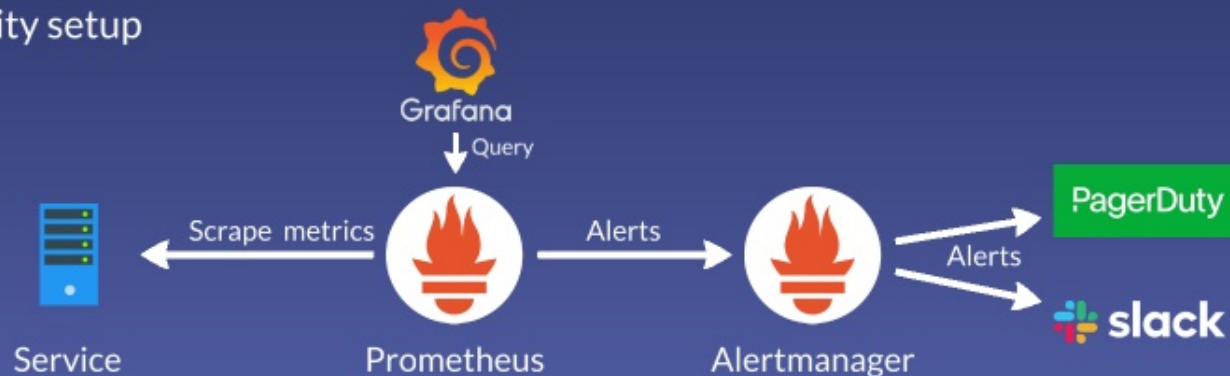
Our previous architecture, from service to alert

Single points of failure
(no redundancy/failback)



New generation

High availability setup



Lack of best practices

Lack of best practices



No dashboard guidelines

Lack of best practices



No dashboard guidelines



No alerting guidelines

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Selling Prometheus

- ▶ Set clear goals
- ▶ Experience and planning
- ▶ Measure performance

▶ Set clear goals

► Set clear goals



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Thousands of alerts
Alert fatigue
Cause based alerts
Unstable
Many moving parts
High maintenance cost
Not ready for Kubernetes
Log based
Icinga (nagios) based
1 minute resolution
2+ minutes of delay
Poor availability
Very slow dashboards

► Set clear goals



Alerting quality

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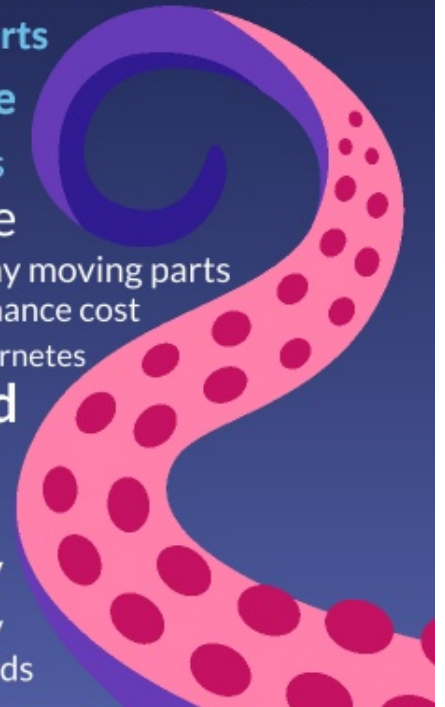
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► Set clear goals



Alerting quality



User experience

Services without dashboards or alerts

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Log based

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Very slow dashboards

► Set clear goals



Alerting quality



User experience



**Uniformity and
future proofing**

Services without dashboards or alerts

Thousands of alerts

Alert fatigue

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Many moving parts

High maintenance cost

Not ready for Kubernetes

Log based

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Poor availability

Very slow dashboards

► Experience and planning

► Experience and planning



Champion

Have an expert with a vision

► Experience and planning



Champion

Have an expert with a vision



Experiment

Limited experiment on our CI in 2017

► Experience and planning



Champion

Have an expert with a vision



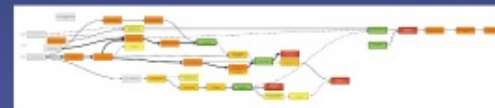
Experiment

Limited experiment on our CI in 2017




Scope & plan

Estimated 6 months to transition
Full time for 5 engineers



▶ Measure performance

The  **Alerting quality** example

▶ Identify key metrics

▶ Instrument

▶ Measure

► Identify key metrics

► Identify key metrics

Total pages

► Identify key metrics



Total pages

Acknowledgement rate

Neither ignored nor auto-resolved

► Identify key metrics



Total pages

Acknowledgement rate

Neither ignored nor auto-resolved

Actionable rate

Real and requires urgent human intervention

▶ Instrument

▶ Instrument



Qualibot APP 12:10 PM

Hi david.guerrero! I heard that you got a Pager at `2019-10-23T04:42:53Z` on `logsterservice` about

```
[FIRING:1] DiskUsage_logsterservice-structured logsterservice  
pagerduty:logsterservice (/dev/nvme2n1 logsterservice-stru
```

Was this PD actionable? Did the resolution require human intervention?
Or did it just spam you? ([What is this?](#))

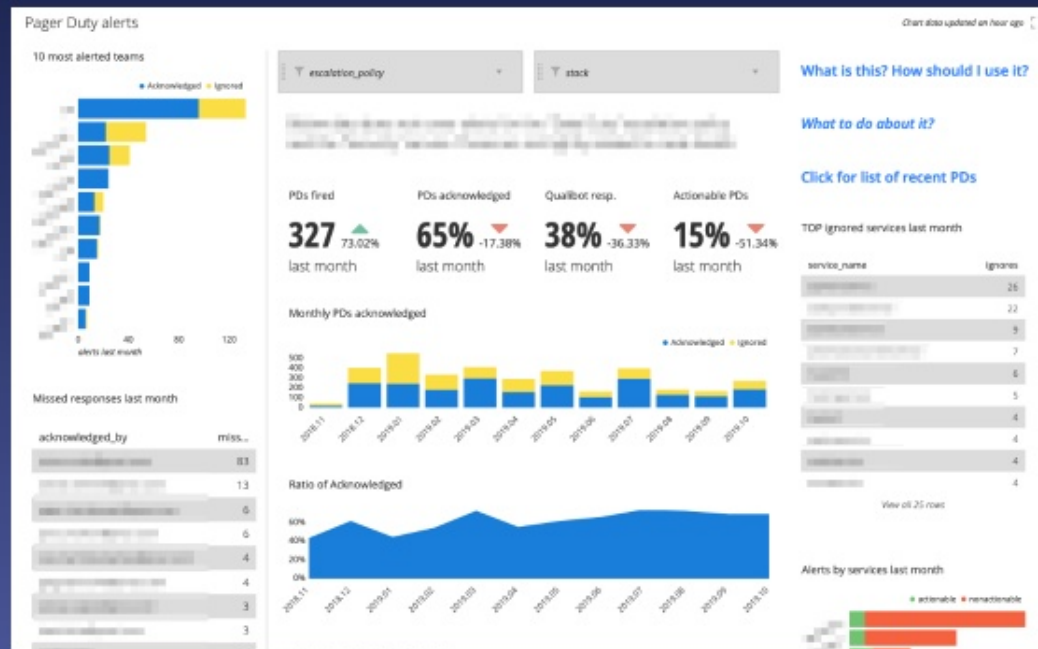
Actionable

Non-actionable

Duplicate

► Measure

► Measure



► Measure performance

The 📱 **Alerting quality** example

► Identify key metrics

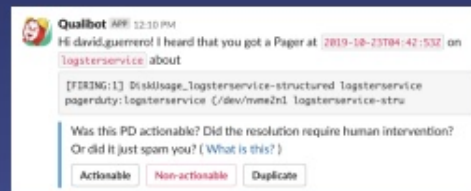


Total pages

Acknowledgement rate
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Actionable rate
Real and requires urgent human intervention

► Instrument



► Measure



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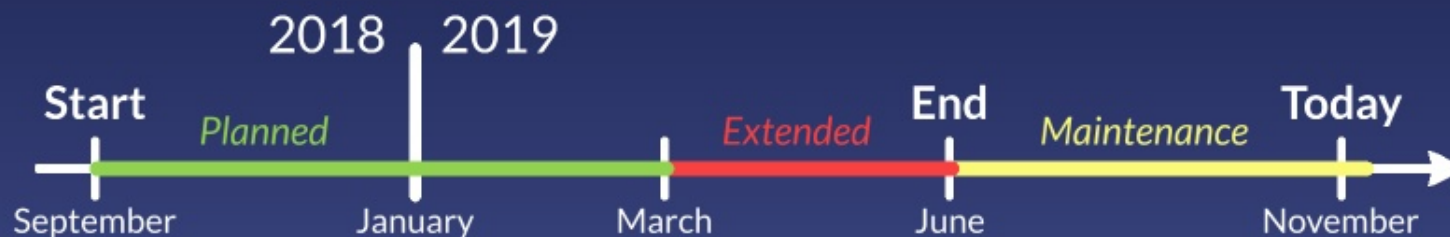
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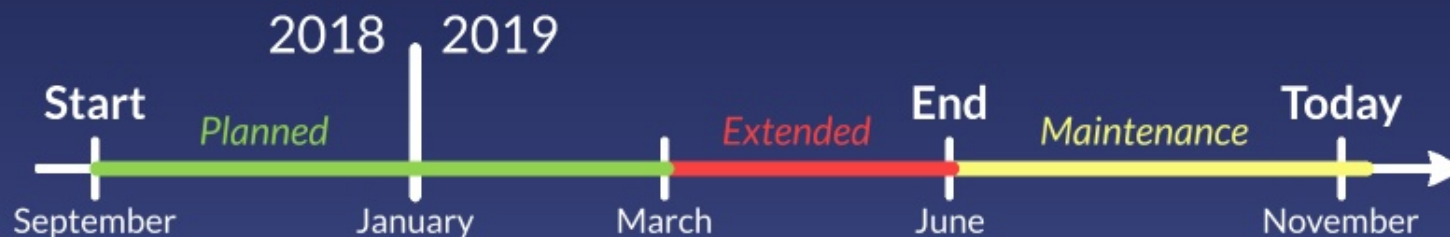
Replacing 10 years of anti-patterns

In practice



Replacing 10 years of anti-patterns

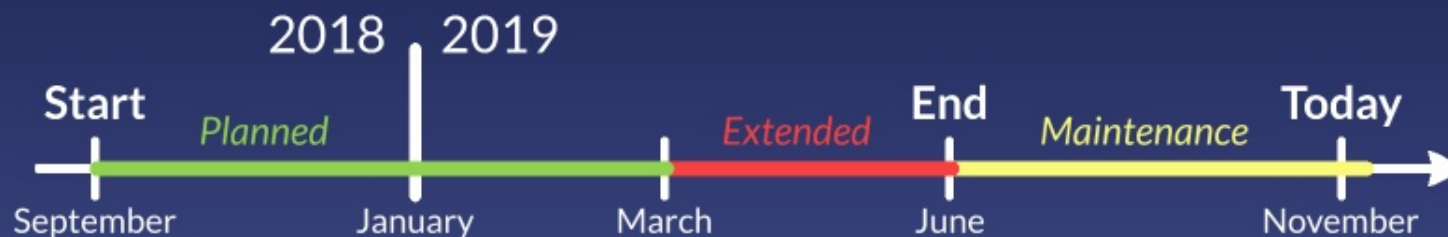
In practice



Implementation

Replacing 10 years of anti-patterns

In practice



Implementation



Education



Implementation



Implementation



Configuration generation



```
service_name: folderservice

configs:
- prometheus_stack: prometheus-classic
  monitoring:
  - include: django
  - include: node
  alerting:
  - environment_name: folderservice-prod
    groups:
    - default-security
    alerts:
    - include: http/status_ratio
      overrides:
      threshold: 0.2
      target: pagerduty

alerting_targets:
- name: pagerduty
  type: pagerduty
  target: folderservice
```

```
service_name: folderservice
```

```
configs:
```

```
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  monitoring:
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Scraping config




```
service_name: folderservice
```

```
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```

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alerting_targets:
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- name: pagerduty
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```
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```

```
  target: folderservice
```

Scraping config

Group of alerts

```
service_name: folderservice
```

```
configs:
```

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```

```
  monitoring:
```

```
    - include: django
```

```
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```
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```

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```
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```
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```
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```
alerting_targets:
```

```
- name: pagerduty
```

```
  type: pagerduty
```

```
  target: folderservice
```

Scraping config

Group of alerts

Alert template

Threshold override

```
service_name: folderservice
```

```
configs:
```

```
- prometheus_stack: prometheus-classic
```

```
  monitoring:
```

```
    - include: django
```

```
    - include: node
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  alerting:
```

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Scraping config

Group of alerts

Alert template

Threshold override

Target management



Implementation



Configuration generation





Implementation

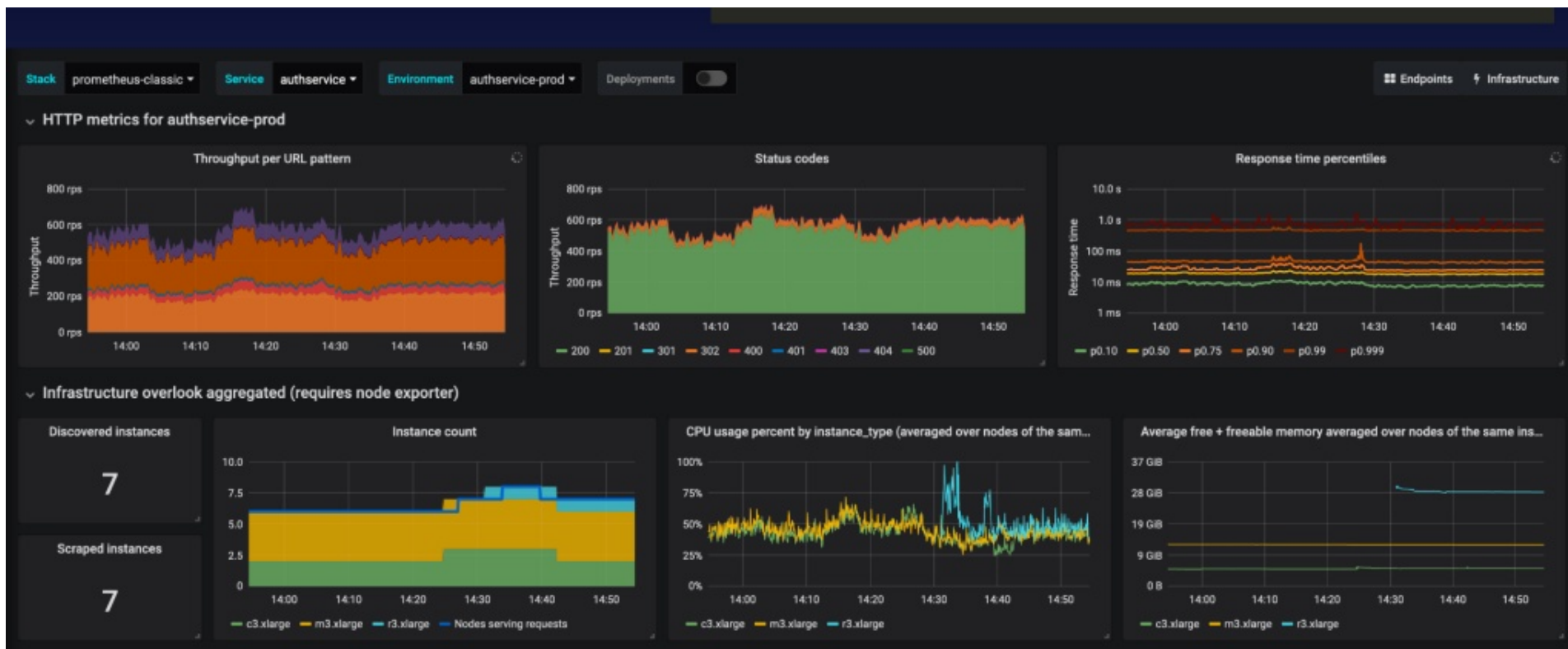


Configuration generation



Generic dashboards





django_http_requests_total
akka_http_requests_total

→ service_http_requests_total



Implementation



Configuration generation



Generic dashboards





Implementation



Configuration generation



Generic dashboards



Migration tooling





Implementation



Configuration generation



Generic dashboards



Migration tooling



Django/Python
prezi/django-exporter



Implementation



Configuration generation



Generic dashboards



Migration tooling



Django/Python
prezi/django-exporter



Client side monitoring



Implementation



Configuration generation



Generic dashboards



Migration tooling



Django/Python
prezi/django-exporter



Client side monitoring



Retention & scaling



Education



Education



"My Philosophy On Alerting"



Education



"My Philosophy On Alerting"



Presentations & sessions



Education

- ✓ *"My Philosophy On Alerting"*
- ✓ Presentations & sessions
- ✓ Continuous support



Education

- ✓ *"My Philosophy On Alerting"*
- ✓ Presentations & sessions
- ✓ Continuous support
- ✓ Extensive documentation



Education



"My Philosophy On Alerting"



Attachment to old alerts



Presentations & sessions



Continuous support



Extensive documentation



Education



"My Philosophy On Alerting"



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Extensive documentation



Attachment to old alerts



Lack of awareness
It could be much better!



Education



"My Philosophy On Alerting"



Presentations & sessions



Continuous support



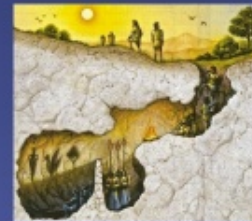
Extensive documentation



Attachment to old alerts



Lack of awareness
It could be much better!



Plato's allegory of the cave



Lack of awareness

It could be much better!



Plato's allegory of the cave

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Prometheus at Prezi



User experience
& uniformity



Alerting quality



Key takeaways



User experience & uniformity



User experience & uniformity



Simple setup / configuration



User experience & uniformity

- ✓ Simple setup / configuration
- ✓ Generic dashboards



User experience & uniformity

- ✓ Simple setup / configuration
- ✓ Generic dashboards
- ✓ Monitoring as a platform



User experience & uniformity

- ✓ Simple setup / configuration
- ✓ Generic dashboards
- ✓ Monitoring as a platform
- ✓ Real time dashboards & alerts



User experience & uniformity

95% of use cases

- ✓ Simple setup / configuration
- ✓ Generic dashboards
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- ✓ Simple setup / configuration
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Remaining 5%



User experience & uniformity

95% of use cases

- ✓ Simple setup / configuration
- ✓ Generic dashboards
- ✓ Monitoring as a platform
- ✓ Real time dashboards & alerts

Remaining 5%

- ✗ Anything custom is difficult



Alerting quality

On-call experience improvements



Alerting quality

On-call experience improvements



Total pages

Acknowledgement rate

Neither ignored nor auto-resolved

Actionable rate

Real and requires urgent human intervention



Alerting quality

On-call experience improvements



Total pages

-50%

Acknowledgement rate

Neither ignored nor auto-resolved

Actionable rate

Real and requires urgent human intervention



Alerting quality

On-call experience improvements



Total pages

-50%

Acknowledgement rate

Neither ignored nor auto-resolved

x2

Actionable rate

Real and requires urgent human intervention



Alerting quality

On-call experience improvements



Total pages

-50%

Acknowledgement rate

Neither ignored nor auto-resolved

x2

Actionable rate

Real and requires urgent human intervention

x2



Key takeaways



Key takeaways



Migrating and **cleaning up** is a lot of effort

Still not 100% done



Key takeaways



Migrating and **cleaning up** is a lot of effort
Still not 100% done



Education is a constant effort



Key takeaways



Migrating and **cleaning up** is a lot of effort
Still not 100% done



Education is a constant effort



Selling the project is part of it



Key takeaways



Migrating and **cleaning up** is a lot of effort
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Great success!



Key takeaways



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Open source
contributions



Key takeaways



Migrating and **cleaning up** is a lot of effort
Still not 100% done



Education is a constant effort



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Great success!



Open source
contributions



Easier K8s
migration

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heldroe@gmail.com

<https://linkedin.com/in/heldroe/en>

<https://github.com/heldroe>



Prometheus at  Prezi

Thank you for listening!



<https://prezi.com/jobs>



<https://github.com/prezi/django-exporter>



<https://engineering.prezi.com/prometheus-unchained-331b7ab8737>

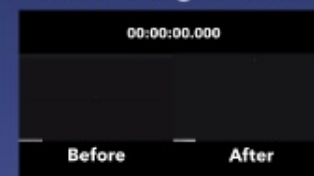
"My Philosophy on Alerting"

<https://docs.google.com/document/d/199PqyG3UsyXlwieHaqbGiWVa8eMWi8zzAn0YfcApr8Q/edit>

This presentation



Dashboard
browsing demo



00:00:00.000

Before

After

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