



# Monitor your Java Apps Elastic APM

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# What's Up

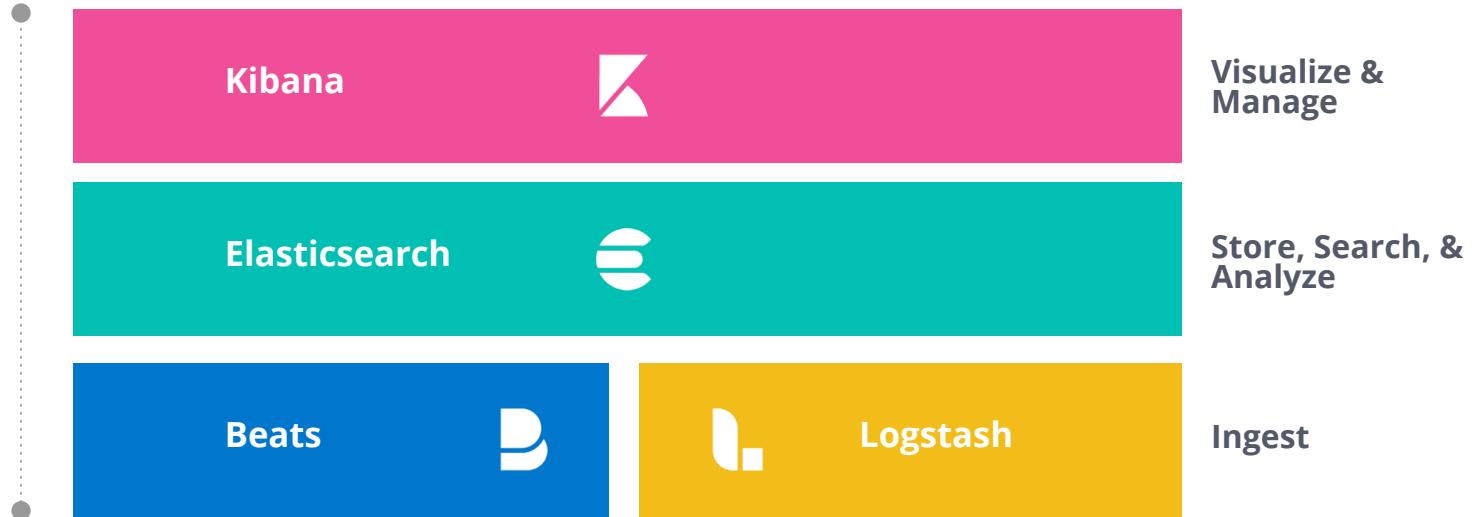
- The Stack
- What is APM?
- Why APM?
- What it can do?
- Demo

# Elastic Stack

## SOLUTIONS



Elastic Stack



SaaS



Elastic cloud

SELF-MANAGED



Elastic cloud  
Enterprise



Standalone

# Solutions



Elastic Stack

Kibana



Visualize & Manage

Elasticsearch



Store, Search, & Analyze

Beats



Logstash



Ingest

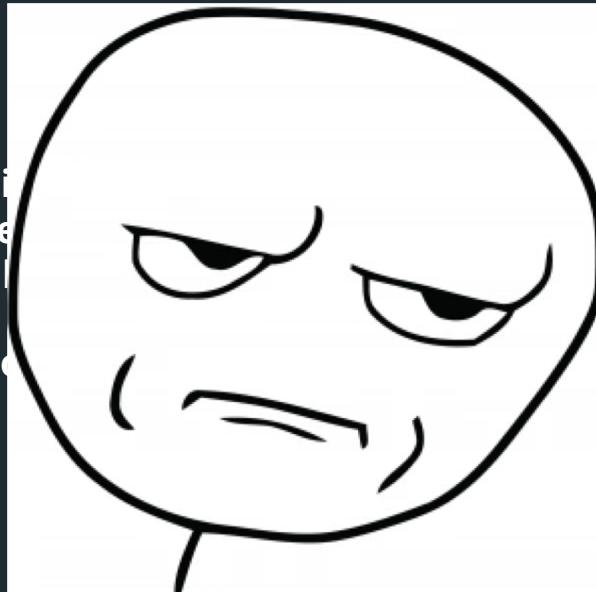
SaaS

SELF-MANAGED

# What is APM?

In the fields of information technology, performance management is the management of performance and availability.

APM is "the translation of



management, application management of management of management ([i.e.] value)."

-Wikipedia



## Internal Server Error

The server encountered an internal error or misconfiguration and was unable to complete your request.

Please contact the server administrator, [webmaster@gs-example.com](mailto:webmaster@gs-example.com) and inform them of the time the error occurred, and anything you might have done that may have caused the error.

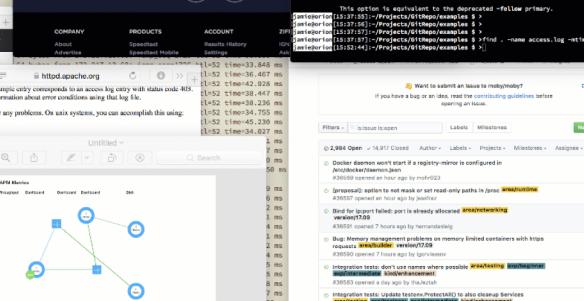
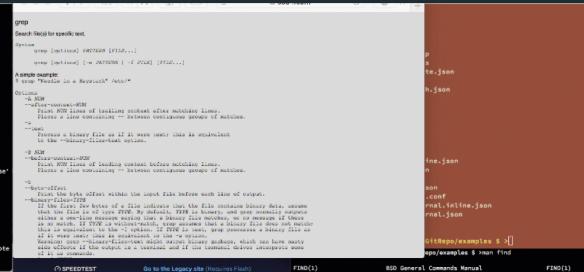
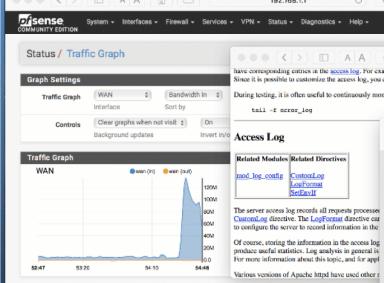
More information about this error may be available in the server error log.

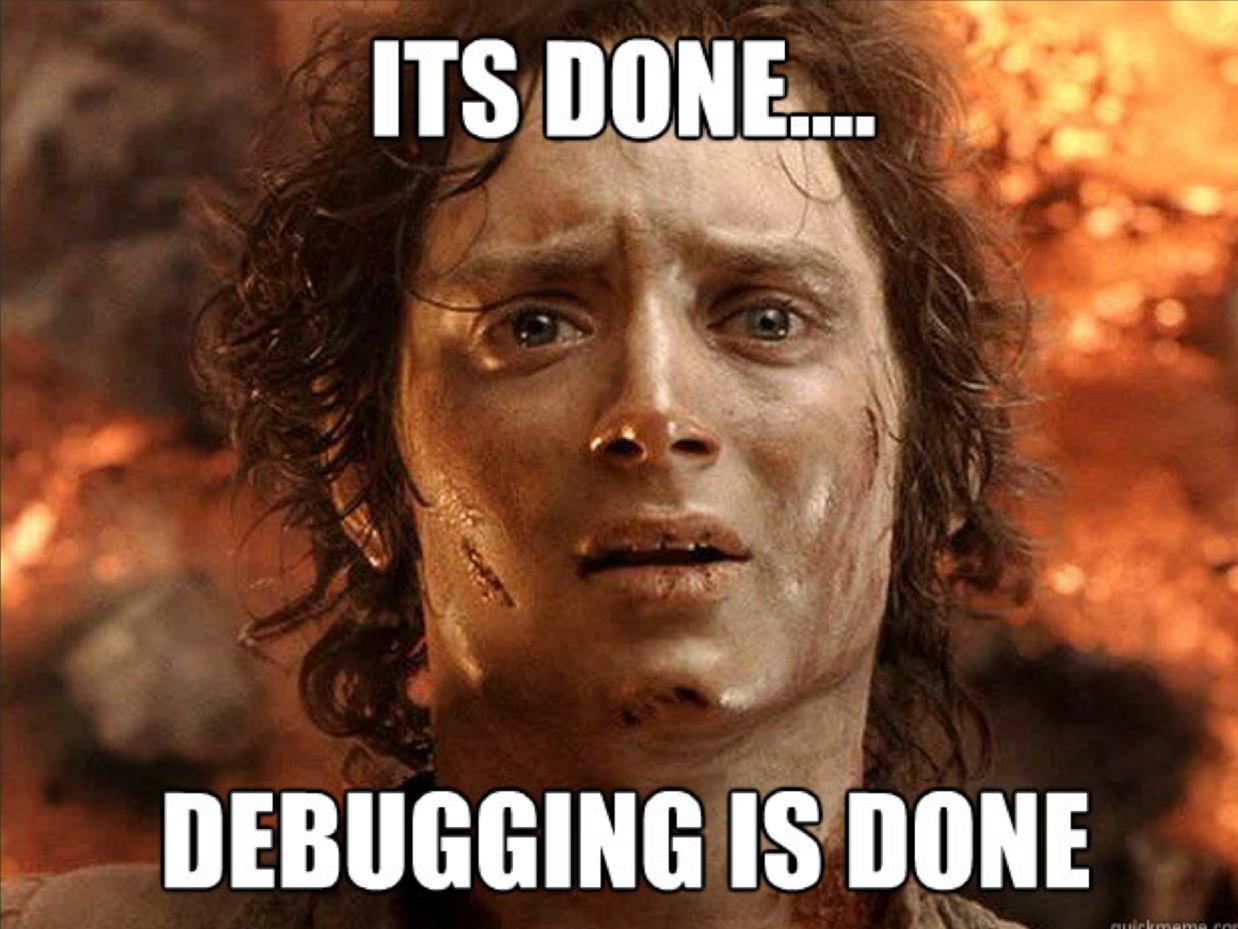


.. and when this happens...



**you open these...**





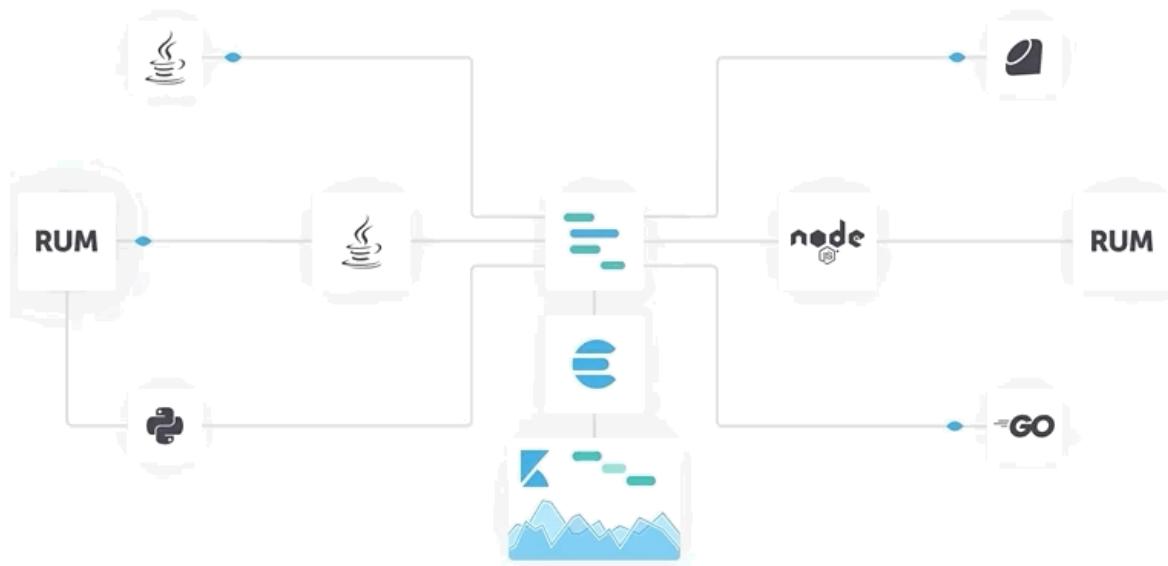
ITS DONE....

DEBUGGING IS DONE



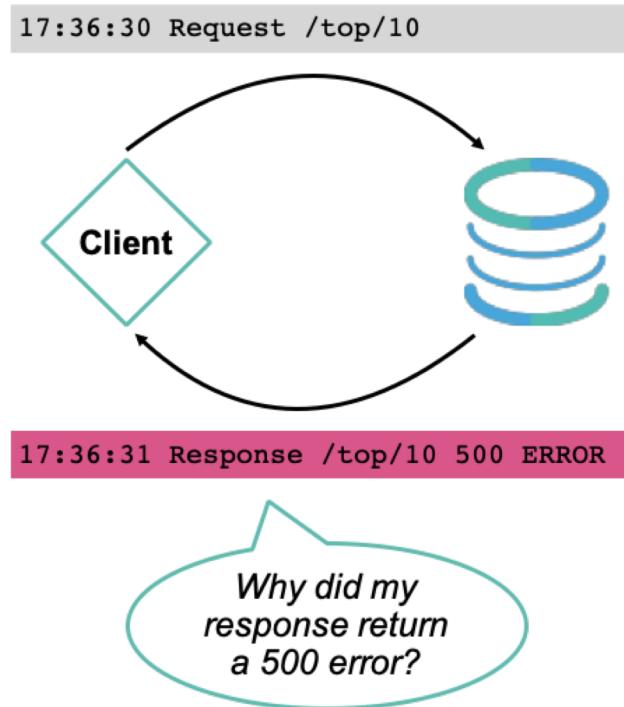
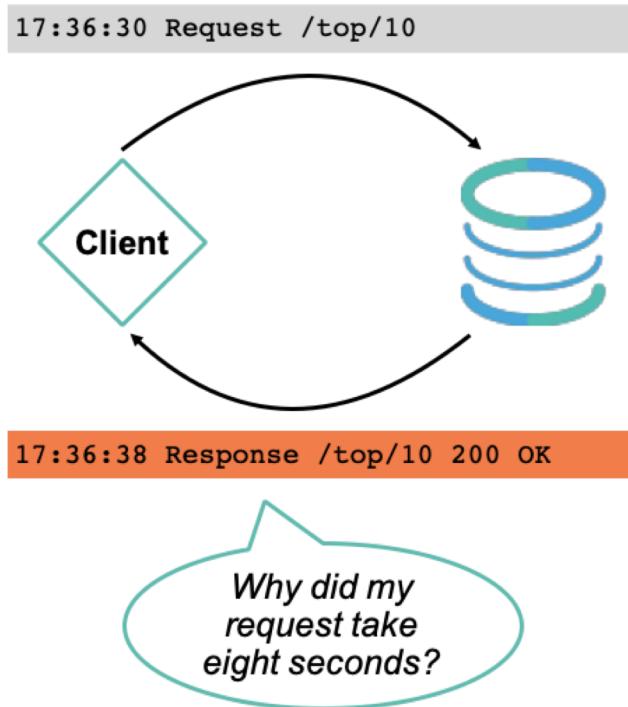
# Open Source Application Performance Monitoring

Already housing logs and system metrics in Elasticsearch? Expand to application metrics with Elastic APM. Four lines of code lets you see a bigger picture to quickly fix issues and feel good about the code you push.



# What is APM?

## Application Performance Monitoring



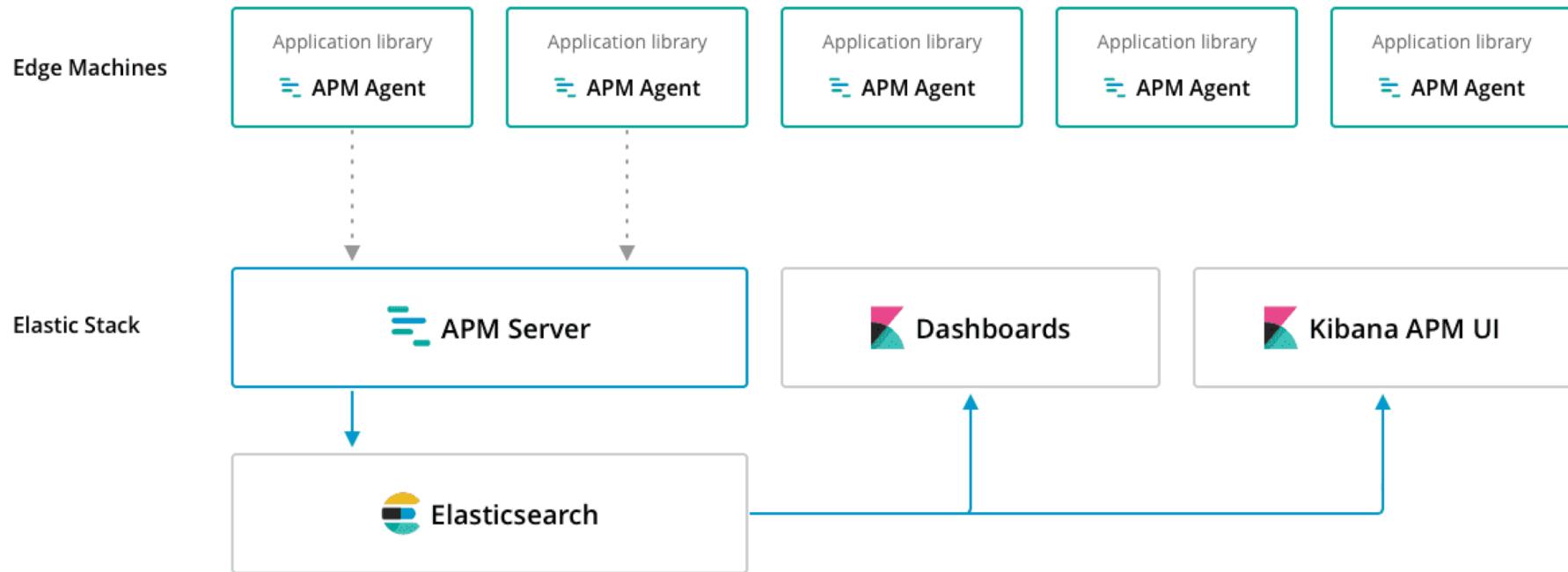
# Why APM?

- APM records traces for database queries, external HTTP requests, and other slow operations that happen during requests to your application
  - easier to see where your application is spending time
- It collects not handled errors and exceptions
  - easier to debug errors
- Find performance bottlenecks and errors before your customers face them
- Increase the productivity of your development team

- 100% Open Source
- Readymade UI in Kibana
- Language Agents



# How it works

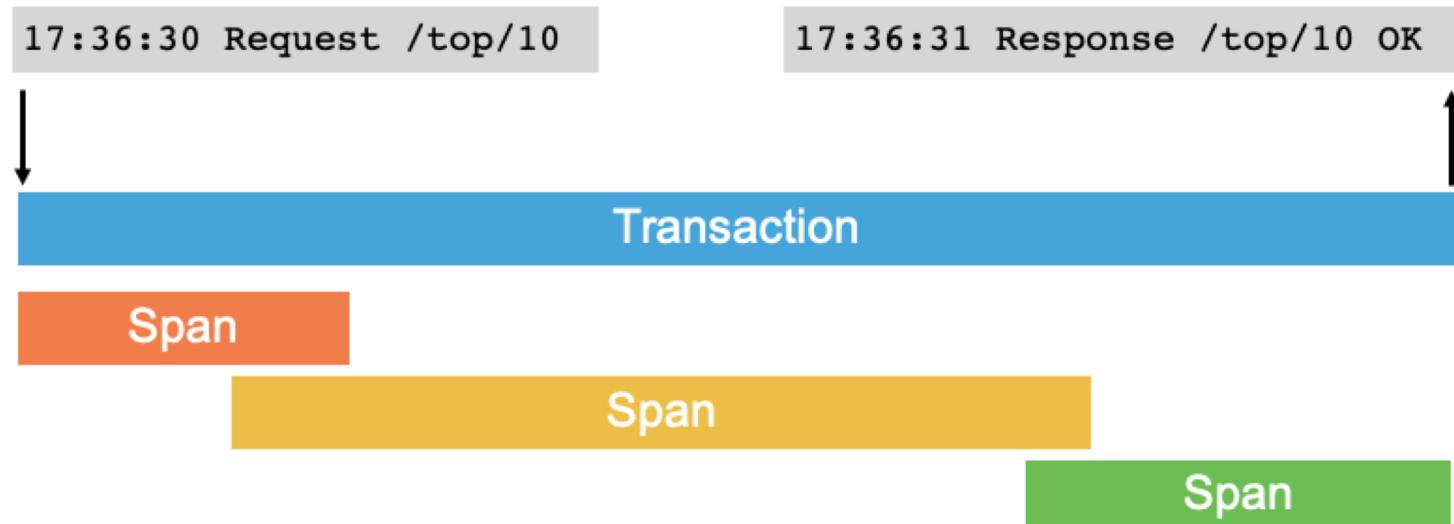


# Elastic APM Terminology

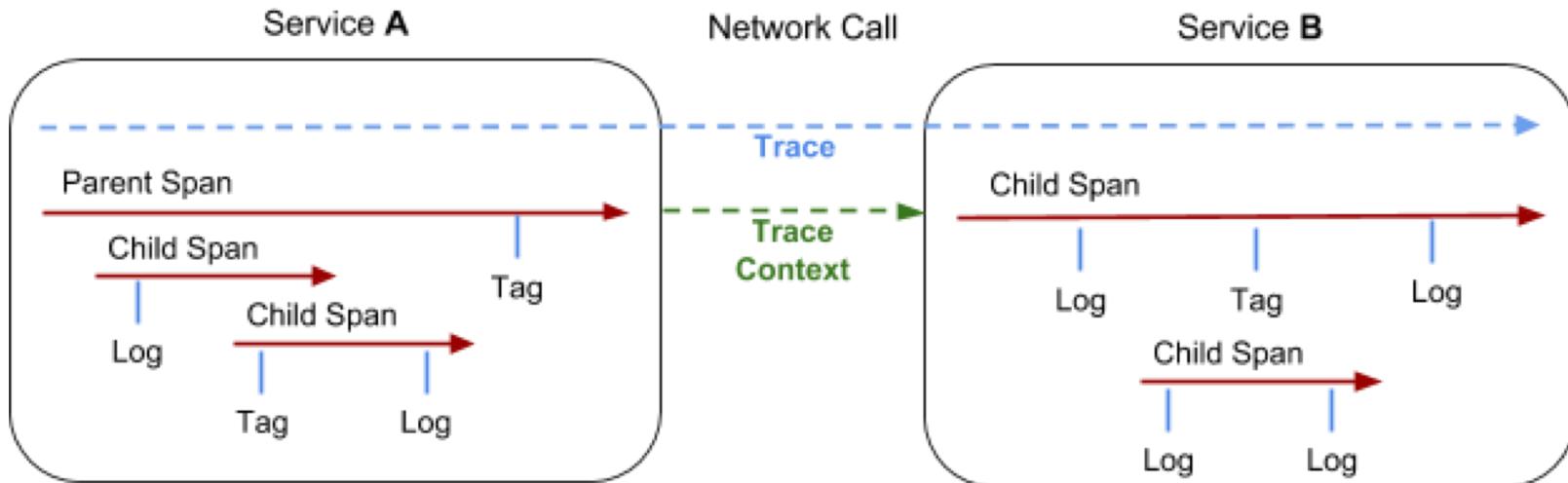
- **Service**
  - Set in the APM agent configuration to identify a particular group of APM agents as a single service, a way to logically identify a group of transactions.
- **Transaction**
  - The requests and responses that compose a service, e.g. the login API call, each made up of individual spans.
- **Span**
  - A single event within a Transaction such as a Method call, Database query, or Cache insert or retrieval, i.e. anything that takes time to complete.
- **Errors**
  - Groups of exceptions with matching exception or log messages.

# Elastic APM Terminology

## Transaction, trace & span



# Distributed Tracing



# APM conceptual allegory

Fence jump service:

Transaction: 6.5 seconds

- fence 1: 1 second
- fence 2: 2 seconds
- fence 3: 2 seconds
- fence 4: 2.5 seconds



# APM conceptual allegory

Fence jump service:

Transaction: 1 second

- fence 1 - 1 second and error captured



# How to instrument java apps?

## - javaagent

```
java -javaagent:/path/to/elastic-apm-agent-<version>.jar  
-Delastic.apm.service_name=my-cool-service \  
-Delastic.apm.application_packages=org.example,org.another.example \  
-Delastic.apm.server_urls=http://localhost:8200 \  
-jar my-application.jar \  
 
```

# How to instrument java apps?

- **apm-agent-attach.jar**

```
java -jar apm-agent-attach.jar --pid <pid> [--args <agent_arguments>]
```

# How to instrument java apps?

## - Programmatic Attach

```
<dependency>
  <groupId>co.elastic.apm</groupId>
  <artifactId>apm-agent-attach</artifactId>
  <version>${elastic-apm.version}</version>
</dependency>
```

```
ElasticApmAttacher.attach();
```

```
service_name=my-cool-service
application_packages=org.example,org.another.example
server_urls=http://localhost:8200
```

# How it is working?

# Simple!

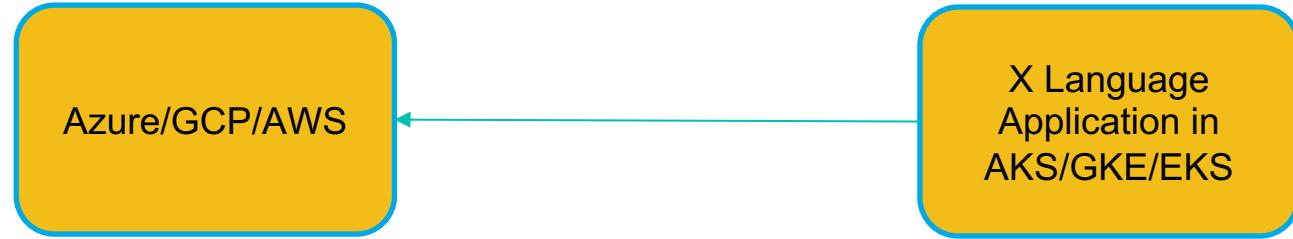
# Byte-code manipulation

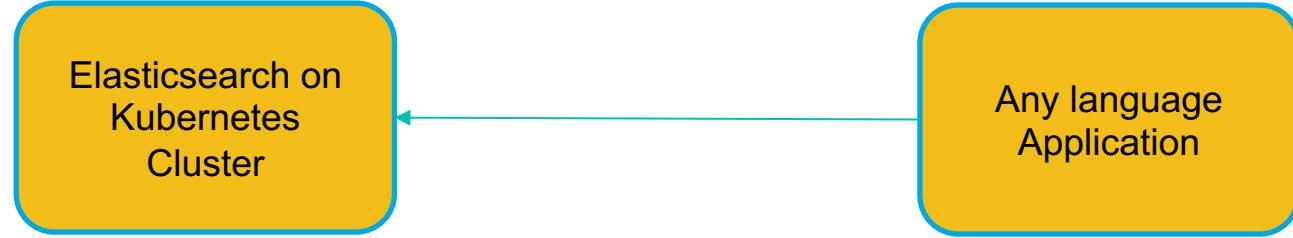


# What APM can do?

- Monitor your application
- Trace your code
- Reduce overall debugging time







# What you can't do with APM?

- Infrastructure Monitoring
- Log analytics
- Detect Security Attacks

# How Elastic Stack can help you?



Real User Monitoring (RUM)



Application-level monitoring



Server-level monitoring



Logging

# Contributing to the Elastic APM Java agent

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The APM Agent is open source and we love to receive contributions from our community — you!

There are many ways to contribute, from writing tutorials or blog posts, improving the documentation, submitting bug reports and feature requests or writing code.

You can get in touch with us through [Discuss](#), feedback and ideas are always welcome.

# References

- <https://github.com/elastic/apm-server>
- <https://github.com/elastic/opbeans-java>
- <https://www.elastic.co/webinars/elasticsearch-apm-overview>
- <https://discuss.elastic.co/c/apm>

**ela.st/java-apm**

**bit.ly/learnK8s**



# Fin!

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