



Monitor your Java Apps Elastic APM

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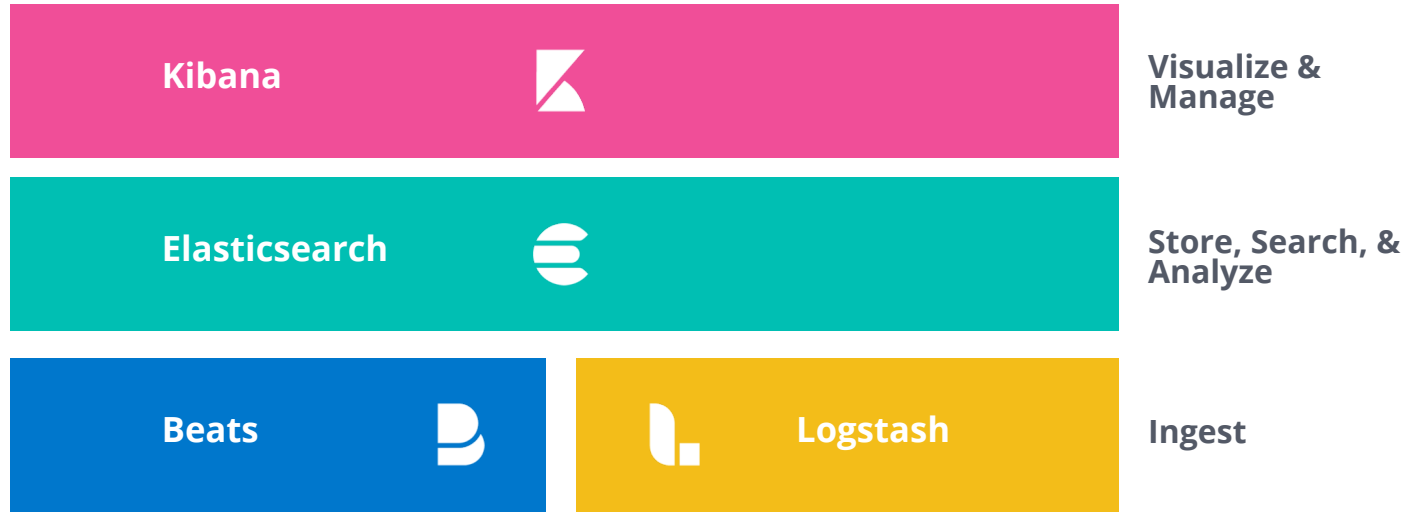
aravind.dev | @aravindputrevu

What's Up

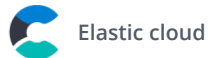
- The Stack
- What is APM?
- Why APM?
- What it can do?
- Demo

Elastic Stack

SOLUTIONS



SaaS

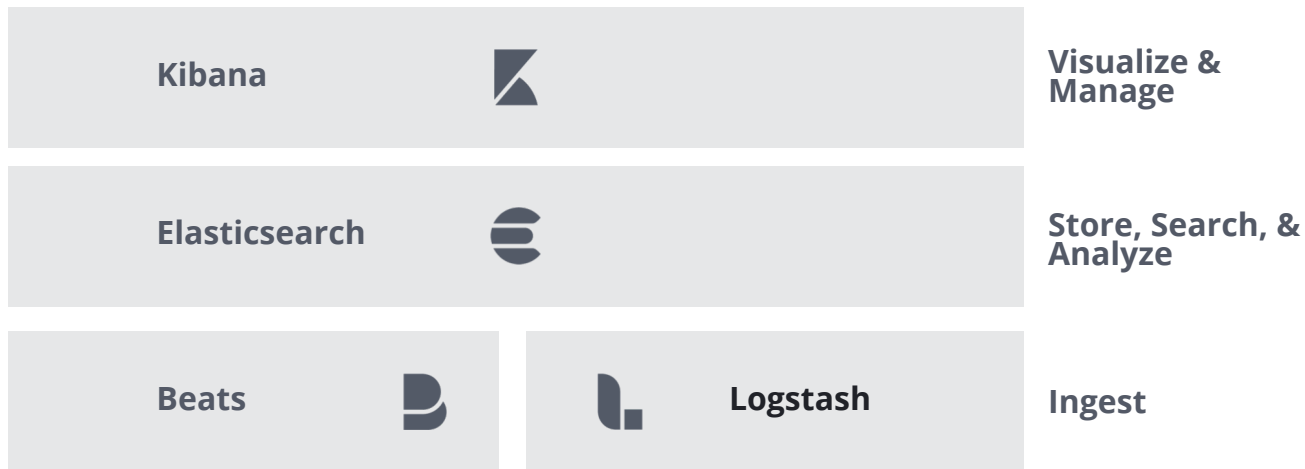


SELF-MANAGED



Solutions

Logging	Metrics	APM	Security Analytics	FUTURE
App Search	Site Search	Enterprise Search	Business Analytics	



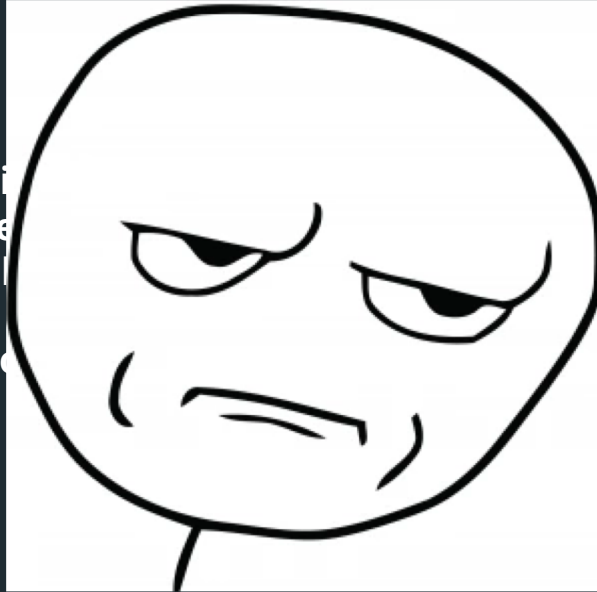
SaaS

SELF-MANAGED

What is APM?

In the fields of information
performance management,
performance and availability

APM is "the translation of



agement, application
management of

ing ([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 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...

[illegible]



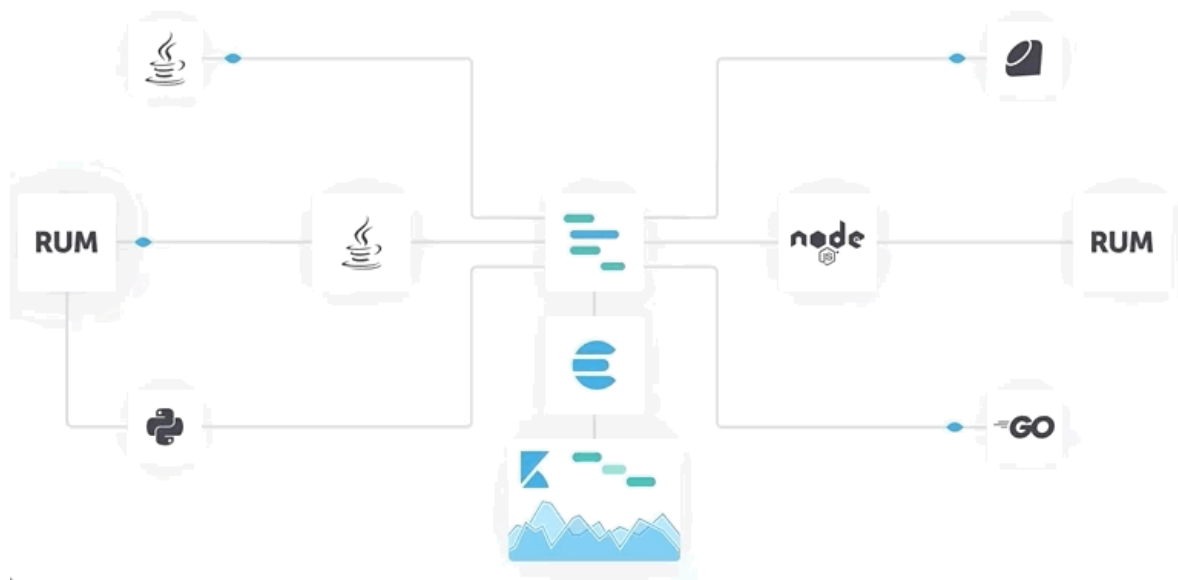
ITS DONE....

DEBUGGING IS DONE



Open Source Application Performance Monitoring

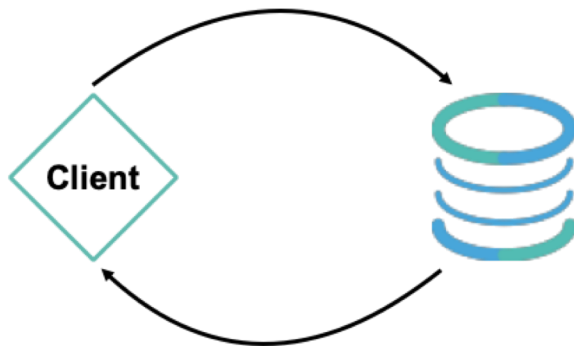
Already housing logs and system metrics in Elasticsearch? Expand to application metrics with Elastic APM. Four lines of code lets you see a bigger picture to quickly fix issues and feel good about the code you push.



What is APM?

Application Performance Monitoring

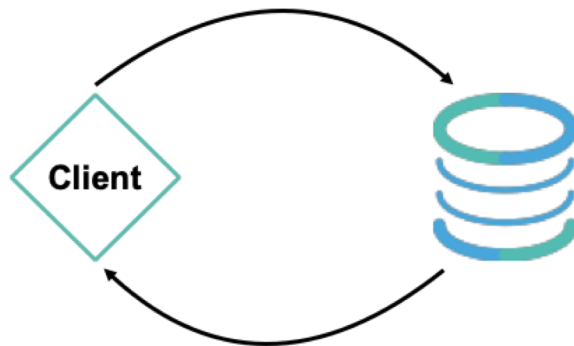
17:36:30 Request /top/10



17:36:38 Response /top/10 200 OK

*Why did my
request take
eight seconds?*

17:36:30 Request /top/10



17:36:31 Response /top/10 500 ERROR

*Why did my
response return
a 500 error?*

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

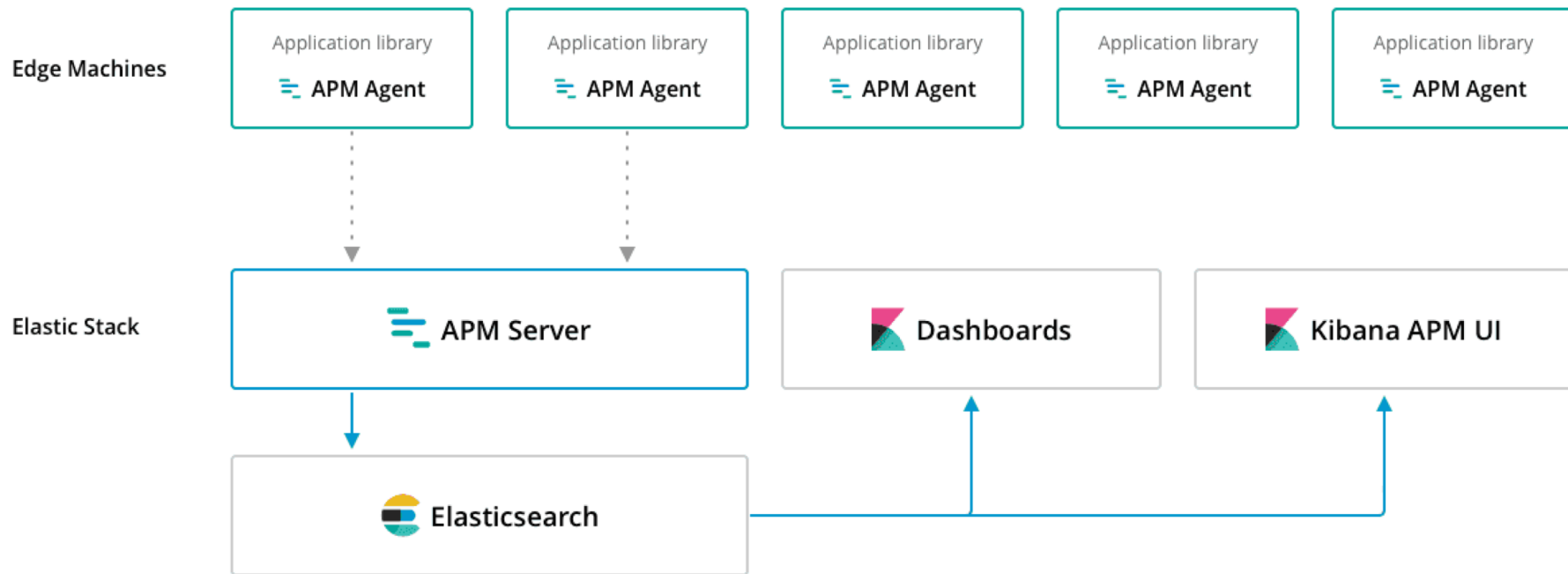


Flask

django



How it works

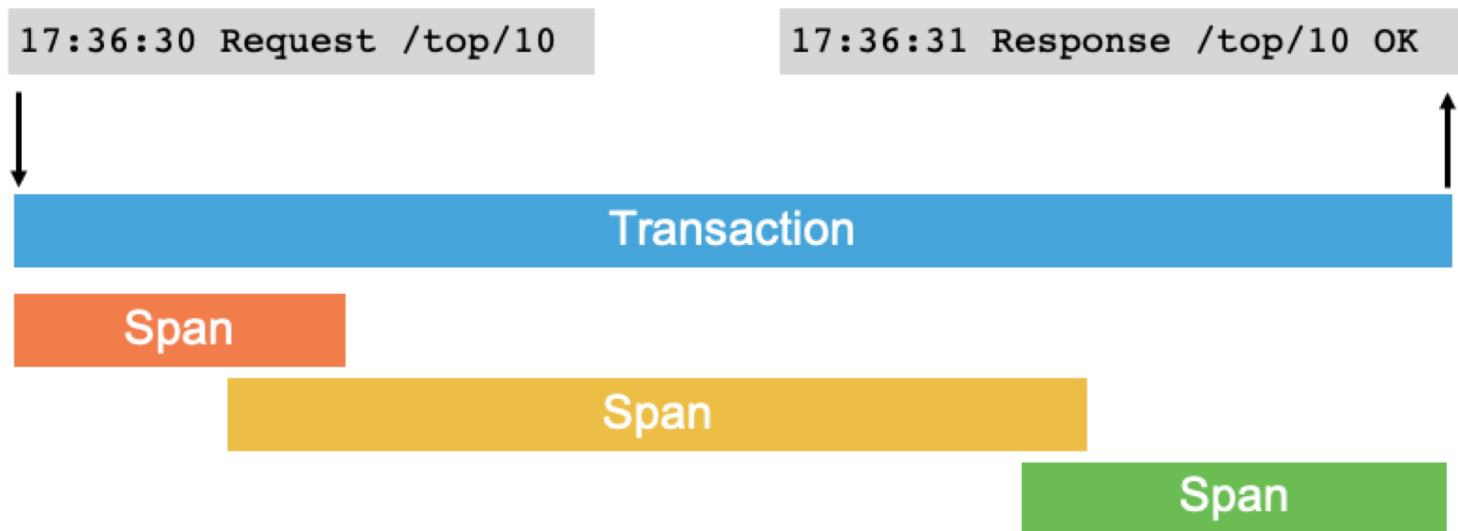


Elastic APM Terminology

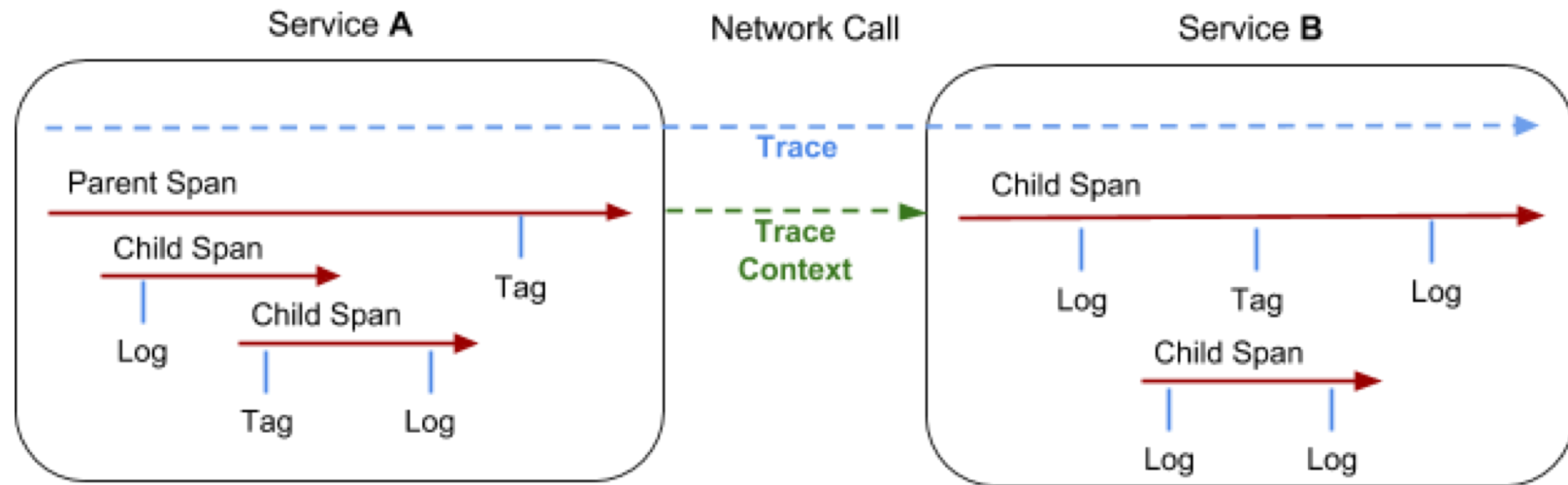
- **Service**
 - Set in the APM agent configuration to identify a particular group of APM agents as a single service, a way to logically identify a group of transactions.
- **Transaction**
 - The requests and responses that compose a service, e.g. the login API call, each made up of individual spans.
- **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!

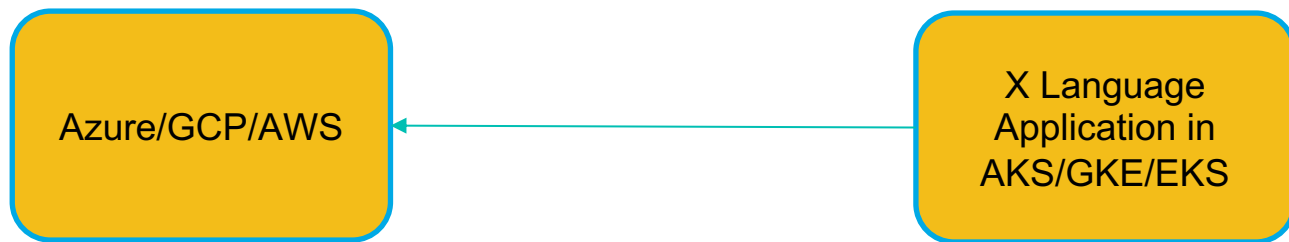
Byte-code manipulation

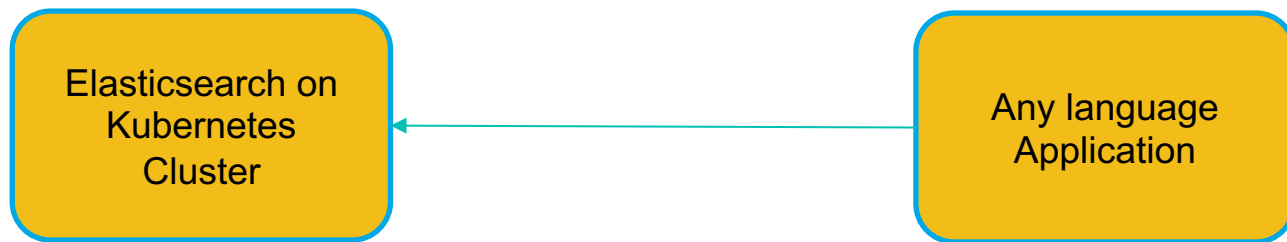


What APM can do?

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







What you can't do with APM?

- Infrastructure Monitoring
- Log analytics
- Detect Security Attacks

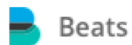
How Elastic Stack can help you?



Real User Monitoring (RUM)



Application-level monitoring



Server-level monitoring



Logging

Contributing to the Elastic APM Java agent

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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