

Kibana APM – Application Performance Monitoring

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Agenda

- Kibana APM – Overview
- Integrating it with Elastic stack
- Sending metrics to elasticsearch – Elastic APM Agent
- Case scenario – Simple metrics
- Case scenario – Identify N+1 easily
- Case scenario – Multi-services
- Case scenario – Analysing slow methods



Kibana APM – Overview

- Application Performance Monitoring (APM)
- Analysis in real-time, by collecting data via agent
- Metrics:
 - Response time – HTTP request, DB queries, methods execution, etc..
 - Queries execution
 - External HTTP call
 - Errors/Exceptions
- Similar apps:
 - New relic
 - Dynatrace APM
 - Datadog APM

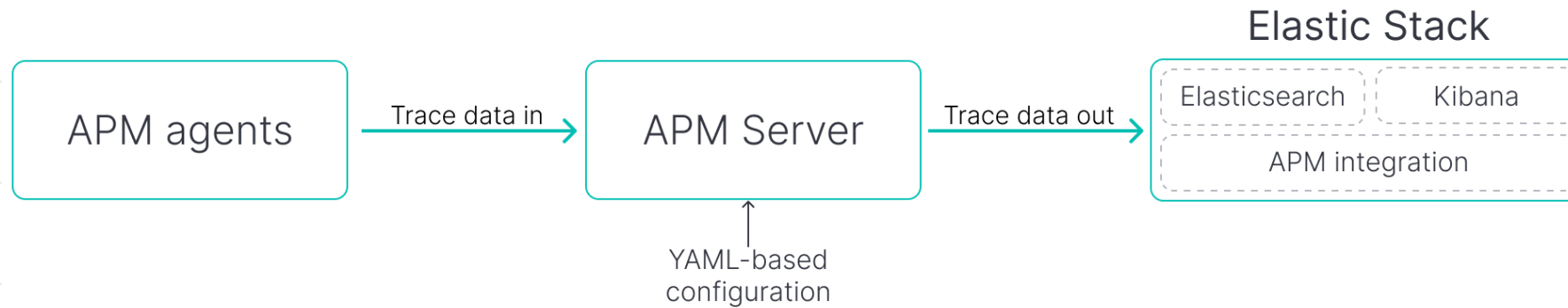



Integrating it with Elastic stack – APM Server

- APM Server
 - Install an APM server
 - Connect it with the Kibana/Elasticsearch server
 - Start to send metrics to APM server via Elasticsearch agent
- No need any additional component apart from elastic stack
- Self-managed option
- Configuration method: YAML

Adding it to your kibana – APM Server

- Components required
 - APM Agents
 - APM Server
 - Elastic Stack



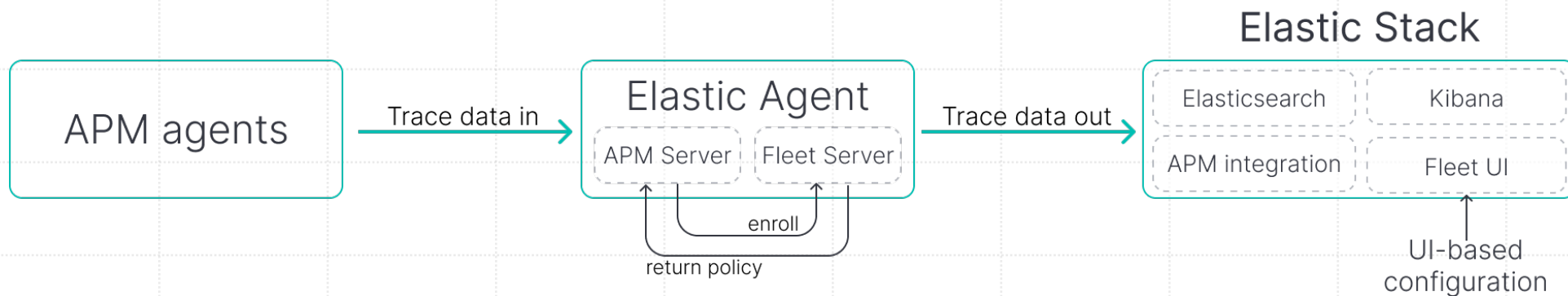


Adding it to your kibana – Fleet Integration

- Fleet Integration – We will use this for our case
 - Install fleet integration server
 - Add APM from integration UI
 - Start to send metrics to the Fleet via elastic and apm agents
- More convenient – all integration at one central instance
- Configuration Method: Kibana UI

Adding it to your kibana – Fleet Integration

- Components required
 - APM Agent
 - Elastic Agent
 - Fleet server
 - APM Server
 - Elastic stack





Sending metrics to elasticsearch – Elastic APM Agent

- Javaagent flag – manual setup
 - Manually set the javaagent setup flag into your java command
 - Requires changes on JVM arguments, also requires to restart it
 - `java -javaagent:/path/to/elastic-apm-agent-<version>.jar <APM_CONFIG>`
 - <https://www.elastic.co/guide/en/apm/agent/java/current/setup-javaagent.html>
- Programmatically API
 - Doesn't requires JVM options changes
 - Requires code changes
 - Maven Lib: `apm-agent-attach`
 - <https://www.elastic.co/guide/en/apm/agent/java/current/setup-attach-api.html>



Case scenarios

- 3 simple cases scenarios for show case;
- Simple metrics – without any special “case” on it
- Analysing and identifying N+1 issue with APM
- Multi-services connection, service A calling service B via rest



Case scenario – Simple metrics

- Simple case to send metrics to APM
 - Analysis HTTP response time
 - Analysis the query that were executed
 - Analysis the methods that were executed for this particular request



Case scenario – Identify N+1

- N+1 are common problem on our daily work, but how to easily identify it with APM
- APM will show us the number of times that same query were executed during a request/transaction
- Act after analysis – fixing the issue with coding changes – analysy it again to check the results



Case scenario – Multi-services

- A common scenarion during multi-service environment is services calling each other via rest API
- APM can show us the metrics about this rest call also with proper service configuration we it can link the metrics between 2 services



Case scenario - Analysing slow methods

- Another advantage of APM is to analyse slow methods
- We should take care not to impact our app performance during runtime and startup
- Can be done into different ways:
 - Base profiler: <https://www.elastic.co/guide/en/apm/agent/java/current/method-sampling-based.html>
 - API/Code: <https://www.elastic.co/guide/en/apm/agent/java/current/method-api.html>
 - Annotations: <https://www.elastic.co/guide/en/apm/agent/java/current/method-annotations.html>
 - Configuration-based: <https://www.elastic.co/guide/en/apm/agent/java/current/method-config-based.html>



Questions



References

- <https://www.elastic.co/guide/en/apm/guide/current/apm-quick-start.html>
- <https://www.elastic.co/guide/en/apm/guide/current/getting-started-apm-server.html>
- <https://www.elastic.co/guide/en/apm/agent/java/current/setup.html>
- <https://www.elastic.co/guide/en/apm/agent/java/current/java-method-monitoring.html>