Der Elastic Stack für Logs und Metriken

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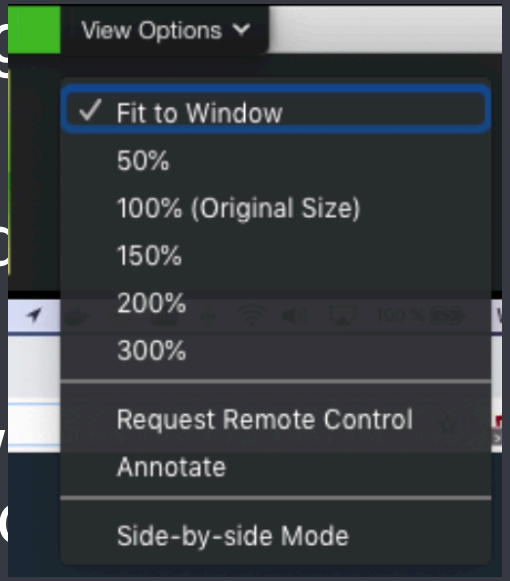
Logistics

- Chat: Ensure you are writing messag
  everyone and not just the panelists
- Video: Ensure you select 'Fit to Wind
  to see the whole screen
- Chat: Write all your questions. We w
  them during the session or at the en
- Recording will made available!



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Agenda

Agenda

- Logs & Metrics
- Elastic Stack Introduction
- Ingestion
- DEMO
- Q & A

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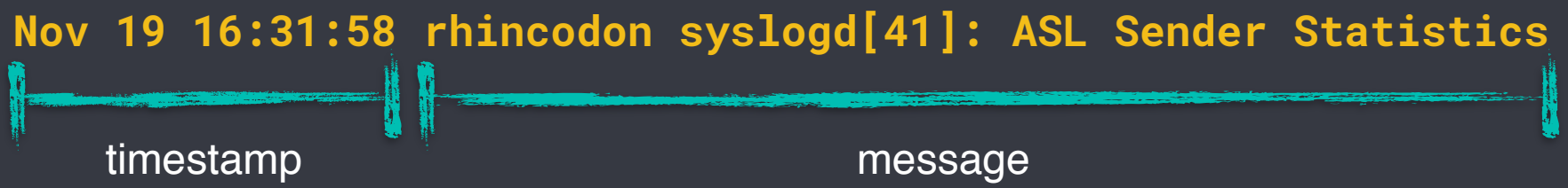
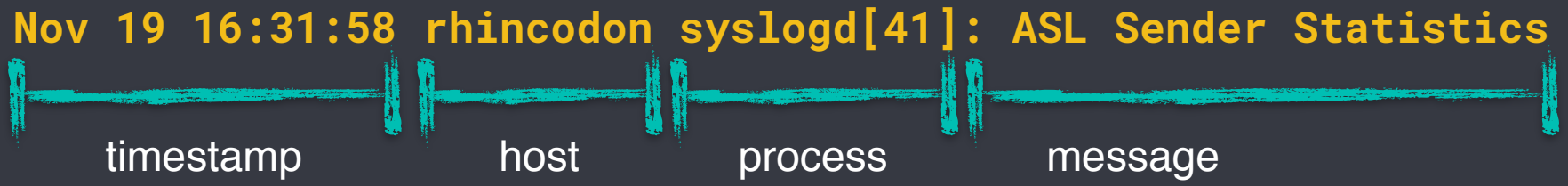
Logs & Metrics?

What is a log?

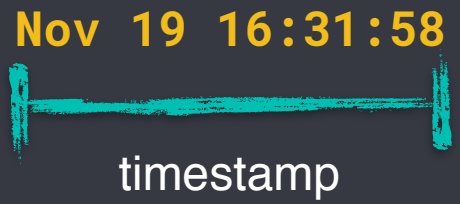


What is a log?

What is a structured log?



What is a log?



- Not unique!
- Granularity!
- Timezone!
- Year!
- Defaults required!

Date normalization

Nov 19 16:31:58

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Date normalization

```
Nov 19 16:31:58

19/Jul/2015:08:13:42 +0000
```

Date normalization

```
Nov 19 16:31:58

19/Jul/2015:08:13:42 +0000

2015-01-01T12:10:30.123456789Z
```

Date normalization

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Nov 19 16:31:58

19/Jul/2015:08:13:42 +0000

2015-01-01T12:10:30.123456789Z

2019-10-10
```

elastic

Date normalization

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2019-10-10

1420070400
```

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Date normalization

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Nov 19 16:31:58

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2019-10-10

1420070400

2019-11-19T17:05:38,752
```

Date normalization

```
Nov 19 16:31:58

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2019-10-10

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16:06:02.858
```

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Date normalization

```
Nov 19 16:31:58

19/Jul/2015:08:13:42 +0000

2015-01-01T12:10:30.123456789Z

2019-10-10

1420070400

2019-11-19T17:05:38,752

16:06:02.858

2019-11-19T17:06:23.582+0100
```

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Multi line events

```
[2019-07-25T00:10:02,240][WARN ][o.e.i.IndexService       ] [1563552203477145411] [migrate-bird-filebeat-7.0.0-alpha1-2019.07.2
5] failed to run task refresh - suppressing re-occurring exceptions unless the exception changes
org.elasticsearch.index.engine.RefreshFailedEngineException: Refresh failed
        at org.elasticsearch.index.engine.InternalEngine.refresh(InternalEngine.java:919) ~[elasticsearch-5.6.4.jar:5.6.4]
        at org.elasticsearch.index.shard.IndexShard.refresh(IndexShard.java:632) ~[elasticsearch-5.6.4.jar:5.6.4]
        at org.elasticsearch.index.IndexService.maybeRefreshEngine(IndexService.java:690) ~[elasticsearch-5.6.4.jar:5.6.4]
        at org.elasticsearch.index.IndexService.access$400(IndexService.java:92) ~[elasticsearch-5.6.4.jar:5.6.4]
        at org.elasticsearch.index.IndexService$AsyncRefreshTask.runInternal(IndexService.java:832) ~[elasticsearch-5.6.4.jar:5
.6.4]
        at org.elasticsearch.index.IndexService$BaseAsyncTask.run(IndexService.java:743) [elasticsearch-5.6.4.jar:5.6.4]
        at org.elasticsearch.common.util.concurrent.ThreadContext$ContextPreservingRunnable.run(ThreadContext.java:569) [elasti
csearch-5.6.4.jar:5.6.4]
        at java.util.concurrent.ThreadPoolExecutor.runWorker(Unknown Source) [?:1.8.0_181]
        at java.util.concurrent.ThreadPoolExecutor$Worker.run(Unknown Source) [?:1.8.0_181]
        at java.lang.Thread.run(Unknown Source) [?:1.8.0_181]
Caused by: org.apache.lucene.index.CorruptIndexException: compound sub-files must have a valid codec header and footer: file is too small (0 bytes)
(resource=BufferedChecksumIndexInput(MMapIndexInput(path="/data3/containers/1563552203477145411/es/data/nodes/0/indices/itne5EqpRE-vNw1wLMj2EA/1/index/
_8u.dim")))
        at org.apache.lucene.codecs.CodecUtil.verifyAndCopyIndexHeader(CodecUtil.java:282) ~[lucene-core-6.6.1.jar:6.6.1 unknown - elk - 2018-06-28
00:21:33]
        at org.apache.lucene.codecs.lucene50.Lucene50CompoundFormat.write(Lucene50CompoundFormat.java:96) ~[lucene-core-6.6.1.jar:6.6.1 unknown - elk -
2018-06-28 00:21:33]
        at org.apache.lucene.index.IndexWriter.createCompoundFile(IndexWriter.java:4945) ~[lucene-core-6.6.1.jar:6.6.1 unknown - elk - 2018-06-28
00:21:33]
        at org.apache.lucene.index.DocumentsWriterPerThread.sealFlushedSegment(DocumentsWriterPerThread.java:529) ~[lucene-core-6.6.1.jar:6.6.1 unknown
- elk - 2018-06-28 00:21:33]
        at org.apache.lucene.index.DocumentsWriterPerThread.flush(DocumentsWriterPerThread.java:481) ~[lucene-core-6.6.1.jar:6.6.1 unknown - elk -
2018-06-28 00:21:33]
        at org.apache.lucene.index.DocumentsWriter.doFlush(DocumentsWriter.java:539) ~[lucene-core-6.6.1.jar:6.6.1 unknown - elk - 2018-06-28 00:21:33]
        at org.apache.lucene.index.DocumentsWriter.flushAllThreads(DocumentsWriter.java:653) ~[lucene-core-6.6.1.jar:6.6.1 unknown - elk - 2018-06-28
00:21:33]
```

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What is a metric?

- measurement at a point in time

Logs vs. Metrics

- log: event based
- metric: constant measurement

Log centralization

- Access rights
- Short lived containers
- Search across services
- Correlation
- Retention
- Alerting
- Cost of storage/density

Data normalization

- Timestamps
- Field name convention (lowercase, tense)
- Same field names across services
- Elastic Common Schema

`https://www.elastic.co/guide/en/ecs/current/ecs-reference.html`

Elastic Stack

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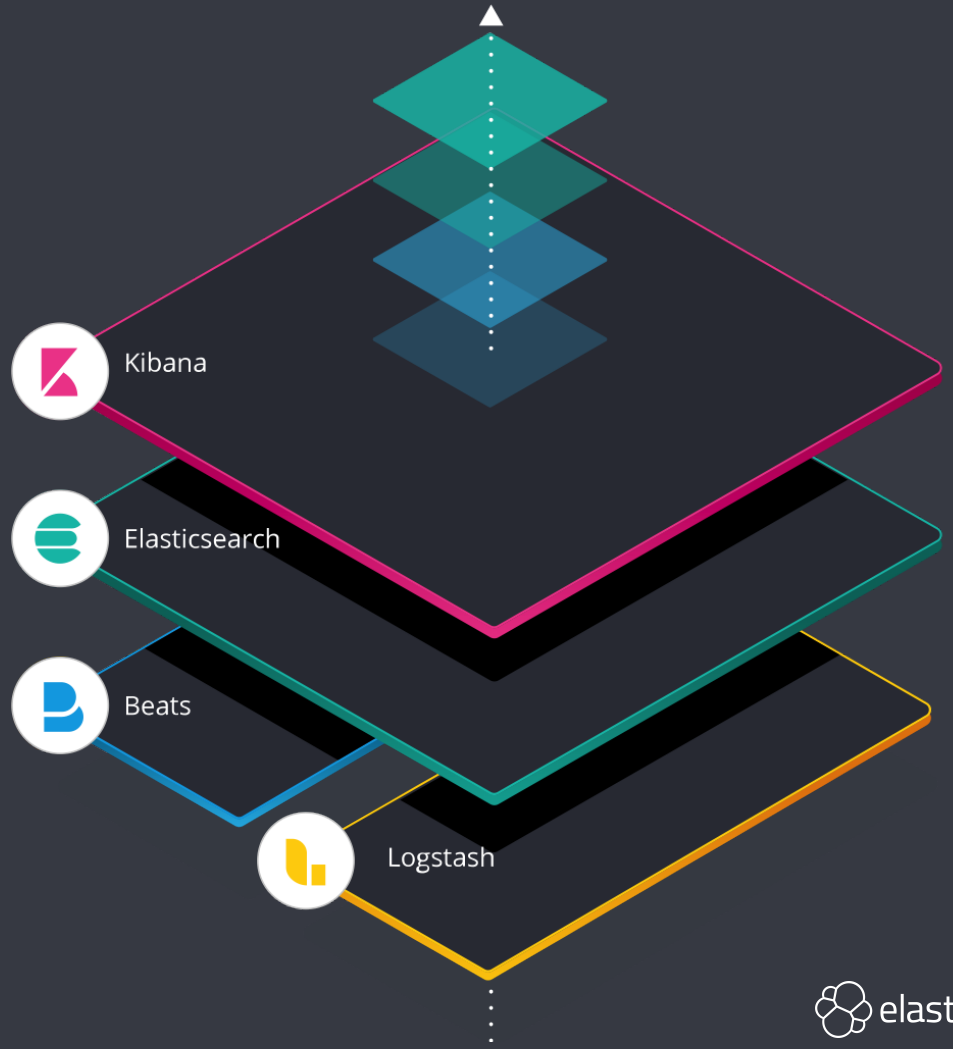
Elastic Stack

Visualize

Store

Ingest

Ingest



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Solutions

APM

Search

Logs

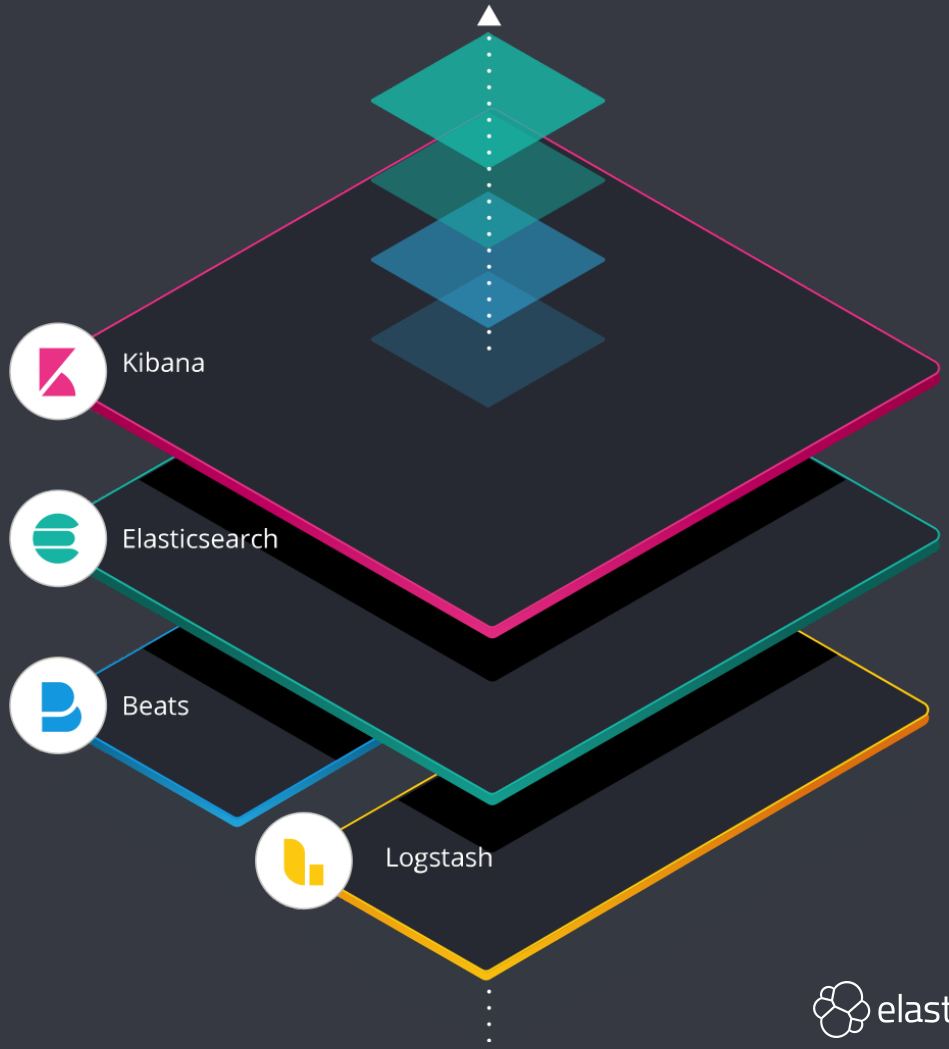
Uptime

Metrics

Analytics

SIEM

Maps



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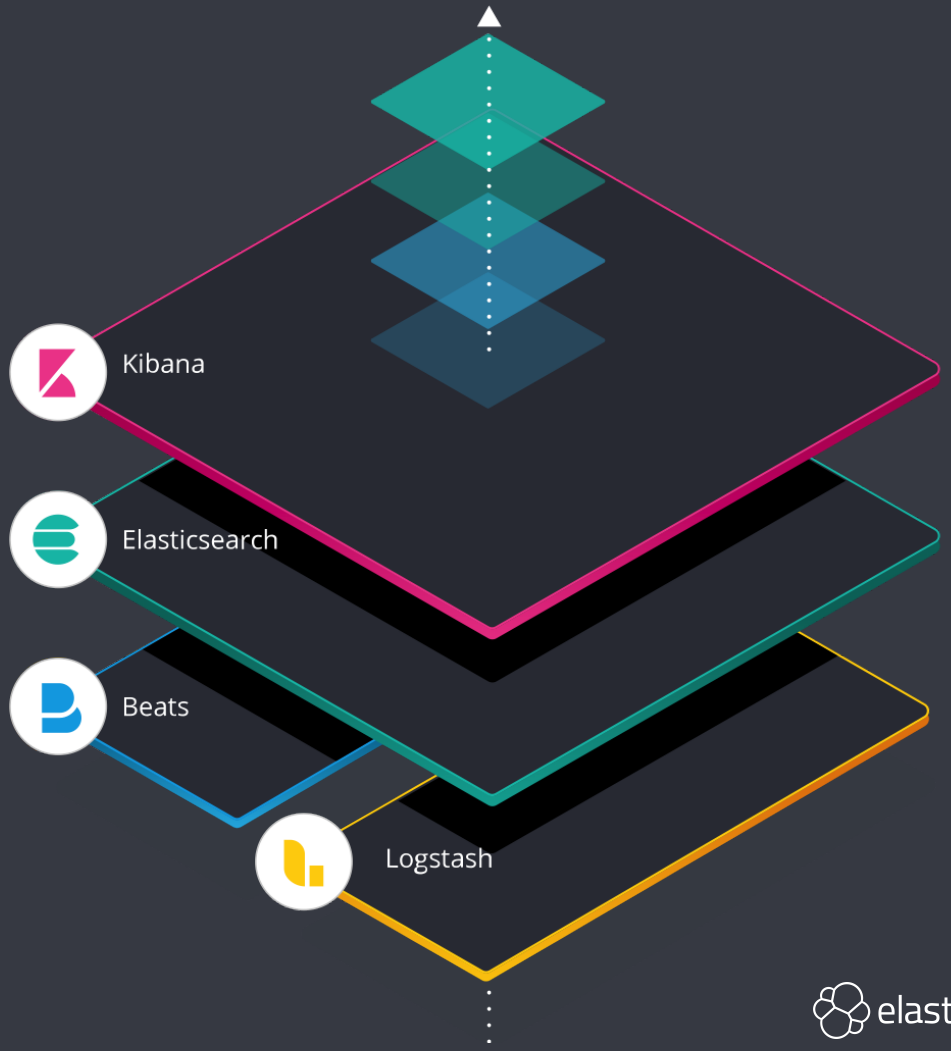
Deployment

- Elastic Cloud
- Elastic Cloud Enterprise
- Elastic Cloud on K8s
- Self hosted



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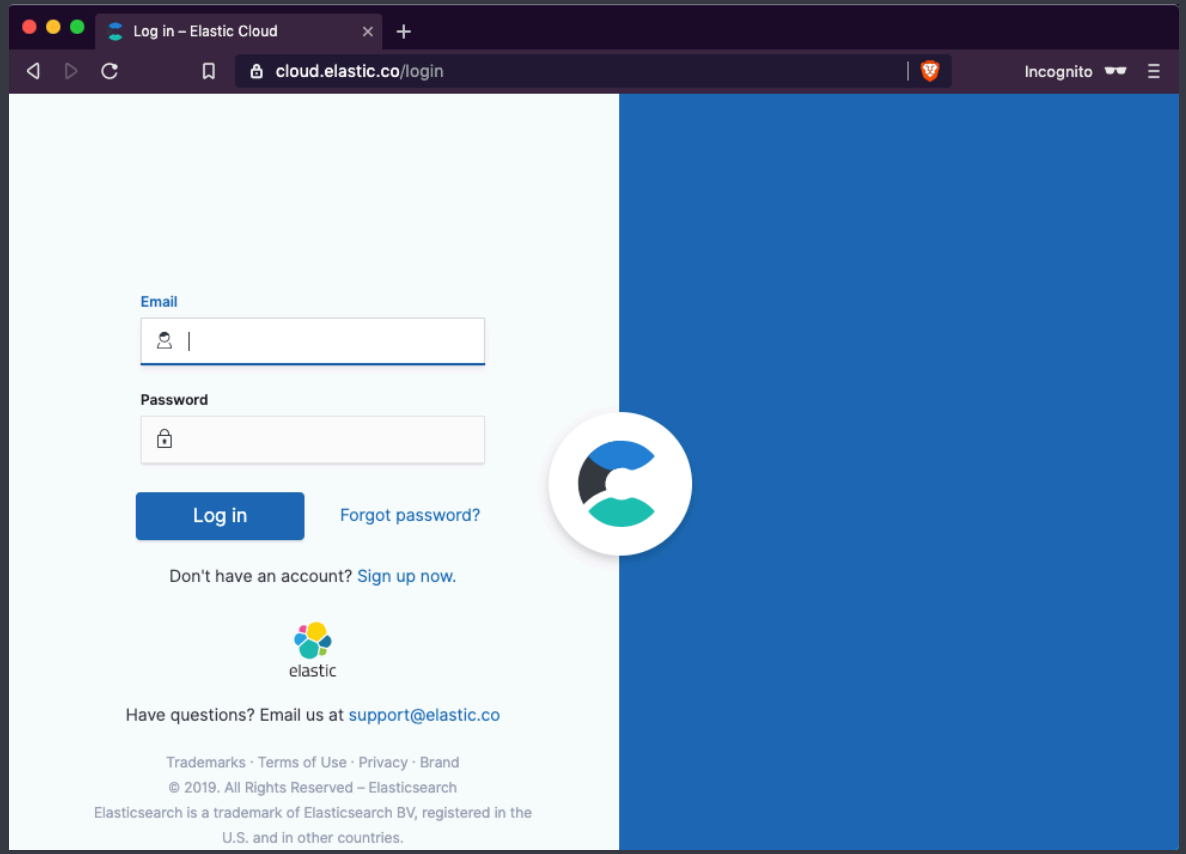
Elastic Cloud



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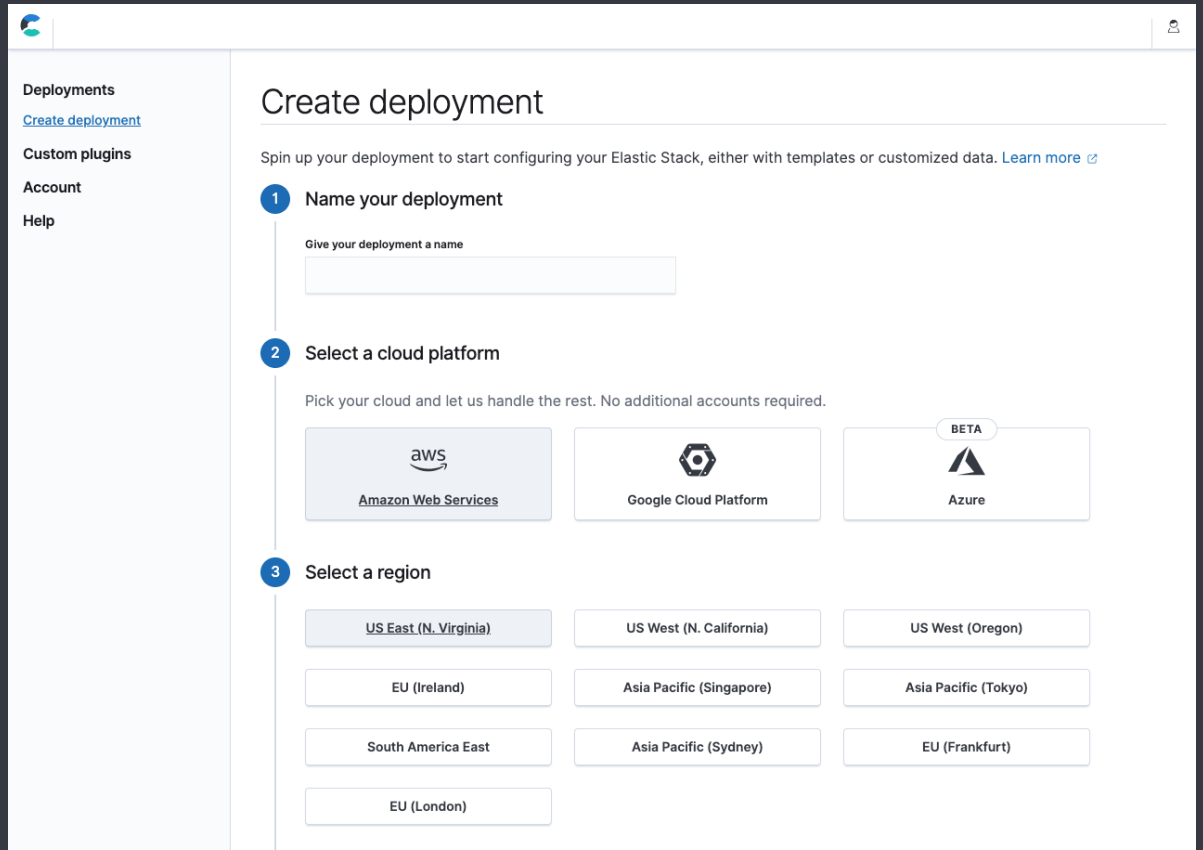
Elastic Cloud



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4 Set up your deployment

Elastic Stack version

7.4.2 Edit

Select a deployment to restore from its latest snapshot

Monitoring

Enable monitoring by shipping metrics to a deployment

5 Optimize your deployment

I/O Optimized

Recommended

Use for search and general all-purpose workloads. Includes a balance of compute, memory, and storage.

Default specs

Compute Optimized

Run CPU-intensive workloads or run smaller workloads cost-effectively when you need less memory and storage.

Default specs

Memory Optimized

Perform memory-intensive operations efficiently, including workloads with frequent aggregations.

Default specs

Hot-Warm Architecture

Use for time-series analytics and logging workloads that benefit from automatic index curation.

Default specs

Cross Cluster Search

Use to search data across one or more associated deployments

Default specs

Elastic Cloud supports many more options to cater to your specific use case such as hot-warm architecture optimized for logging, compute-focused setup optimized for analytics etc. Learn more

Deployment pricing

Hourly rate $0.3789

Create deployment | Customize deployment

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Ingestion

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Ingestion

- Read data
- Ship data
- Modify data
- Acknowledging
- Fail safety

Logstash is an open source, server-side data processing pipeline that ingests data from a multitude of sources simultaneously, transforms it, and then sends it to your favorite "stash."

https://www.elastic.co/products/logstash

Beats is the platform for single-purpose data shippers. They send data from hundreds or thousands of machines and systems to Logstash or Elasticsearch.

https://www.elastic.co/products/beats

Ingestion - Beats

- Filebeat
- Metricbeat
- Packetbeat
- Winlogbeat
- Auditbeat
- Heartbeat
- Functionbeat

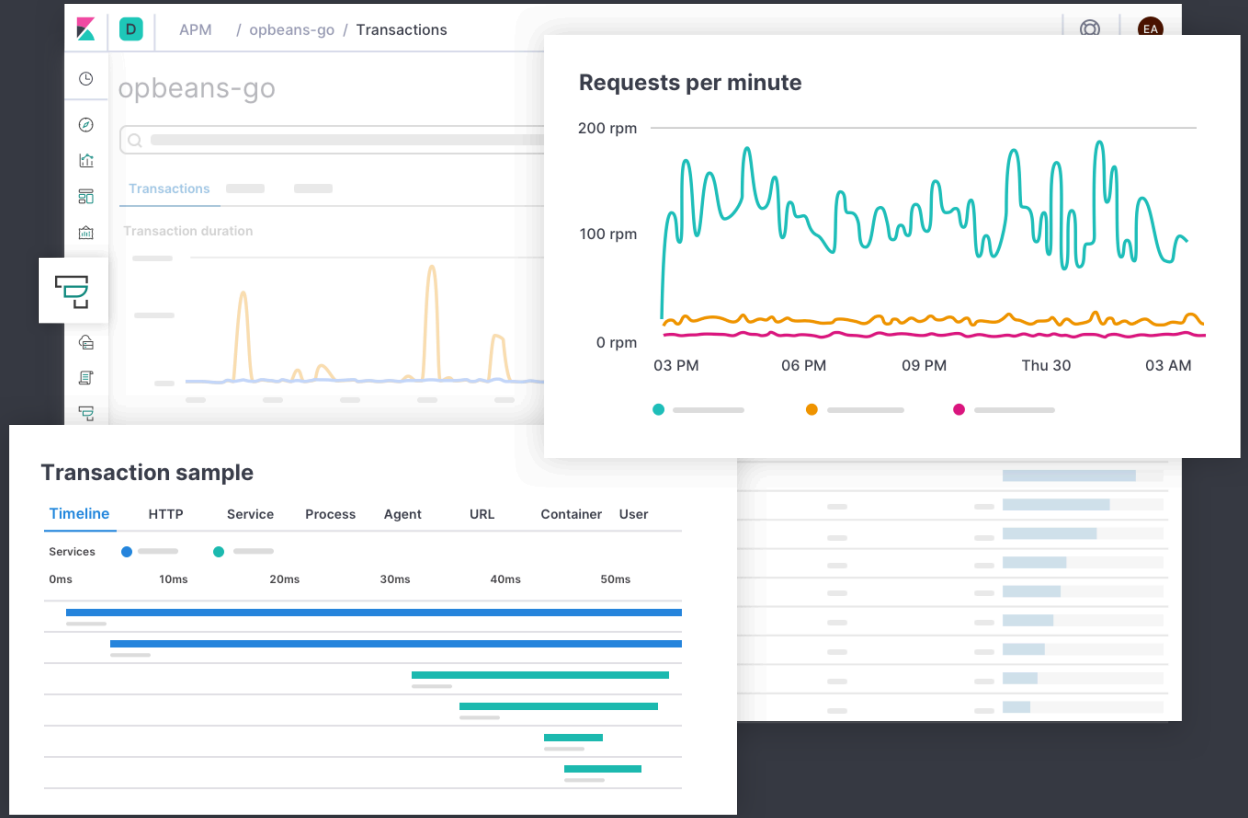
Today's setup

- Elasticsearch/Kibana on Elastic Cloud
- nginx running locally
- Filebeat: Ingest HTTP logs
- Metricbeat: Ingest metrics

DEMO

Next steps

APM & Distributed Tracing



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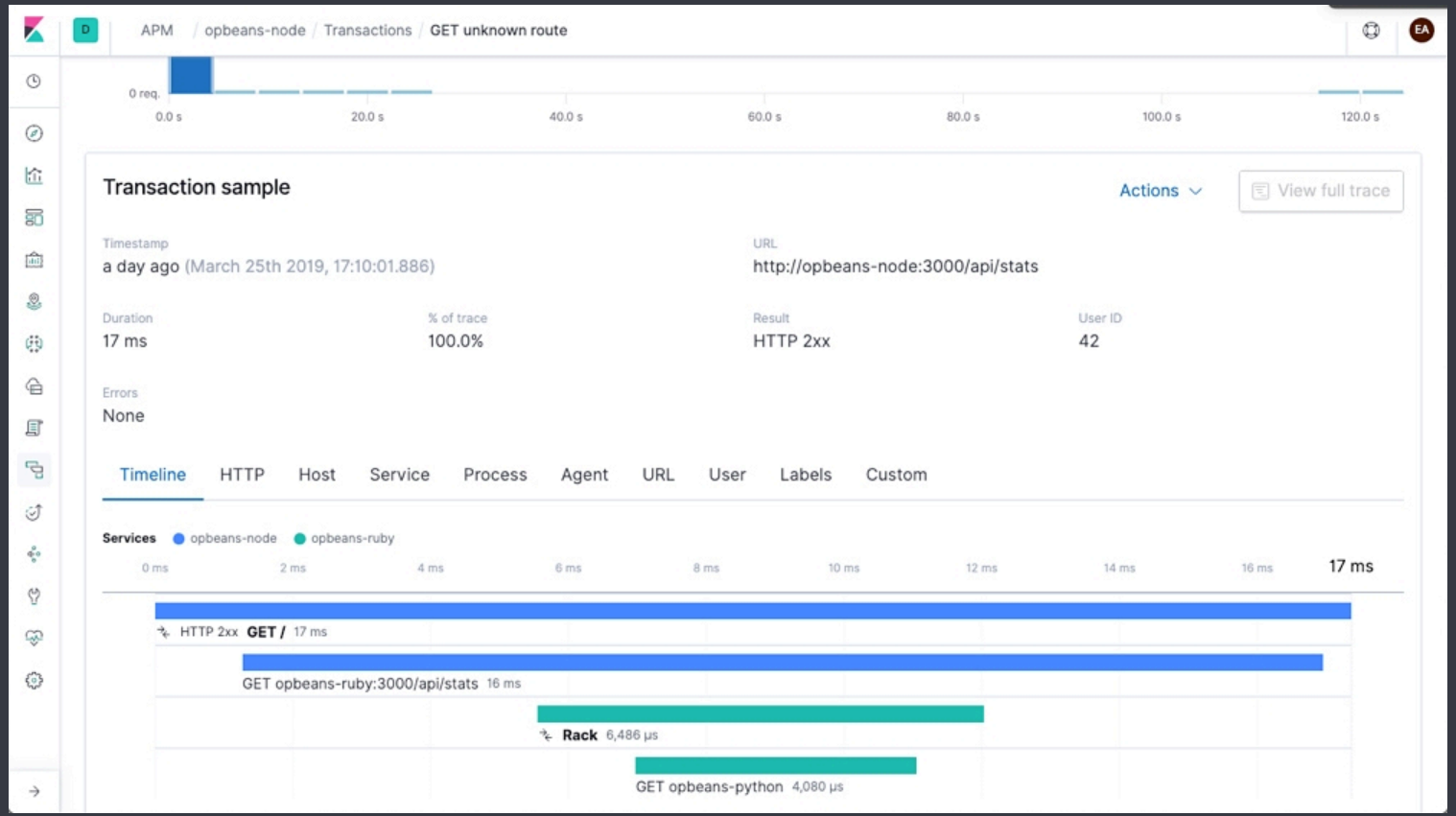
APM & Distributed Tracing



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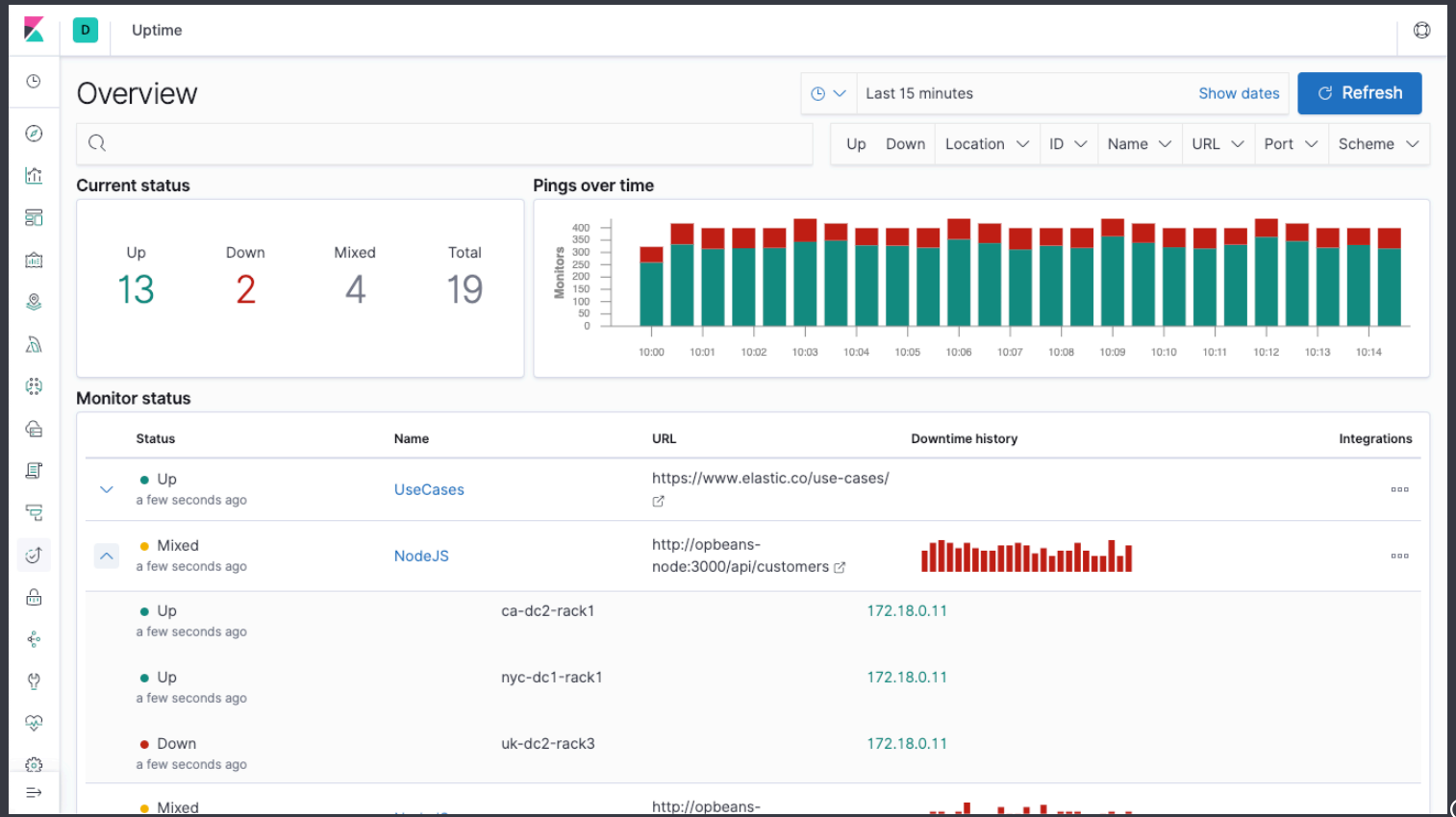
Uptime



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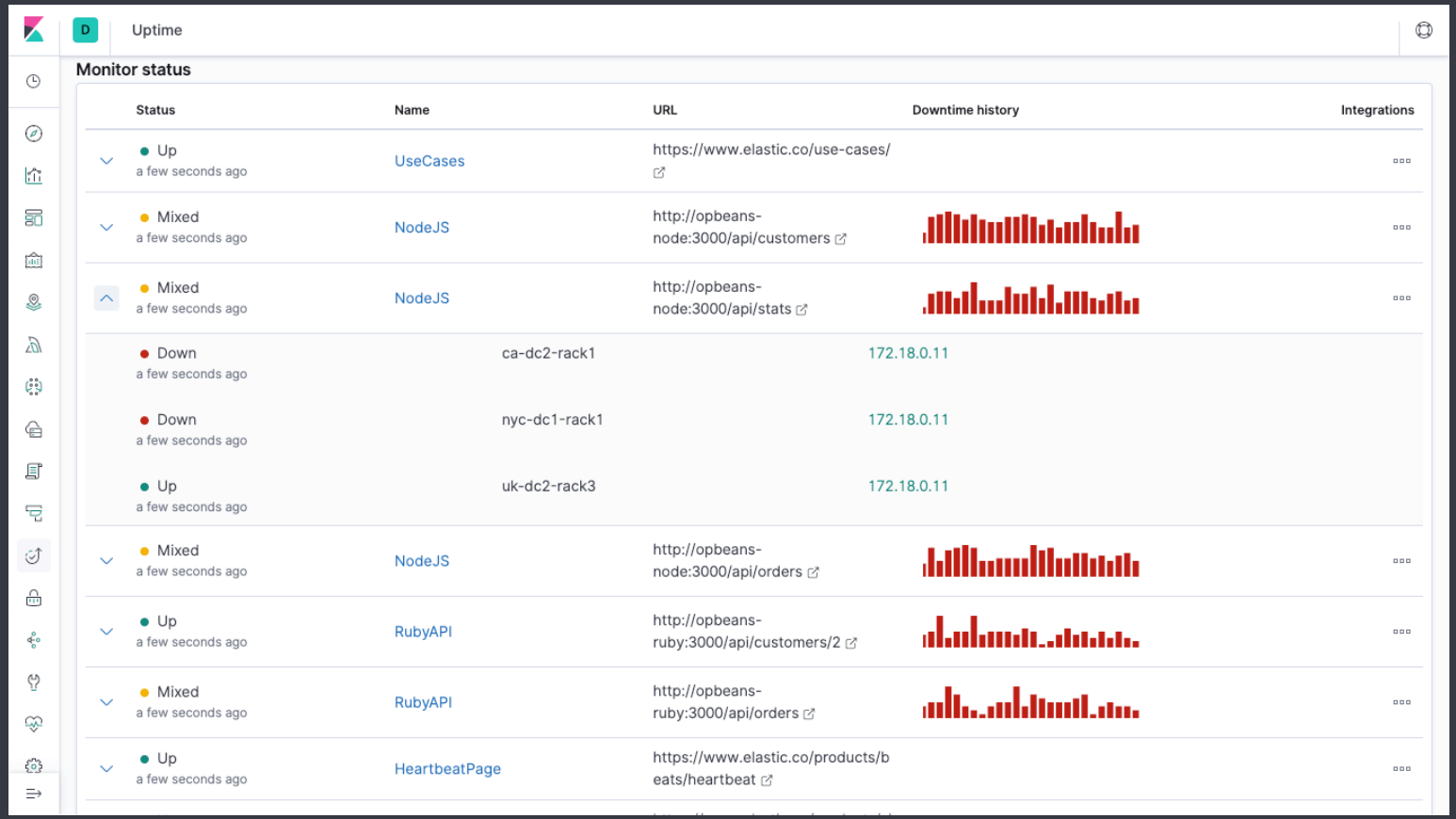
Uptime



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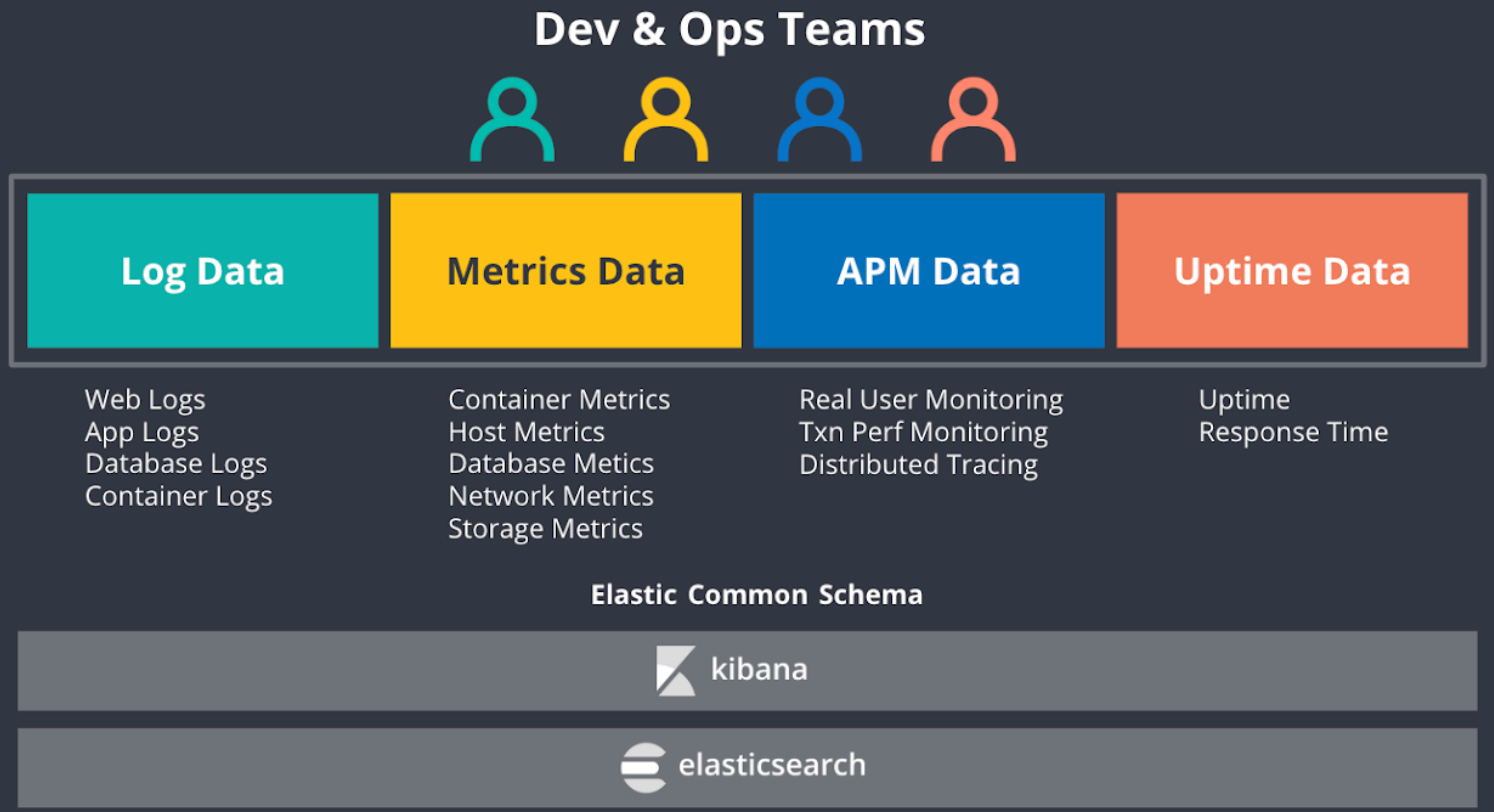
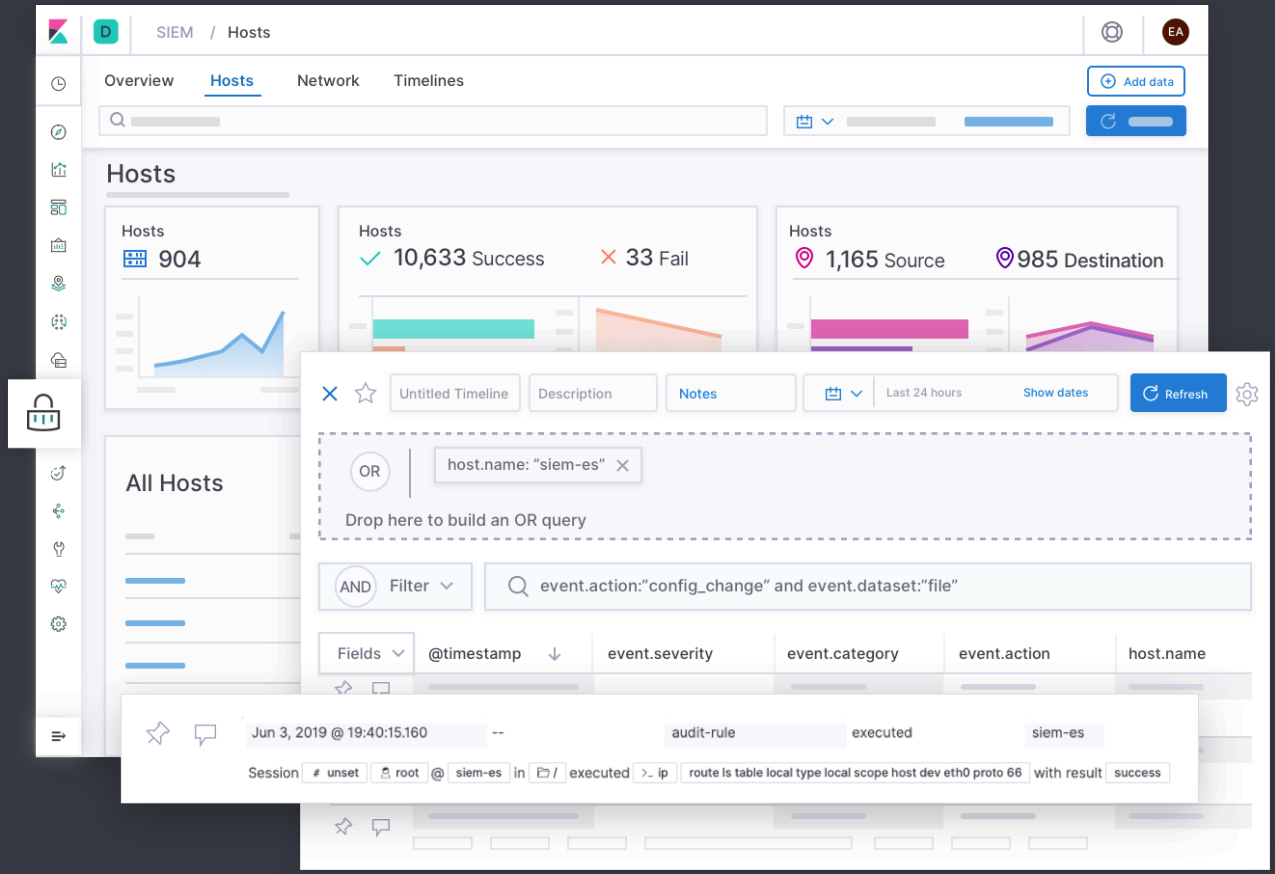
Elastic Approach to Observability



SIEM



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Machine Learning

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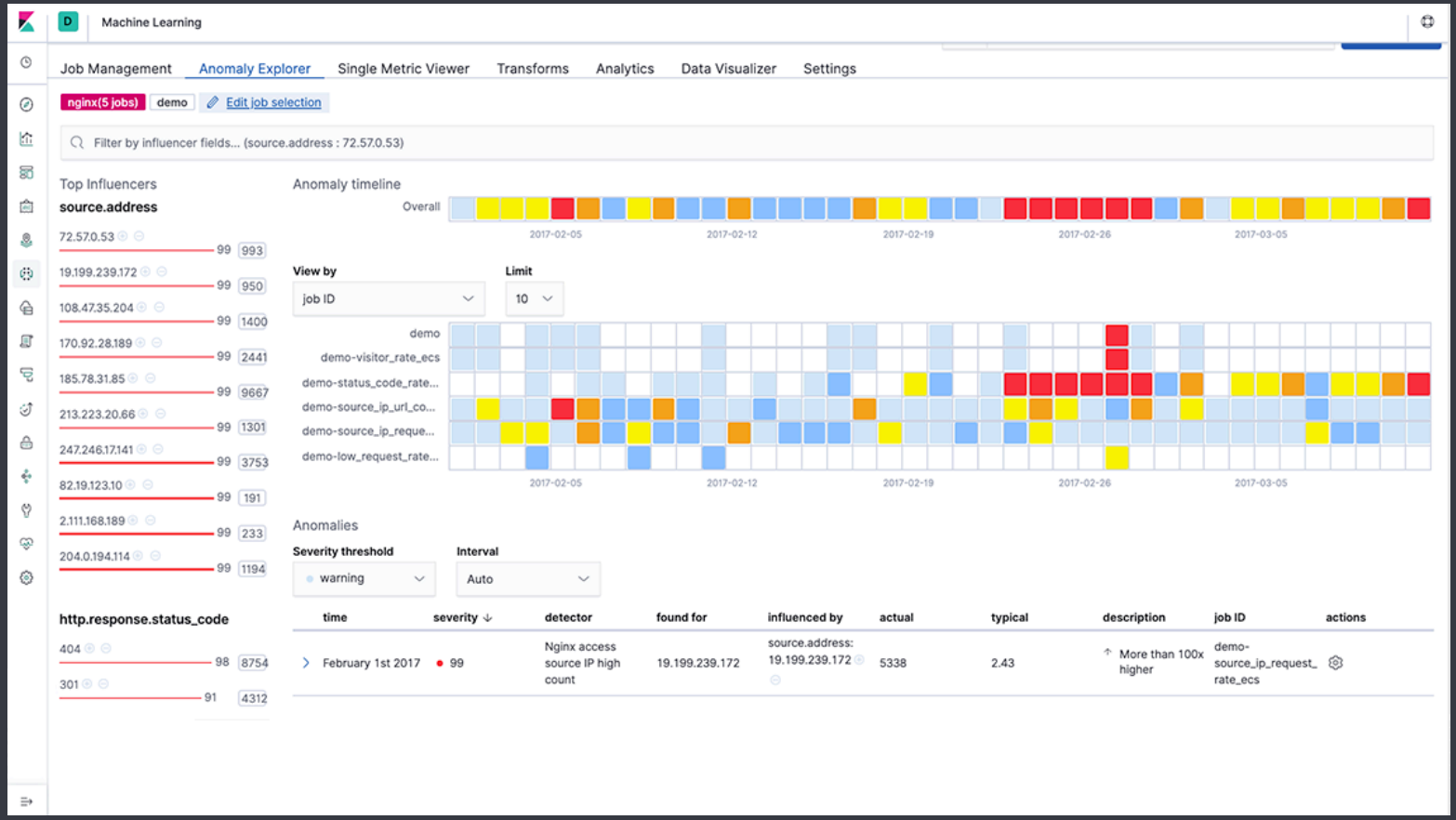
Machine Learning



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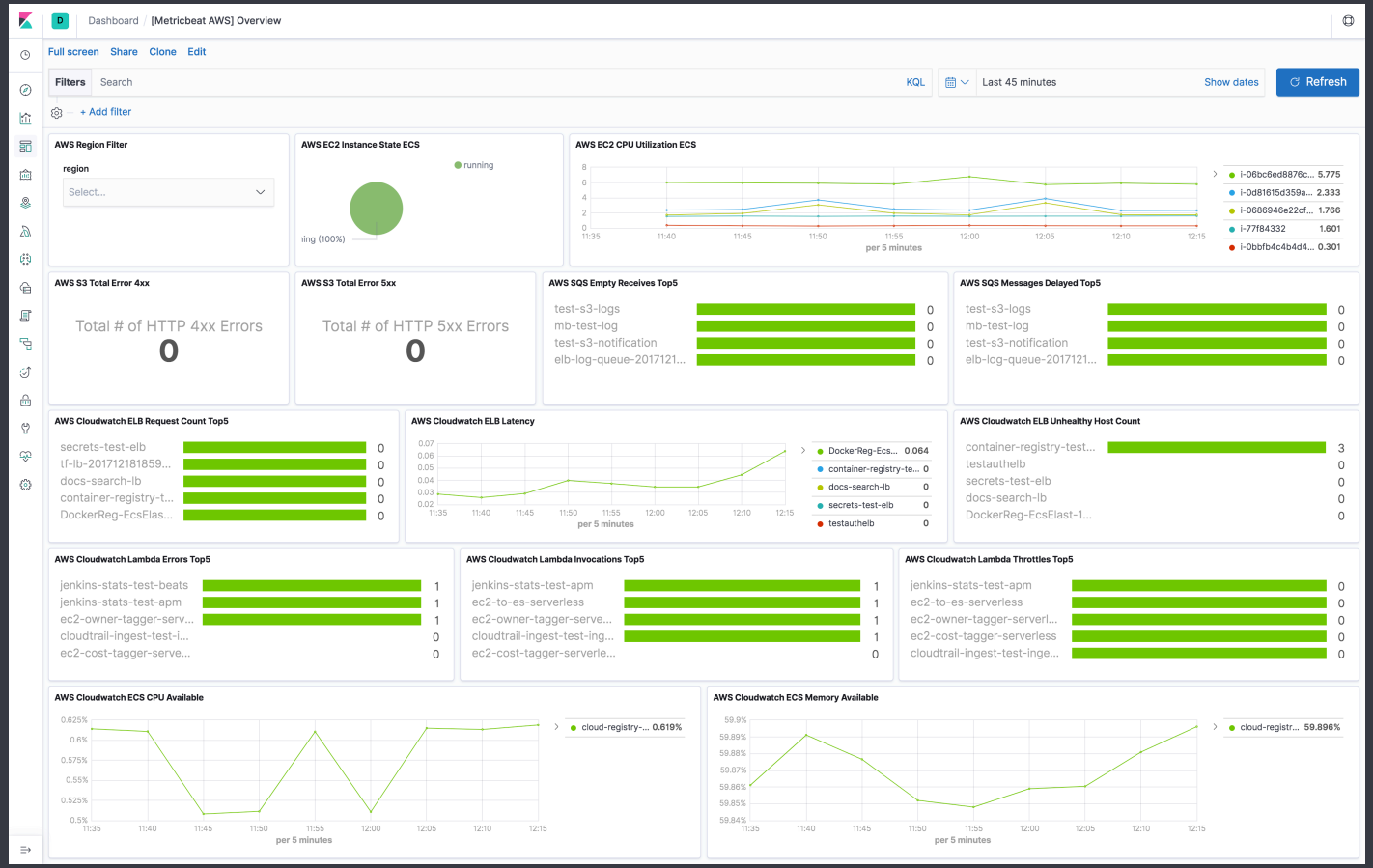
Cloud: AWS



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Cloud: Azure

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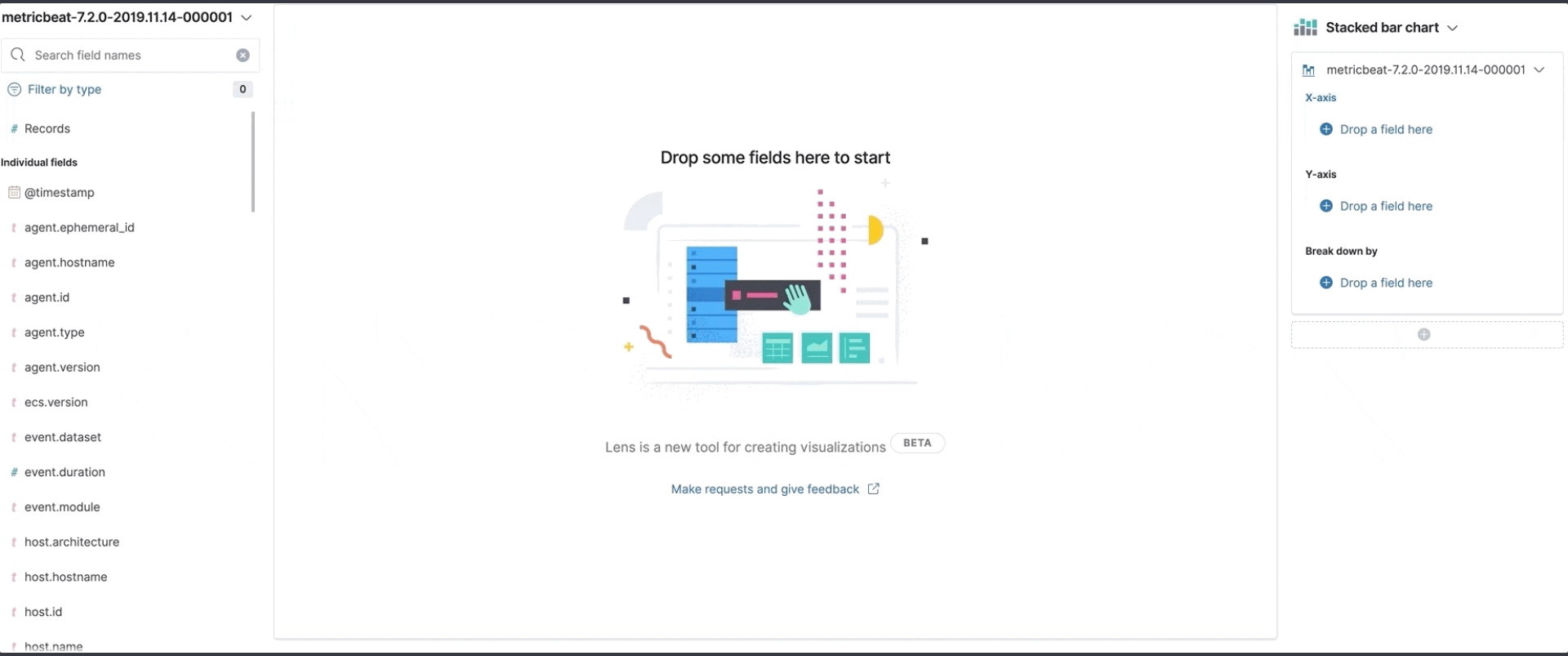
Kibana Lens



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Further information

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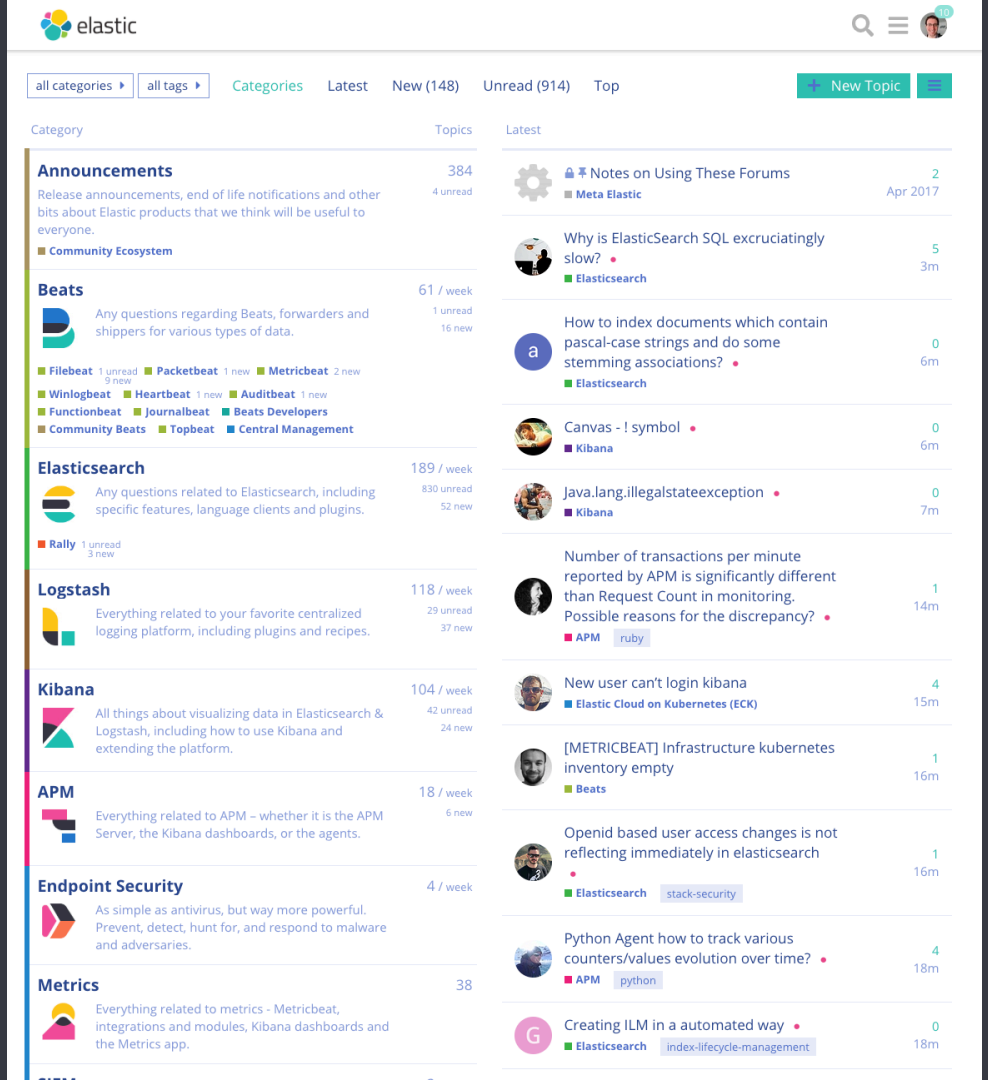

https://discuss.elastic.co

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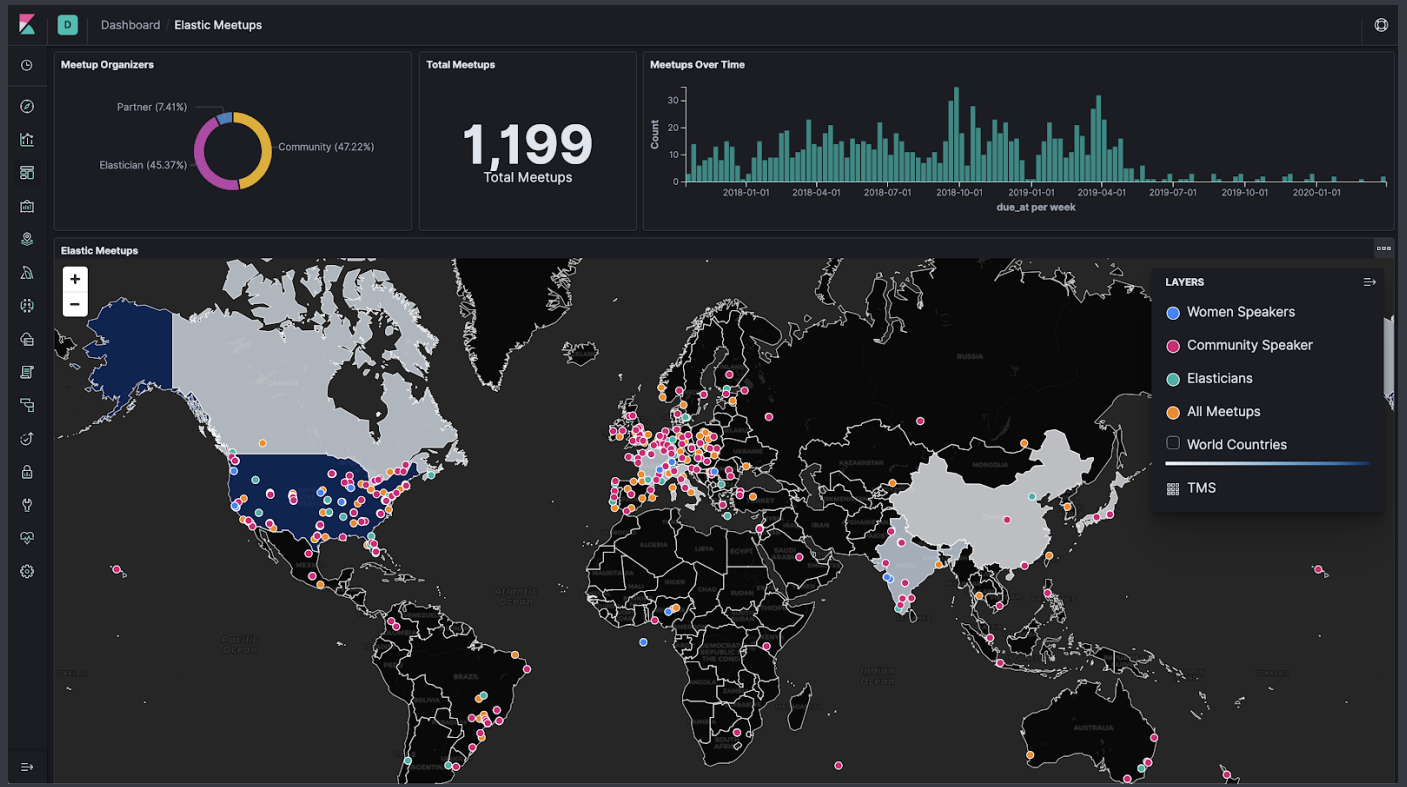

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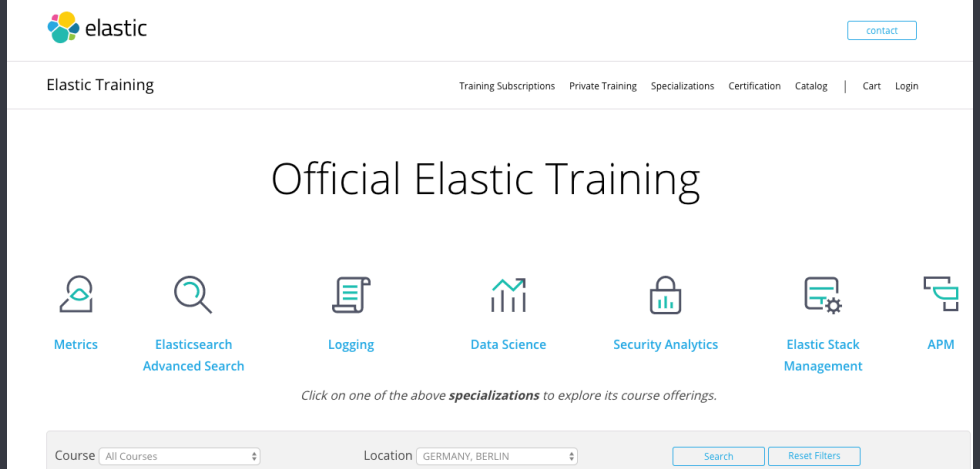

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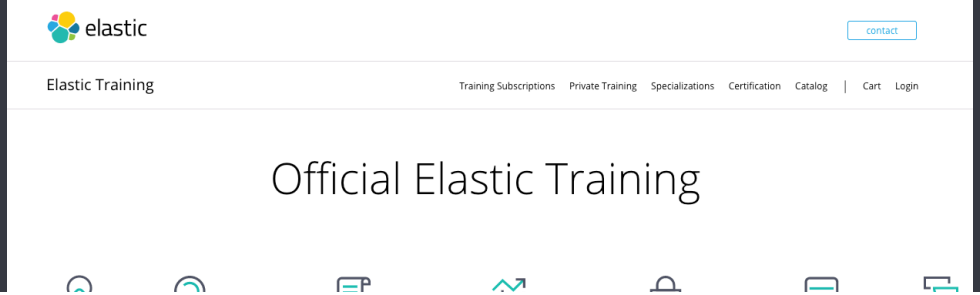

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Q & A

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