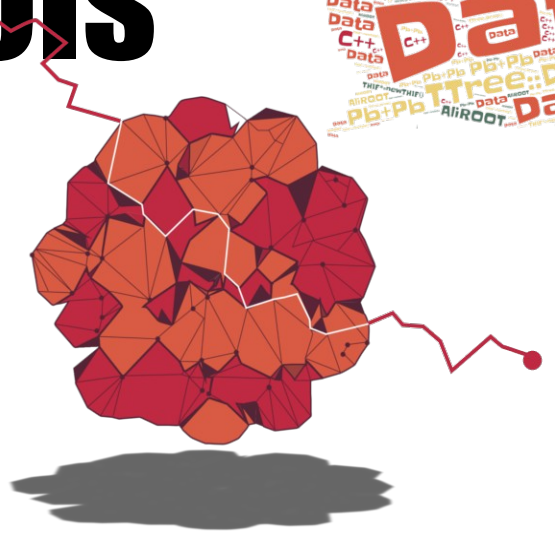
Elasticsearch+Kibana/Kibi as QA tools



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02.11.2016

Outline

Presentation of Elasticsearch+Kibana/Kibi as a possible tools for QA analysis.

Plan:

1.What are Elasticsearch, Kibana and Kibi?

2. How dose it work: The Example;

3. ES Parent-Child Relationship;

4. Summary.

The tools: What are Elasticsearch, Kibana and Kibi ?

elastic

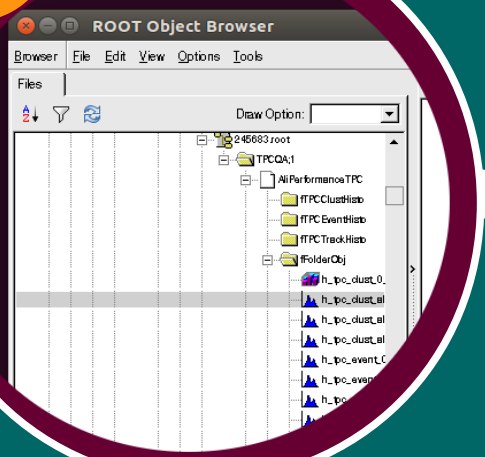
SIREn SOLUTIONS

Visualisation:

How dose it work?

1.

File.root



Conversion of the ROOT data to JSON files.

2.

3.

Elasticsearch

+

Kibana/Kibi

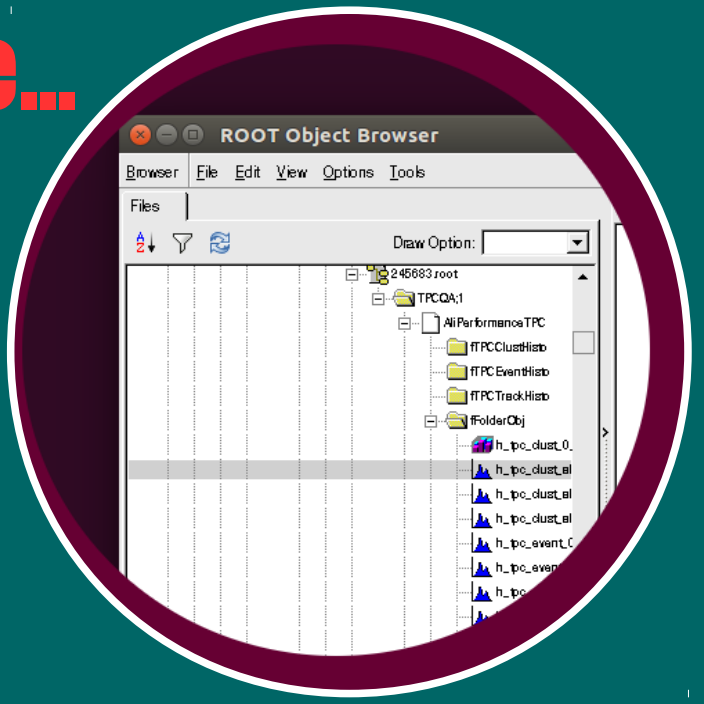
to visualisation

MONITORING

QA Alerts!

How dose it work?: An Example...

- Production: **LHC15o_pass1**;
- Number of runs: **27**;
- ROOT file: **QAresults.root;**
- Information → run-by-run trending:
  - **of mean of minimum bias multiplicity distribution;**



ROOT data to JSON files:

```
{
"mappings": {
        "multiplicity": {
                "properties": {
                "run":    { "type" : "integer"},
                "mean":   { "type" : "float"},
                "rms":    { "type" : "float"},
                "alert1": { "type" : "float"},
                "alert2": { "type" : "float"}
                        }
         }
}
}
```

Mapping

Document

```
{"index":{"_id":"7"}}
        {
        "run" :    "245738",
        "mean" :   "621.000000",
        "rms" :    "604.218933",
        "alert1" : "948.224304",
        "alert2" : "964.000549"
        }
```

fields

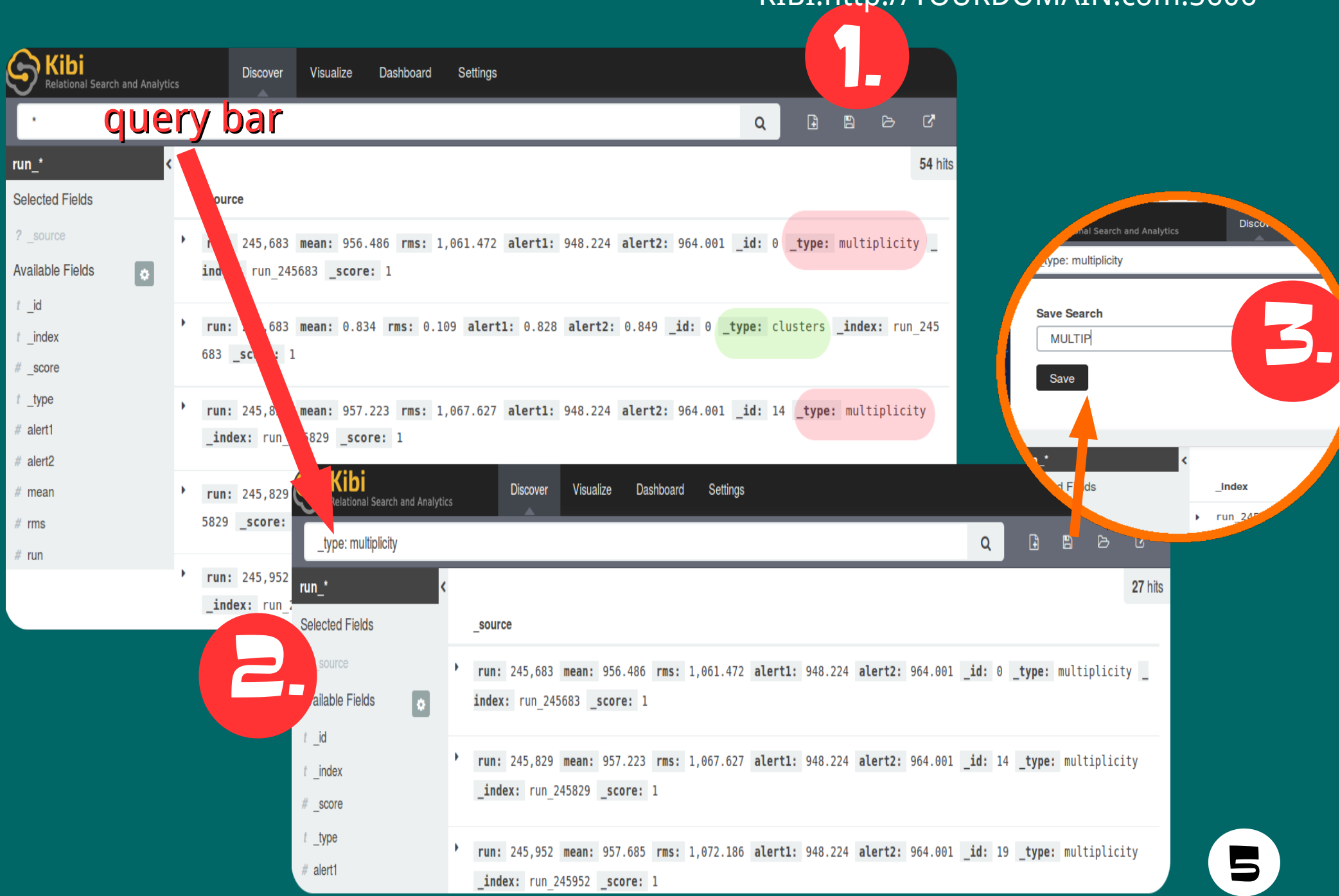
_type:multiplicity

curl -XPOST 'localhost:9200/_index -d @mapping.json

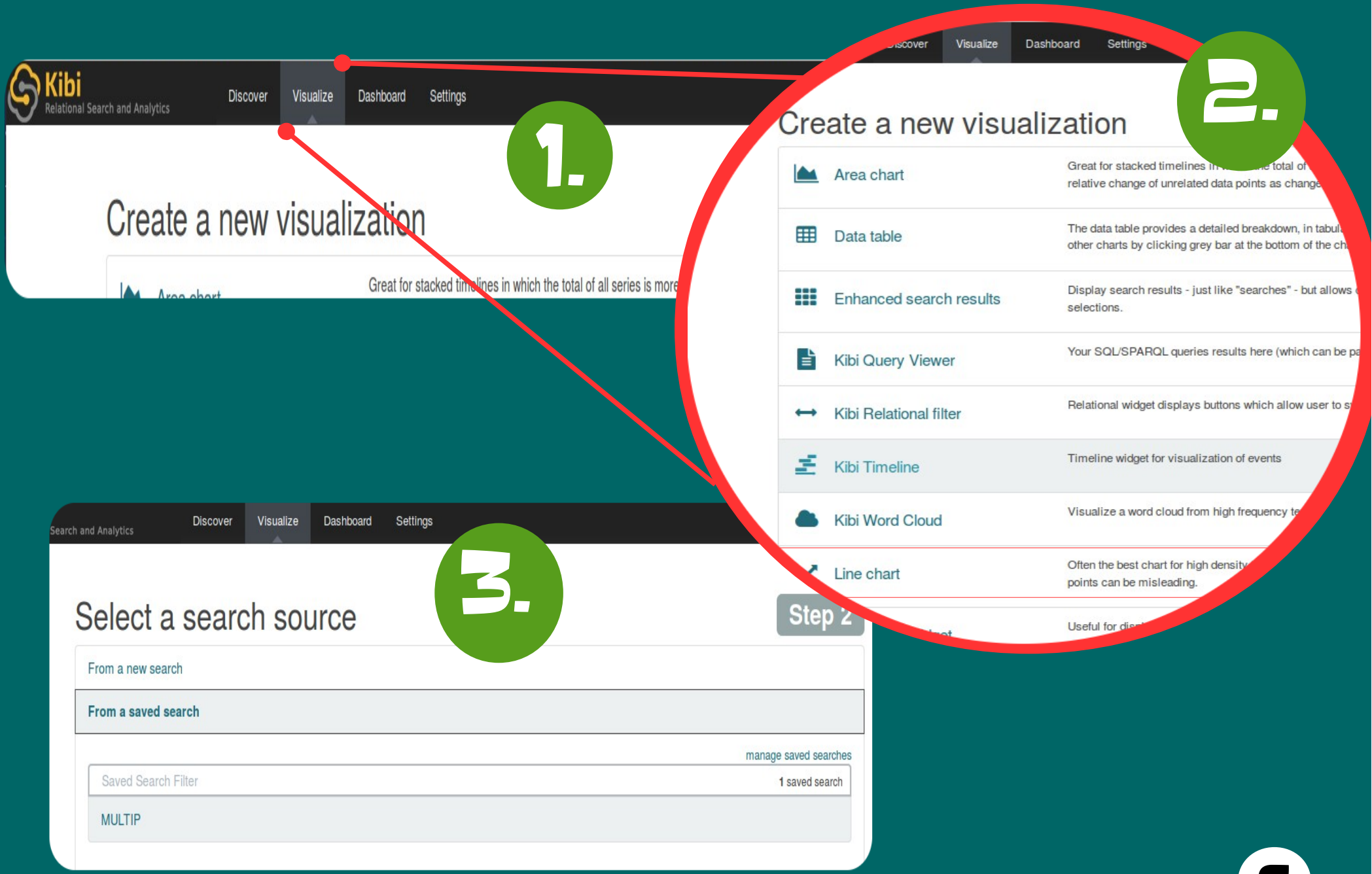
Explore the data...

KIBANA:http://YOURDOMAIN.com:5601

KIBI:http://YOURDOMAIN.com:5606



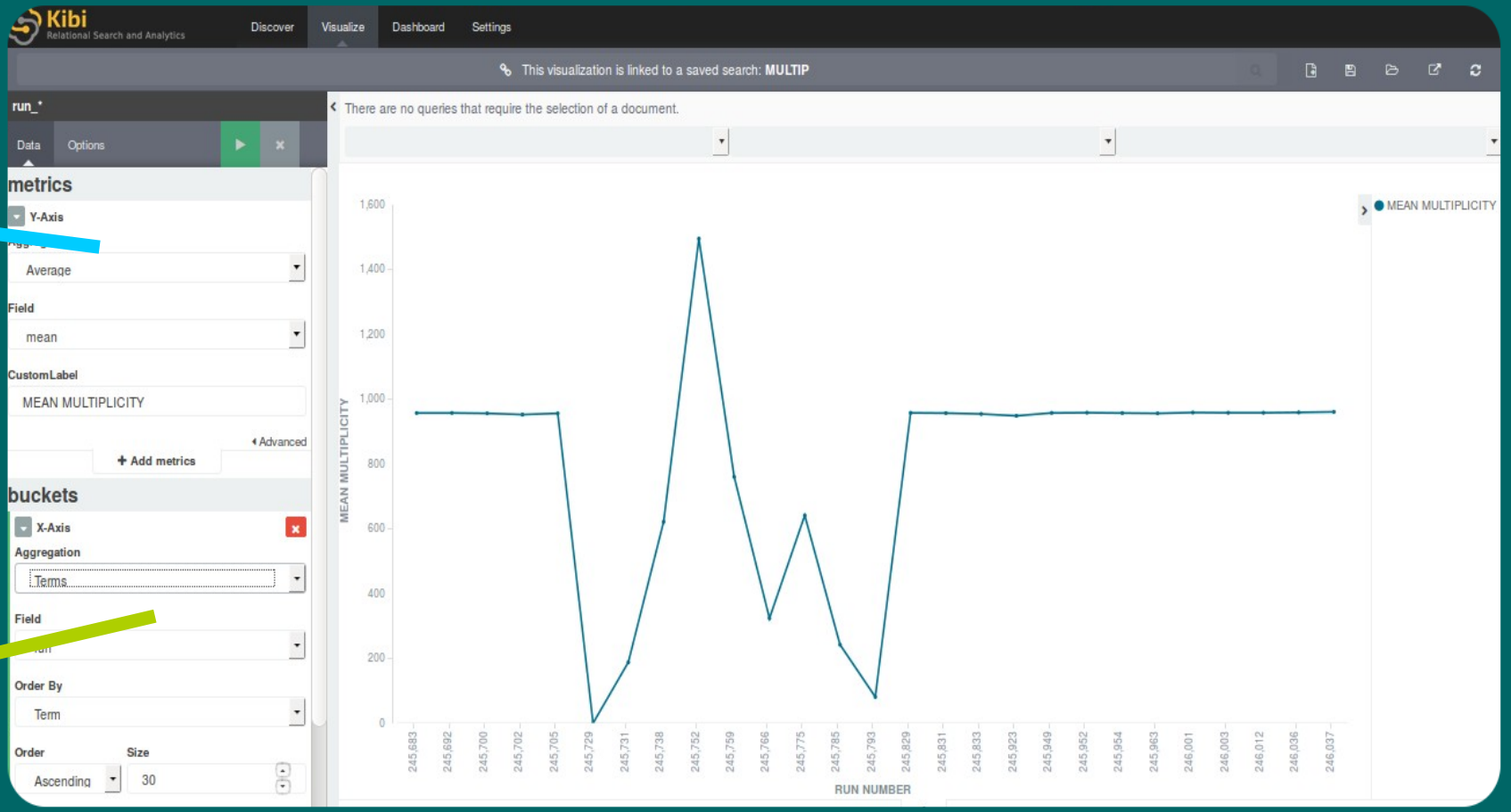
Visualization of the data...



Visualization of the data...

Y Axis:
mean MB
multiplicity

X Axis
run number

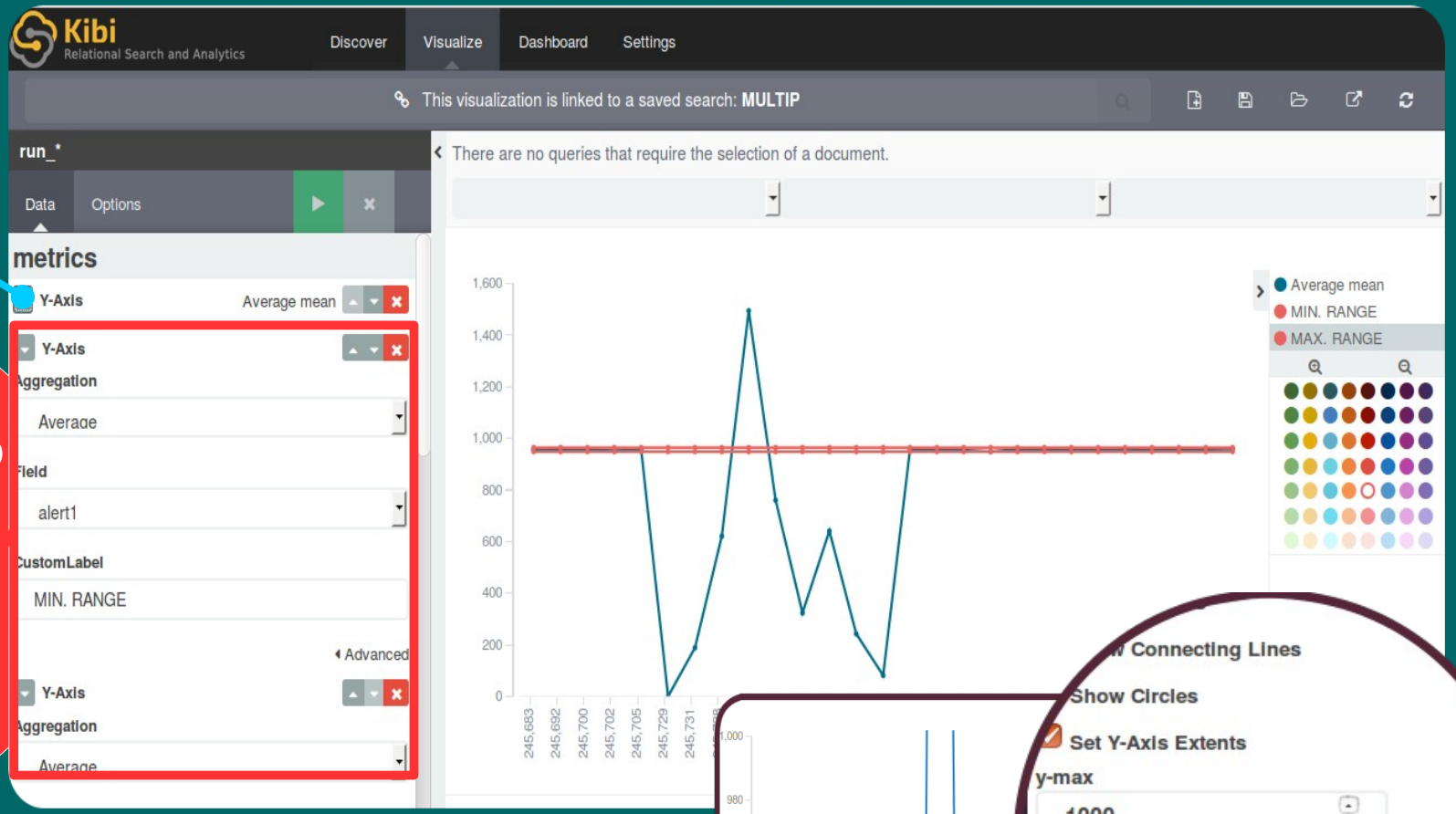


Visualization of the data: Some Alerts!

Y Axis:
mean MB multiplicity.

1.

Superimposed two alerts selection criteria arbitrary implemented in the JSON files.



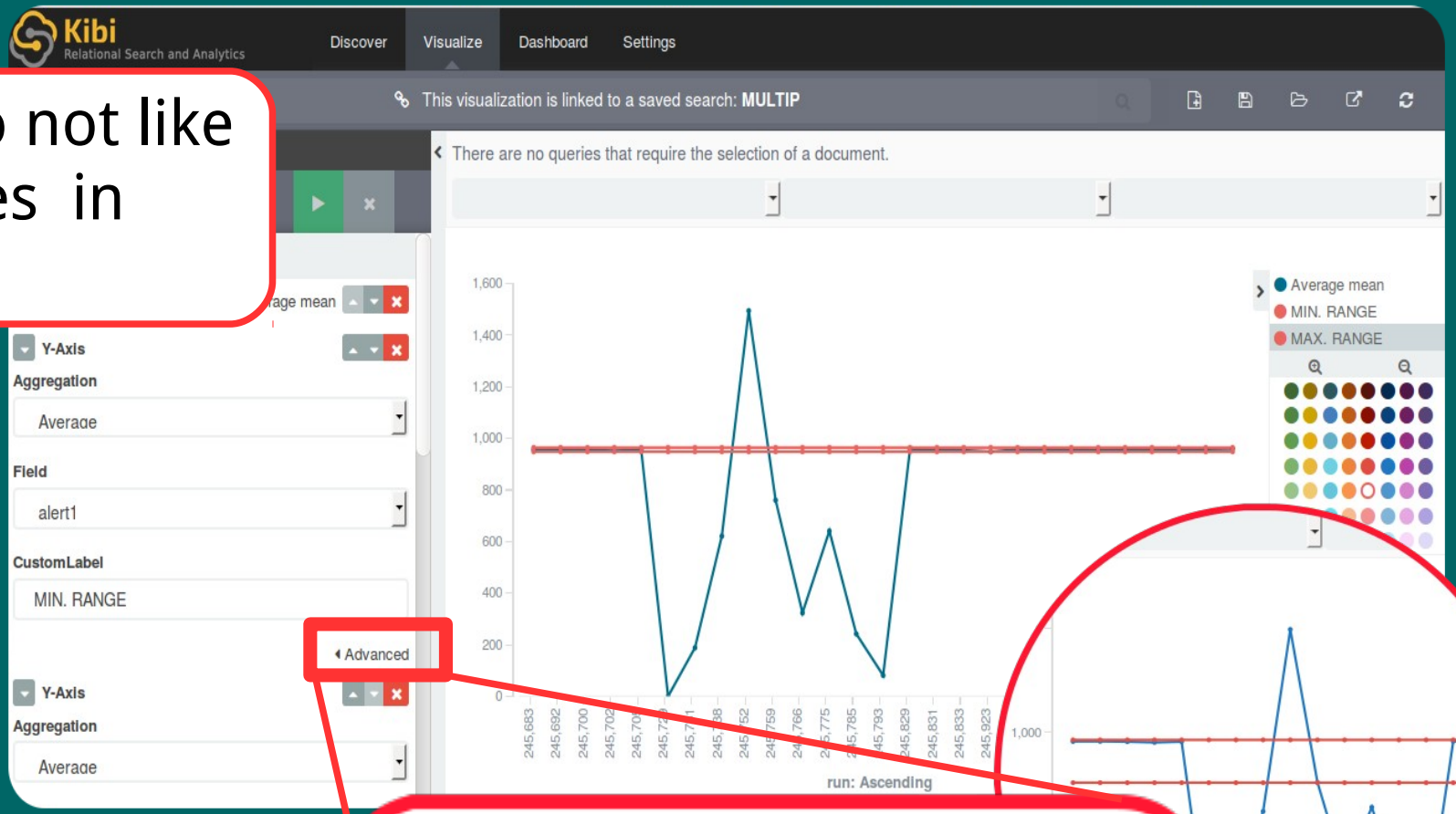
2.

One can easily change a visualization properties.

Visualization of the data: Some Alerts!

1.

What if one do not like the alert ranges in JSON file?!

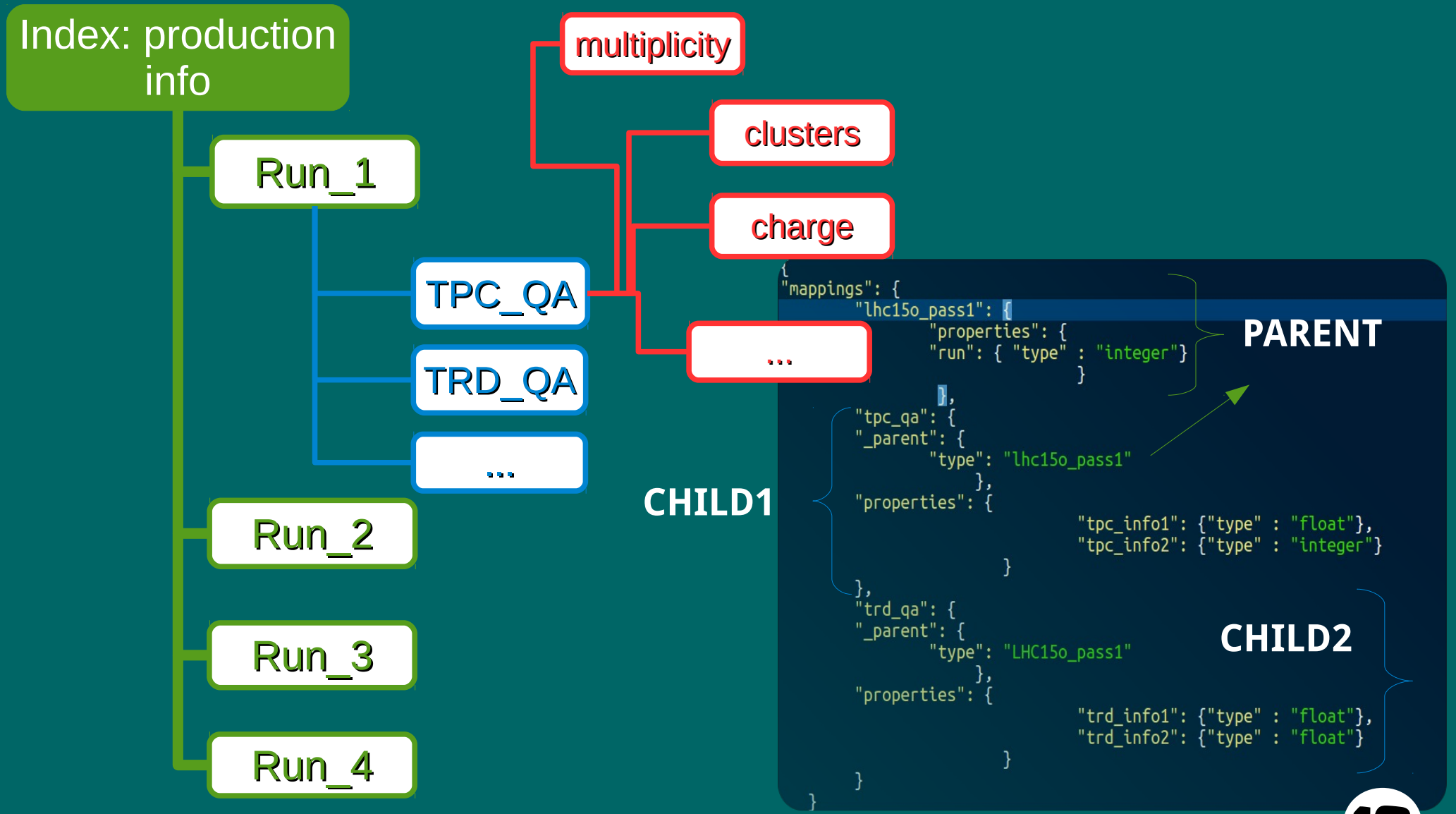


2.

...they can be easily changed using **Kibana/Kibi script options**...

Parent-Child Relationship

The consider QA document structure in ES:



Parent-Child Relationship

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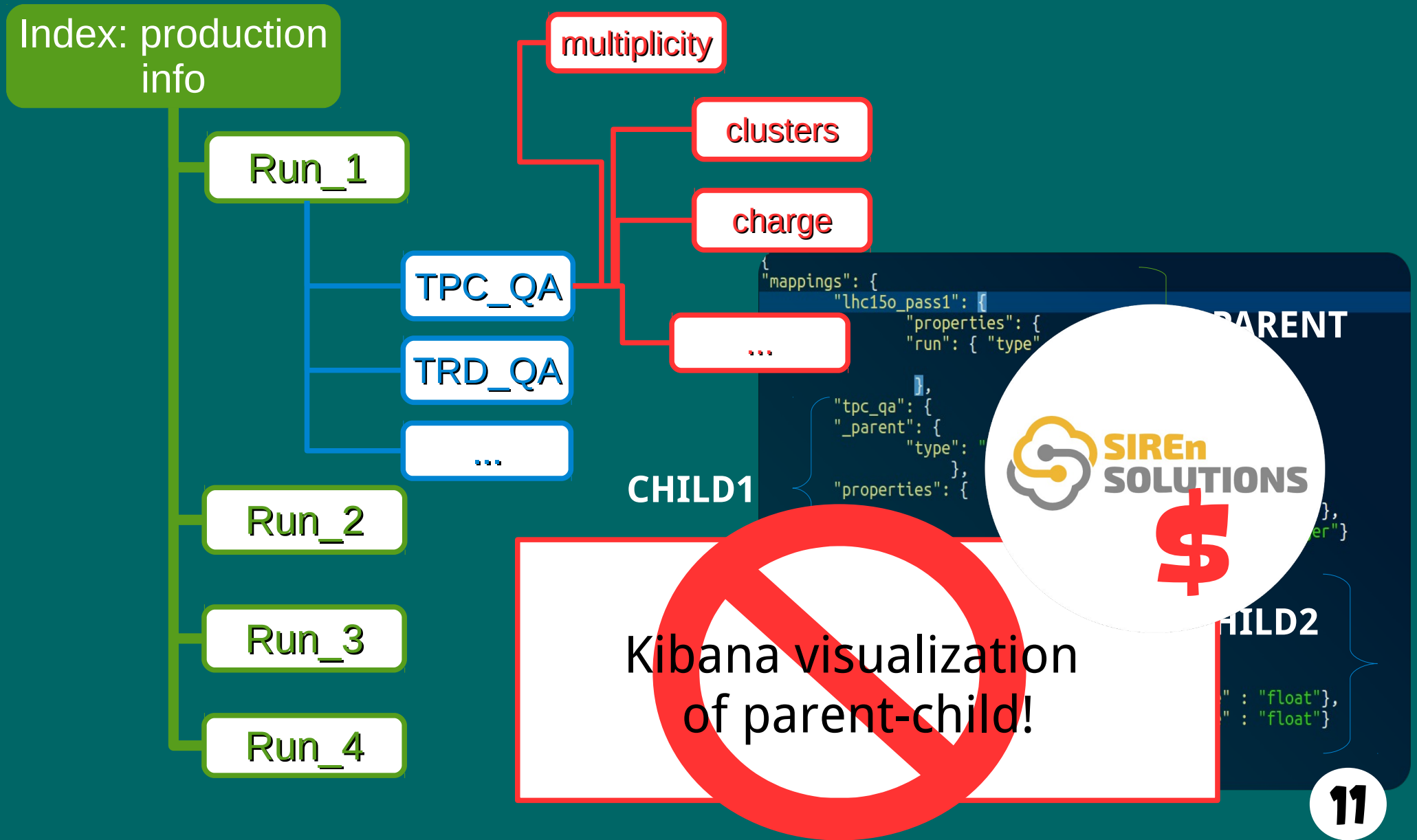
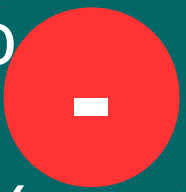


Summary

1. ES/Kibana/Kibi Pros and Cones:

→ ES/Kibana/Kibi: available, open source tools;
→ ES fast search engine;
→ Kibana/Kibi -"user friendly" visualization tools;

→ Kibana- no visualization of correlations between two documents;
→ Kibi – correlations available but not in open source :(



2. TO DO: Test ES/Kibana/Kibi to read large data/statistic, we are going to use Logstash.

THANK YOU!