EFFICIENT PROBLEM ANALYSIS WITH DATA ANALYTICS

Assignment

We develop complex systems that control machines. To test these systems, we need test automation, which typically gathers a lot of data. This data is a haystack when it comes to finding root causes of failed tests. That's why we need ways to:

- Collect data from multiple sources, like OS'es, applications, control SW and test results
- Structure this data
- Make the data accessible and visualize it in a flexible way

This enables us to:

1. Continuously monitor systems (locally & remotely)
2. Efficiently analyze and compare test runs

A toolset like ElasticStack provides out-of-the-box solutions for the above scenarios.

Can you help us, in the context of systems for machine control, to analyze what is needed in these use cases? And can you provide a working prototype, based on one of our systems?

Internship overview

- Bachelor
- Internship / Graduation
- Application Software/ Testing
- Location: Eindhoven

Technologies

- Analytics / Problem Analysis
- Logging
- Monitoring

Activities

We'd like the following aspects to be addressed in this assignment:

- Define requirements for logging/tracing for these types of systems. These requirements will be input for development projects and form the basis for data provided by the control software of these systems.
- Define a template approach for creating control software monitoring systems, by identifying the types of data to include and relations to make
- Make a list of available tools that enable us do this (like aforementioned ElasticStack), with their strengths and weaknesses
- Choose one of the tools from your list and implement a system monitor for one of our systems under development
- Integrate test results in the system monitor for efficient root cause analysis

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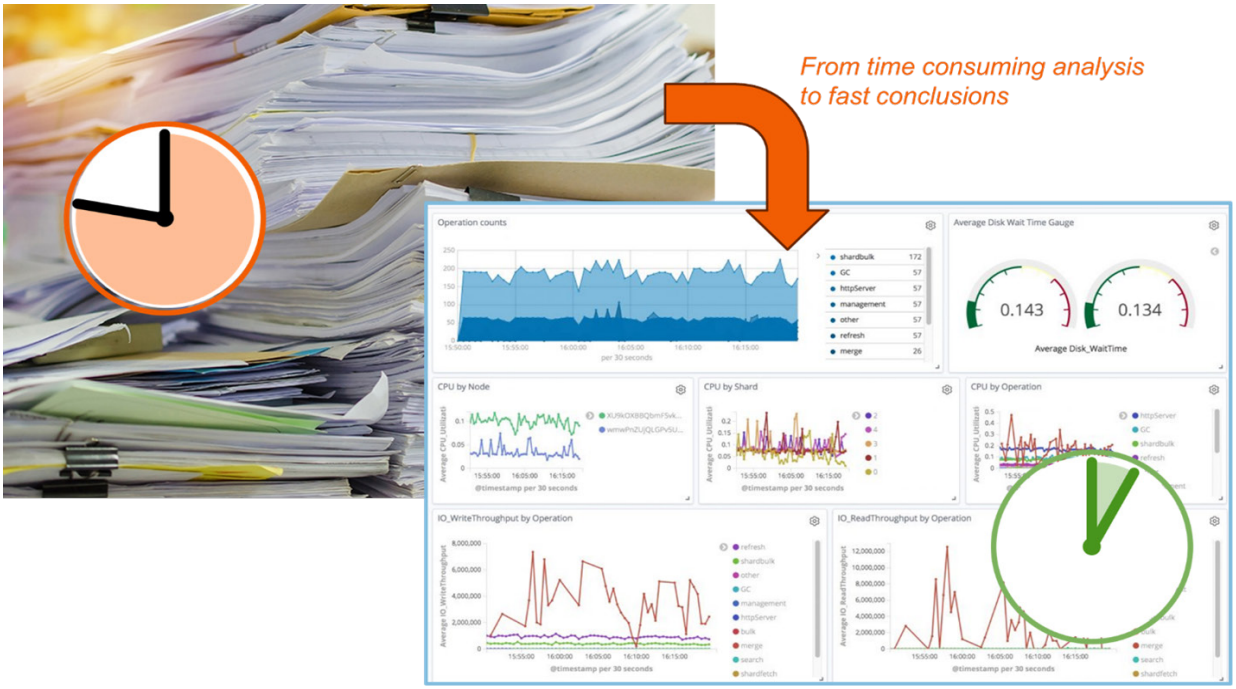
Context.

The machines that we develop, run production based on parameters from recipes. It requires consumables and semi-finished product to go in and waste and finished product to come out of the machine. During operation, besides continuous data from cameras and other sensors, also events, warnings, alarms, and errors occur. This needs to be handled in the context of the status of the machine.

Because of the magnitude of all this data, the ability to monitor what is happening inside the machine is crucial for efficient operation. And when testing the machine on system level, all this data needs to be placed in the context of the test being executed.



Get in touch!
Would you like to know more about this student assignment?

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