## OPSTARTVERSLAG Academiejaar 2017 - 2018

~~AT~~ , E-ICT , ~~EMA~~ , ~~EMK~~ , ~~EMO~~ , ~~OP~~

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Titel bachelorproef

***Utilize Docker container and Selenium Grid technology to improve resource efficiency in the runtime of a Software Deployment & Testing Framework (SDTF).***

**(definitieve)**

VASCO Data Security

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**GEGEVENS Bachelorproef**

**Omschrijving Probleem**

VASCO’s software deployment and testing framework (SDTF) runs on a windows test control host. Migrating it to a microservice based architecture using docker containers and selenium grid technology would reduce the amount of resources required to run the framework and the test running on it.

This would lead to a more cost-effective system as it removes the need to virtualize the operating systems on V-Cloud. Furthermore, it will be possible to use these resources to run more tests in parallel.

This thesis will investigate how to implement these technologies and document the resulting performance increase.

**Doelstellingen van de bachelorproef (kwantitatief en moeten meetbaar zijn)**

Define a deployment architecture for the SDTF and dependent test resources to:

* Utilize Docker container technology (i.e. microservice architecture) in its runtime
* Utilize Selenium Grid technology in the execution of web-based test suites

In addition the thesis would need to:

* Define the impacted test suites
* Document the changes to the affected test suites.
* Migrate the existing suites to the defined architecture
* Create a working demo running these suites on VASCO’s test infrastructure

The conclusion should

* Document he advantages and disadvantages of the proposed changes
* Include a discussion on the difficulties encountered with the solution/technologies
* Quantify the proposed solution’s impact in terms of saved resources

Stretch goals could include

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The subsequent goal is to measure the impact this has on the resource usage of the set up as a whole and quantify how many more tests can be run in parallel using this framework as opposed to the current way of running everything in VMs on V-Cloud.

**Gewenste resultaat (Wat moet er (minimaal) opgeleverd worden?)**

Minimum:

* Define a deployment architecture for the SDTF and dependent test resources to:
  + Utilize Docker container technology (i.e. microservice architecture) in its runtime
  + Utilize Selenium Grid technology in the execution of web-based test suites
* Run the webadmin suite on top of this new deployment architecture
* Define the impacted test suites
* Quantify the impact on the resource implementing this
* Investigate the feasibility of getting

Stretch:

* Run the BuildIntake test suite on top of the new deployment architecture.
* Put the Radius clients in containers.
* Investigate dynamically allocating resources: see what technologies exists for allocating resources to containers or processes as needed, and how to implement them.

**Opmerking :** alle bijzondere kosten gemaakt buiten het bedrijf en/of hogeschool, evenals de verplaatsingskosten zijn ten laste van de student, tenzij anders overeengekomen.

In het bedrijf is er (\*) ~~familie~~ / (\*) **geen familie** van de student die deel uitmaken van de begeleiding van de student.

(\*) Doorhalen wat niet van toepassing is.

**Opgemaakt te** **op**

**Handtekeningen :**

Bedrijfspromotor Schoolpromotor Student 1 Student 2

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