Testing as a Service (TaaS): A Systematic Literature Map

Gustavo Girardon
Federal University of Pampa, Brazil
ggirardon@gmail.com

Victor Costa
Federal University of Pampa, Brazil
victorsc.rs@gmail.com

Rodrigo Machado
Federal University of Pampa, Brazil
rodrigo.blizzard92@gmail.com

Maicon Bernardino
Federal University of Pampa, Brazil
bernardino@acm.org

Guilherme Legramante
Federal University of Pampa, Brazil
guilhermelegramante@gmail.com

Fábio Paulo Basso
Federal University of Pampa, Brazil
fabiobasso@unipampa.edu.br

Elder de Macedo Rodrigues
Federal University of Pampa, Brazil
elderrodrigues@unipampa.edu.br

Anibal Neto
Federal University of Pampa, Brazil
netoiiung@gmail.com

ABSTRACT

Background: The knowledge and application of tools to automate testing is essential to ensure software reliability and therefore its quality. Due to the increasing demand for quality in software projects executed in short time-scales, Testing as a Service (TaaS) appeared in the literature as contributions for cost reduction and productivity of automated tests. *Aims*: Once quality attributes from these contributions are not deeply discussed by the literature of the area, our goal is to investigate and identify these attributes from the TaaS platforms and providers commonly reported in the literature. *Method*: A protocol was formulated and executed according to the guidelines for performing systematic literature map in Software Engineering. *Results*: The TaaS providers and platform proposals found were classified according to the number of mentions in the literature, highlighting the most commonly mentioned and widespread. As well as the propagation and explanation of the main advantages and disadvantages reported in the literature on Testing as a Service. *Conclusions*: TaaS provides means for cost reduction and increase in productivity in comparison to traditional test approaches. This is a reality observed in 76 options for Test as a Service cloud platforms distributed over 52 papers. In addition, as their quality attributes, we also found eight groups of disadvantages and 21 of advantages. Thus, this systematic mapping is a valuable contribution for decision making on performance testing strategies.

CCS CONCEPTS

• **Software and its engineering → Software verification and validation**; **Cloud computing**;

KEYWORDS

Testing as a Service, TaaS, Cloud Testing, Systematic Mapping.

ACM Reference Format:
Gustavo Girardon, Victor Costa, Rodrigo Machado, Maicon Bernardino, Guilherme Legramante, Fábio Paulo Basso, Elder de Macedo Rodrigues, and Anibal Neto. 2020. Testing as a Service (TaaS): A Systematic Literature Map. In *The 35th ACM/SIGAPP Symposium on Applied Computing (SAC '20), March 30-April 3, 2020, Brno, Czech Republic.* ACM, New York, NY, USA, 8 pages. https://doi.org/10.1145/3341105.3374004

SAC '20, March 30-April 3, 2020, Brno, Czech Republic

ACM ISBN 978-1-4503-6866-7/20/03…$15.00
https://doi.org/10.1145/3341105.3374004