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## Keynote Speech

### **Perspectives on Dependability and Security Benchmarking: TO BENCHMARK OR NOT TO BENCHMARK**

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#### **Abstract**

A benchmark is a standard procedure that allows comparing systems or components according to specific characteristics (e.g., performance, dependability, security). The work on performance benchmarking has started long ago. Ranging from simple benchmarks that target a very specific hardware system or component to very complex benchmarks focusing on complex systems (e.g., database management systems, operating systems), performance benchmarks have contributed to improve successive generations of systems. Research on dependability benchmarking has been boosted in the beginning of the millennium, leading to the proposal of several dependability benchmarks. Several works have been carried out by different groups and following different approaches (e.g., experimental, modeling, fault injection). Due to the increasing relevance of security and resilience aspects, benchmarking research is moving into different and hot directions.

In this keynote we will discuss the recent achievements in the benchmarking domain, and the grand challenges that need to be addressed in order to effectively be able to assess compare alternative systems and components. In addition to the metrics and the benchmarking procedure, we will discuss enabling techniques and tools to support benchmarking, with particular focus on trustworthiness measurement.

#### **About the speaker**



**Marco Vieira** is a Full Professor at the University of Coimbra, Portugal, where he has been involved in research on dependable and secure computing since 2000. His research interests include dependability and security assessment and benchmarking, fault injection and vulnerability & attack injection, robustness and security testing, software Verification & Validation, online failure prediction, and resilience benchmarking, subjects in which he has authored or co-authored more than 170 papers in refereed conferences and journals. Marco Vieira has served on the program committee of the major conferences on the dependability area and acted as referee for many international conferences and journals. He is currently Program Committee Co-chair of the IEEE/IFIP 2018 International Conference on Dependable Systems and Networks (DSN 2018), and was in the recent past PC Chair of the 12th European Dependable Computing Conference (EDCC 2016), PC Co-Chair of the 7th Latin

America Symposium on Dependable Computing (LADC 2016), and PC Co-Chair of the International Symposium on Software Reliability Engineering (ISSRE 2015). Marco Vieira is an Associate Editor of the IEEE Transactions on Dependable and Secure Computing (TDSC), and guest edited a special issue on Security and Dependability of Cloud Systems and Services of the IEEE Transactions on Services Computing (TSC), and a special issue on Software Reliability Engineering of the Journal of Systems and Software (JSS). He is the coordinator of the EUBrasilCloudFORUM (H2020-EUB-2015-689495) and DEVASSES (PIRSES-GA-2013-612569) projects, and the principal investigator at the University of Coimbra of the EUBRA-BIGSEA (H2020-EUB-2015-690116) and ATMOSPHERE (H2020-EUB-2017-777154) projects