Preface

Software testing is an important part of the software engineering life cycle. Testing requires resources that are often not readily available, contributing to an inefficient testing process. Running large test suites of test cases can consume considerable time and resources, often precluding their use in an interactive setting.

Cloud computing has gained a significant amount of attention in the last few years. It includes virtualized hardware and software resources that are hosted remotely and made available on-demand using a services model (e.g., SOA). Instead of running or storing applications locally, one can host their application in the cloud and access it from anywhere using a thin client application such as a Web browser. Cloud computing promises efficiency, flexibility, and scalability.

Software testing in the cloud (STITC) lies at the intersection of three key areas: software testing, cloud computing, and system migration. According to the National Defense Industrial Association (NDIA), STITC is an area that will grow in importance in the next few years. It is an emerging discipline with the potential to significantly change the way software testing is done, and as such deserves the attention of researchers, practitioners, and managers alike.

WHAT IS UNIQUE ABOUT THIS BOOK?

The book Software Testing in the Cloud: Perspectives on an Emerging Discipline addresses three distinct facets of STITC:

1. Migrating testing to the cloud: Moving the testing process, test assets, and test infrastructure from their current state for testing in the cloud or testing of the cloud.
2. Testing in the cloud: Leveraging the resources provided by a cloud computing infrastructure to facilitate the concurrent execution of test cases in a virtualized environment.
3. Testing of the cloud: Testing applications that are hosted and deployed in a cloud environment.

This genesis for this book began with a workshop held on April 10, 2010 in Paris, France as part of the 3rd IEEE International Conference on Software Testing, Verification, and Validation (ICST 2010). The STITC 2010 workshop was a full-day event that attracted a truly international group of participants. The workshop sessions were structured along the same lines as the three central themes of the book. Each presenter had written a position paper in preparation for workshop. Several of the chapters included in the book are much expanded and updated versions of these papers.
The book has 19 chapters of material that discuss various facets of STITC from multiple perspectives. Each chapter is written by leading experts in the field. The experts come from varied backgrounds, including academia, industry, and government. The experts also come from a dozen different countries, providing unique insight into current work in STITC across the world.

WHO SHOULD READ THIS BOOK?

Testing is one of the most important areas of software engineering. It is also one of the most underemphasized areas – particularly in academia. When software testing is coupled with a rapidly changing area like cloud computing, the potential interest in the topic crosses many disciplines. There is something in the book for academics and advanced practitioners alike with an interest in STITC.

For anyone who has an interest in the challenging research problems of software testing in the cloud, this book provides invaluable information. Similarly, for those dealing with difficult practical problems of software testing in the cloud, this book provides real-world solutions through case studies and experience reports with various technologies. The book also provides enough overview material that someone simply looking to gain more of an understanding of the STITC landscape should find considerable background information.

STITC is such a new area that the book’s chapters could easily serve as the basis for a graduate special topics course. The material offers the opportunity for in-class discussions. Many of the chapters outline possible avenues for further work, which could be the starting point for future theses and dissertations.

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