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Jean-Michel Bruel · Manuel Mazzara ·
Bertrand Meyer (Eds.)

Software Engineering Aspects of Continuous Development and New Paradigms of Software Production and Deployment

Second International Workshop, DEVOPS 2019
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Revised Selected Papers

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Preface

The study of software development processes has a long and respectable history as a subdiscipline of software engineering, so long and venerable indeed that the field became a bit sleepy and complacent when the jolt of agile methods caught it by surprise in the 2000s. Another incentive to question long-established wisdom was the spectacular rise of technologies made possible by the World-Wide-Web, notably cloud computing and software-as-a-service. No longer could we content ourselves with the well-honed scheme in which a software system is analyzed, then designed, then programmed and tested, then released unto the world, then updated at a leisurely pace as problem reports and requests for new features get filed, weeded out, and patiently implemented. The pace frantically increases: for idea-development-deployment cycles that we used to think of as spreading over months, the timeline now is days, hours, even minutes.

In 2009 Patrick Debois coined the term DevOps to cover this new framework of software development. He and his colleague Andrew Shafer understood the need to combine the skills of software development and system administration, long considered disjoint. They also realized the critical role of deployment, often considered a secondary matter as compared to development. DevOps poses endless challenges to experts in software engineering: which of the traditional lessons gained over five decades of the discipline's development stand, and which ones need to be replaced in the dizzying world of immediate deployment? An example of a question that takes on a full new life is quality assurance: the stakes are quite different if you have a V&V (validation & verification) phase of a few weeks to prepare for the next release, as in the old world ("old" in IT means, like, 15 years ago), and in the brave new world of deploying this morning's change in the afternoon for the millions of users of your Web-based offering.

DEVOPS 2019 (<https://www.laser-foundation.org/devops/devops-2019/>), held during May 6–8, 2019, at the Château de Villebrumier, France, builds on top of the success of the first edition (DEVOPS 2018) also published by LNCS. The venue is one of the first scientific events devoted to the software engineering issues raised by the new development models and aims at building a community around this topic of interest. The event was kicked off by an outstanding introduction to the field by Professor Gail Murphy, Vice-President of Research & Innovation at the University of British Columbia. The participants came from diverse organizations, with a representation of both industry and academia. This volume gathers their papers, considerably enhanced thanks to the feedback received during the conference and during two different peer review phases.

The contributions cover a wide range of problems arising from DevOps and related approaches: current tools, rapid development-deployment processes, modeling frameworks, anomaly detection in software releases, DevDataOps, microservices, and other related topics, reflecting the thriving state of the discipline and, as is to be expected in

such a fledgling field, raising new questions when addressing known ones. The topic of education and training is also covered, as a number of increasing specialists have to teach the new development paradigms to both university students and developers in companies. This contribution provides a fascinating insight into the state of the art in this new discipline.

DEVOPS 2019 is the second of a series of scientific events held at the new LASER center in Villebrumier near Montauban and Toulouse, France. Inspired by the prestigious precedent of the Dagstuhl center in Germany (the model for all such ventures), but adding its own sunny touch of accent *du sud-ouest* (the songful tones of Southwest France), the LASER center (<http://laser-foundation.org>, site of the foundation which also organizes the LASER summer school in Elba, Italy) provides a venue for high-tech events of a few days to a week in a beautiful setup in the midst of a region rich with historical, cultural, and culinary attractions. The proceedings enjoy publication in a subseries of the Springer *Lecture Notes in Computer Science*.

We hope that you will benefit from the results of DEVOPS 2019 as presented in the following pages and you may join one of the future events in Villebrumier.

November 2019

Jean-Michel Bruel
Manuel Mazzara
Bertrand Meyer

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