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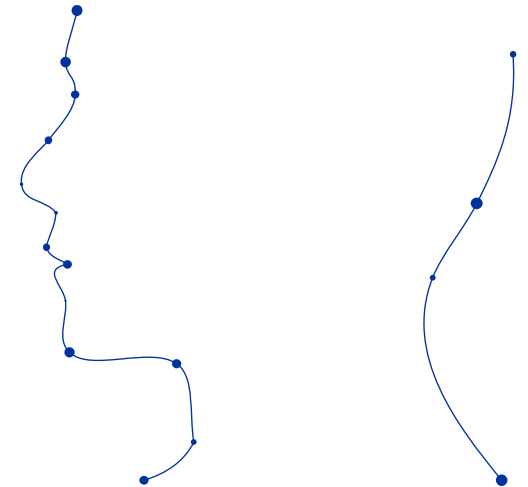
## PET – Continuous Performance Evaluation Tool

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**Johannes Kroß**<sup>1</sup>, Felix Willnecker<sup>1</sup>, Thomas Zwickl<sup>1</sup>, Helmut Krcmar<sup>2</sup>

<sup>1</sup>fortiss GmbH, <sup>2</sup>Technische Universität München

fortiss GmbH  
An-Institut Technische Universität München



# Agenda

- Motivation
- Tool Architecture
- Live Demo
- Performance Management Work Tools (PMWT)
- Conclusion and Future Work

# Motivation

## Situation and Complication

- Organizations try to accelerate software release cycles as promoted by the DevOps approach (Humble and Farley 2010)
- Performance degradations may (gradually) sneak in across release cycles (Brunnert et al. 2014)
- Performance measurements should be continuously collected and evaluated (Brunnert et al. 2015)
- Heterogeneous system environments and technologies complicate a unified collection and evaluation  
(e.g., comparing performance simulations during Dev with measurements from Ops)

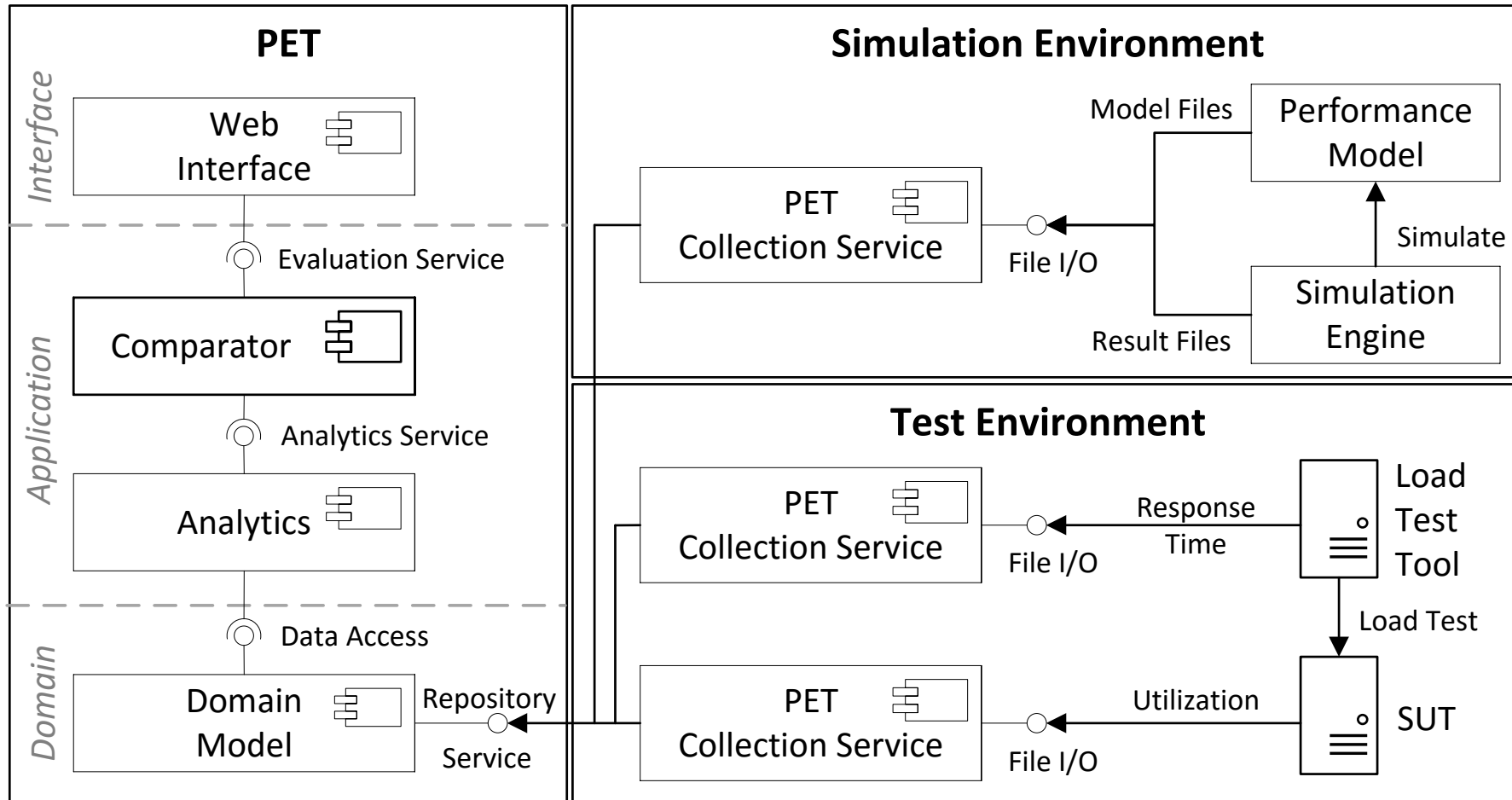
# Motivation

## Contribution and Use Cases

- Manage and store performance measurements with high velocity and volume from different test, production, or simulation environments in a unified way
- Continuously evaluate and compare different performance metrics in an automated way and detect deviations
- Foster collaboration and communication of performance metrics between developers and IT operators

# Tool Architecture

## Basic Overview and Sample Integration



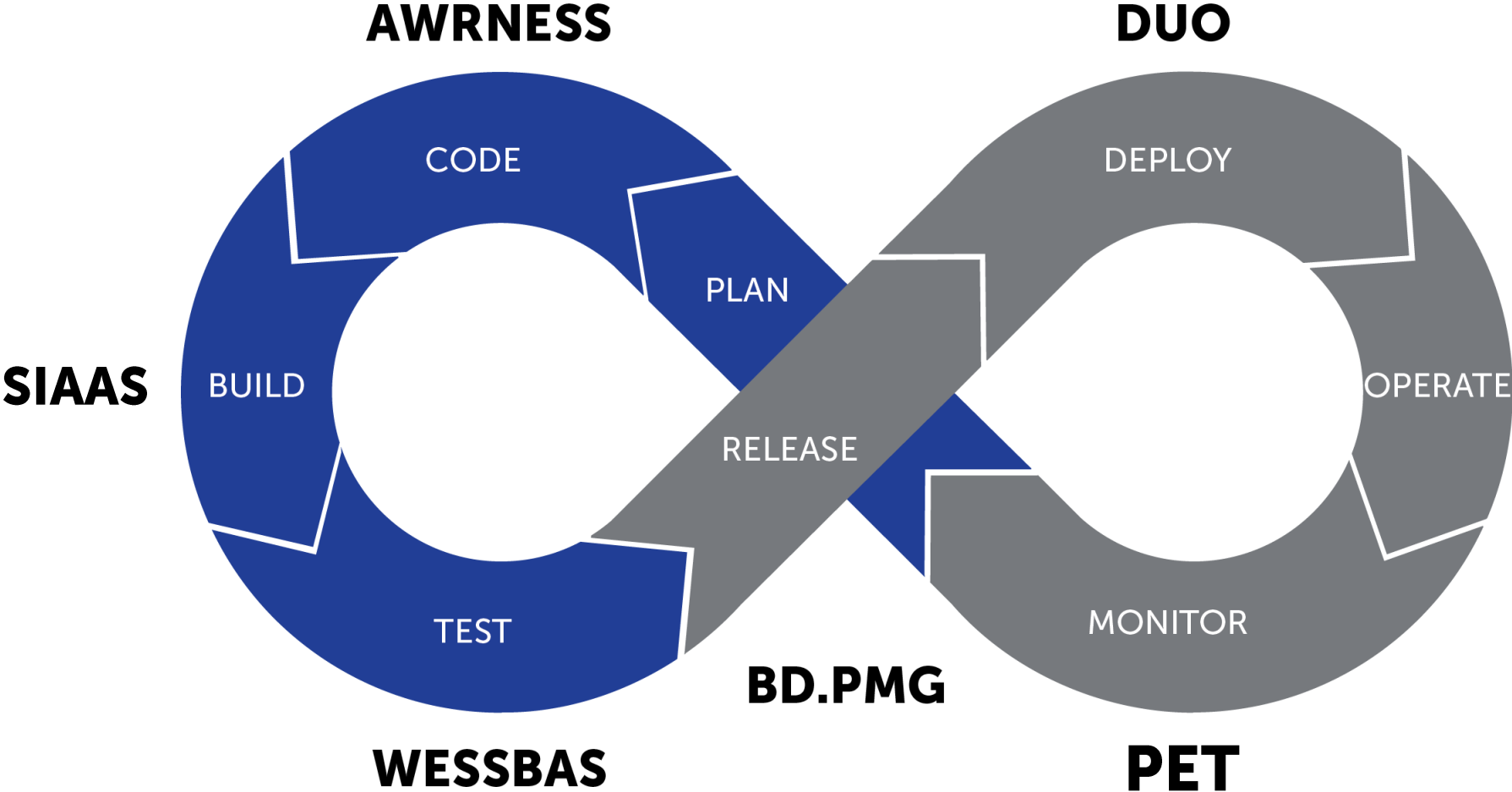
# Tool Architecture

## Abstract Domain Model

- Experiment (entity/aggregate root)
  - Experiment name
  - Start time
  - Ramp up time
  - Response time measurement: List
  - Resource measurements: List
- Response measurement (value object)
  - Operation name
  - Timestamp
  - Response time
- Resource measurement (value object)
  - Hostname
  - Timestamp
  - CPU (Utilization)
  - Hard disk drive (Written, Read)
  - Memory (Committed, Maximum, Allocated)
  - Network (Inbound, Outbound)



# Performance Management Work Tools (PMWT)





# Conclusion and Future Work

- We introduced a tool ...
  - ... to continuously manage performance measurements from different collection tools
  - ... to evaluate and compare performance metrics
  - ... with a user friendly web front as well as a REST interface as API for other tools
- We plan to ...
  - ... add a cost model to allow for estimating changes of expenses related to the performance
  - ... integrate stream processing of measurements to enable real time analytics
  - ... implement a Jenkins plugin to trigger and analyze all performance metrics in each build

# References

- A. Brunnert, A. van Hoorn, F. Willnecker, and others. Performance-oriented DevOps: A research agenda. Technical Report SPEC-RG-2015-01, SPEC Research Group | DevOps Performance Working Group, Standard Performance Evaluation Corporation, 2015.
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- J. Humble and D. Farley. Continuous Delivery: Reliable Software Releases Through Build, Test, and Deployment Automation. Addison-Wesley Professional, 1st edition, 2010
- <http://pmw.fortiss.org/tools/pet/>
- <https://git.fortiss.org/pmwt/PET> .

Johannes Kroß, Felix Willnecker

Performance Management Group

**fortiss GmbH**

An-Institut Technische Universität München  
Guerickestraße 25 · 80805 München · Germany

**tel** +49 89 3603522 18 **fax** +49 89 3603522 50

{kross,willnecker}@fortiss.org

[www.fortiss.org](http://www.fortiss.org)