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# Using Dynatrace Monitoring Data for Generating Performance Models of Java EE Applications

Tool Paper

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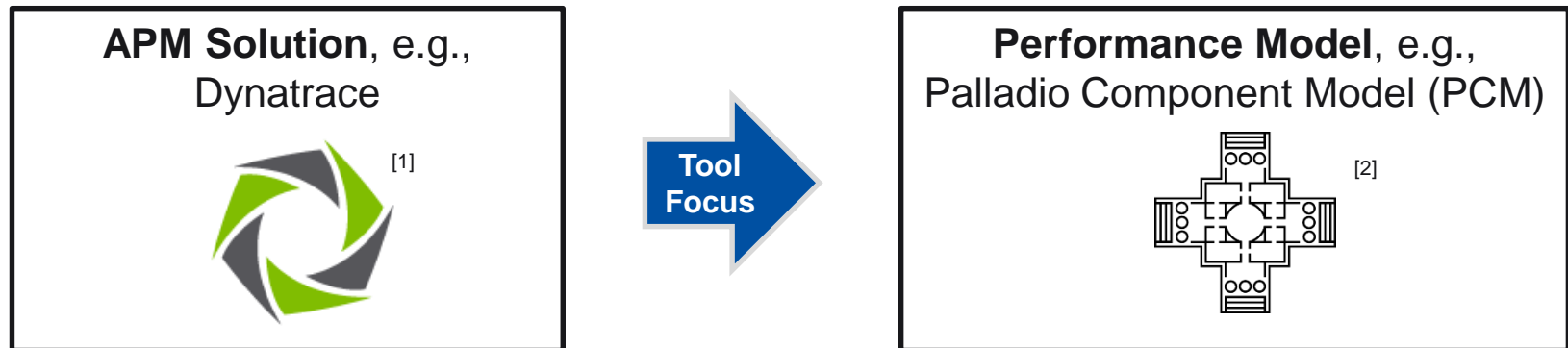
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# Motivation & Vision

- Creating performance models requires a lot of expert knowledge
  - The effort required for creating performance models manually leads to a low adoption rate of model-based performance evaluations in practice (Mayer et al. 2011)
- Model-based performance evaluation techniques proposed by the scientific community are often only applicable once a model of a system exists
  - Automated performance model generators help to make them better applicable
- Several approaches were proposed to automatically construct performance models (e.g., Brosig et al. 2009 and Brunnert et al. 2013a)
  - Due to license restrictions or limitations of the available data they often use self-written monitoring solutions

# Motivation & Vision

- To use monitoring data collected by industry-standard Application Performance Management (APM) solutions in order to automatically construct performance models  
  
→ Better integration between model- and measurement-based performance evaluation techniques



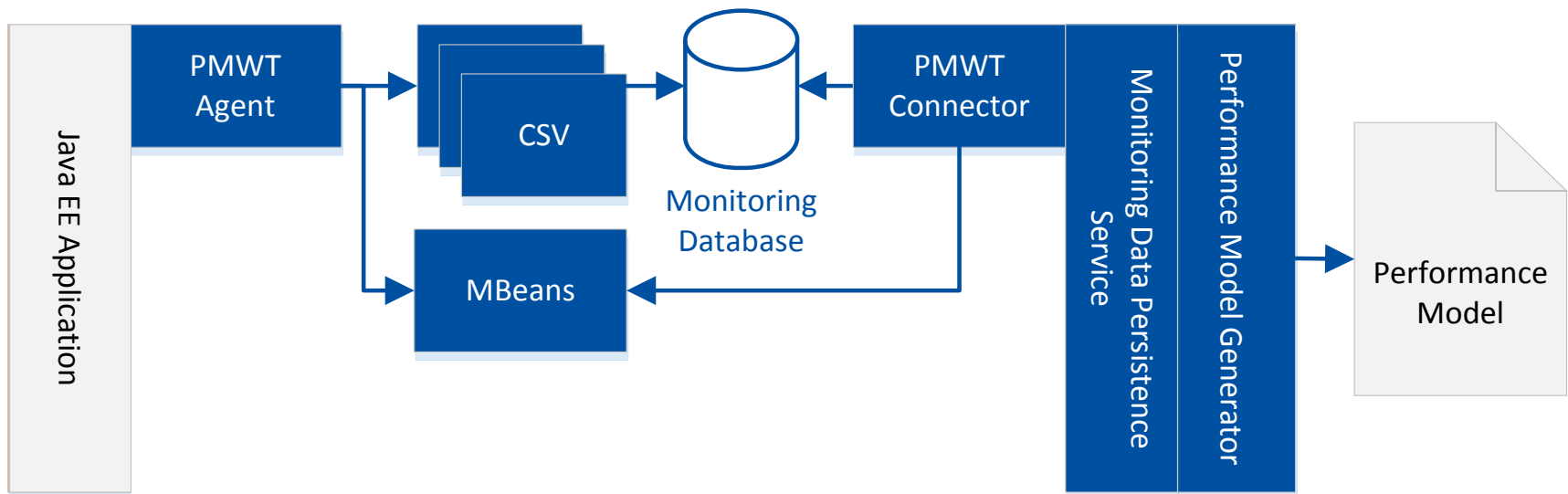
[1] Dynatrace logo taken from: <http://www.dynatrace.com/>

[2] PCM logo taken from: [http://www.palladio-simulator.com/about\\_palladio/](http://www.palladio-simulator.com/about_palladio/)

# Tool Architecture

## Previous Work

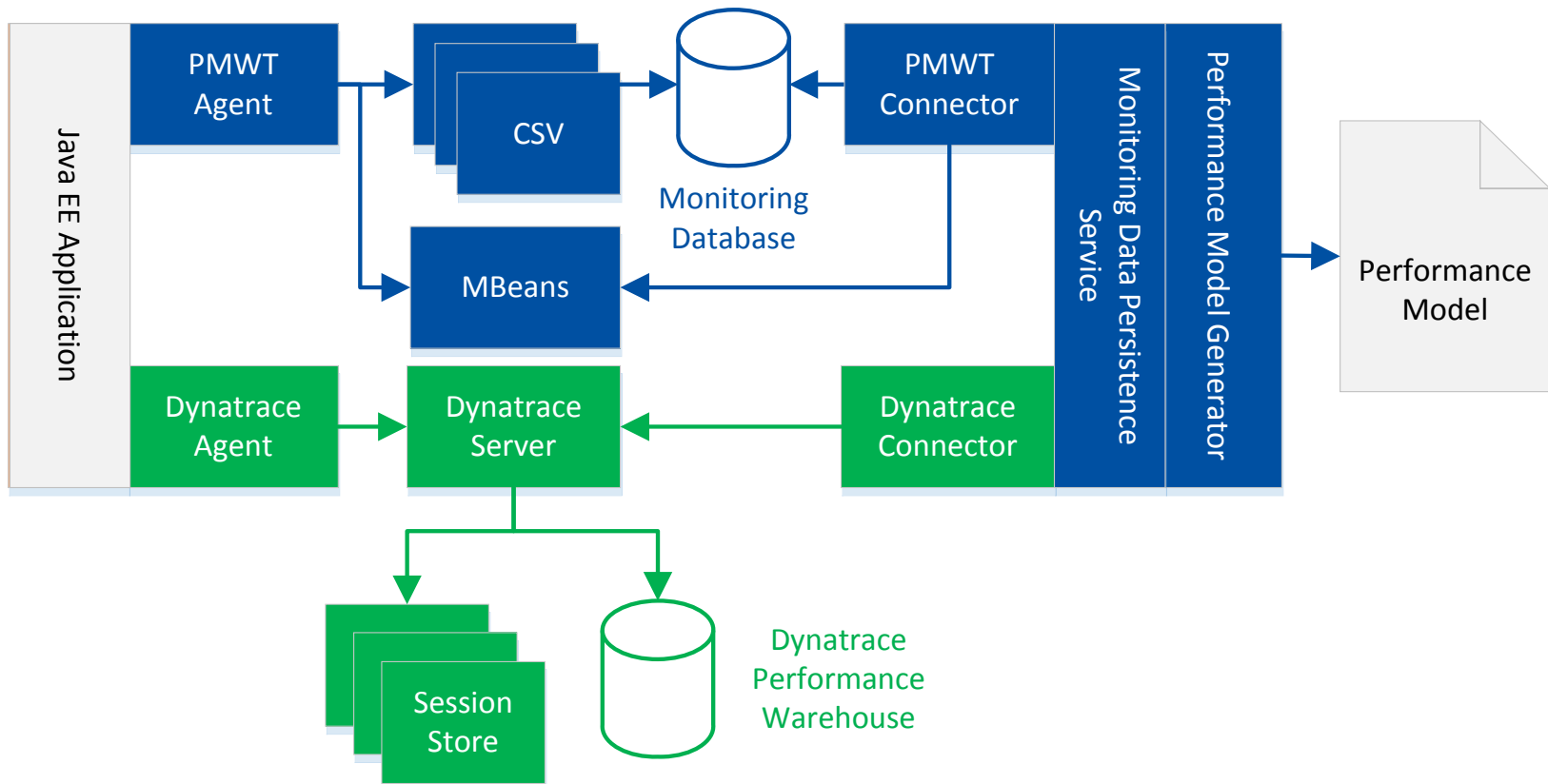
- Builds upon an existing performance model generation framework introduced in Brunnert et al. (2013a) and Brunnert et al. (2014b)
- Uses self-written monitoring components (e.g., ServletFilters, EJB Interceptors) in order to collect the required monitoring data



# Tool Architecture

## Current State – Integration with Dynatrace

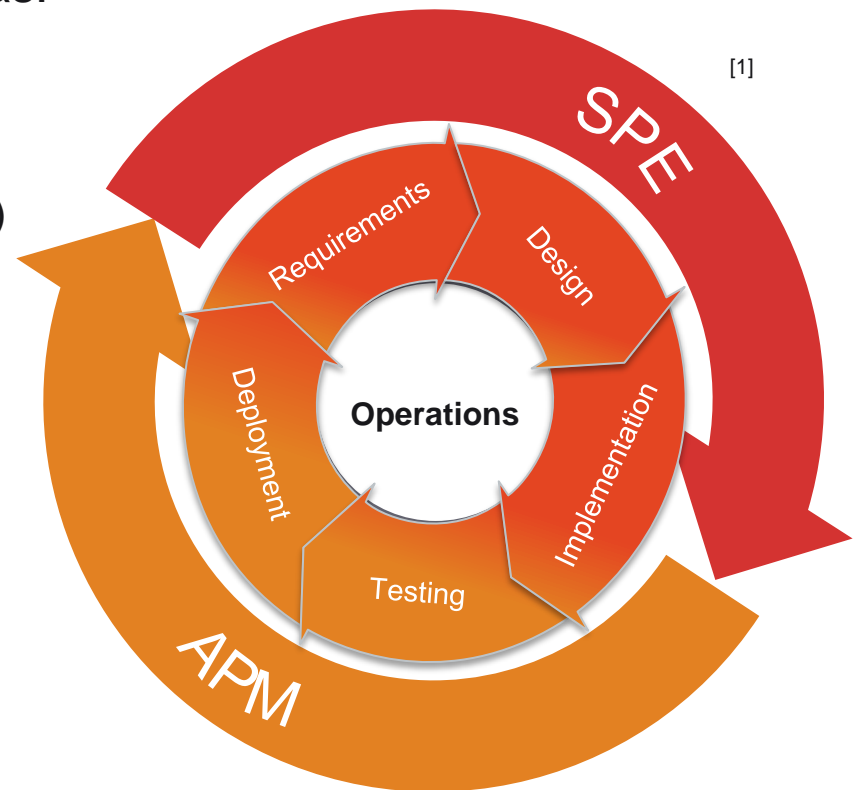
- Extends the persistence layer of the model generation framework to use the REST API of Dynatrace in order to collect the required monitoring data



# Application Areas

## Use Cases

- Use your existing APM knowledge for model-based Software Performance Engineering (SPE) activities such as:
  - Early Performance Predictions (e.g., when reusing existing components, Brunnert et al. 2013b)
  - Architecture Optimizations (Koziolek et al. 2013)
  - Detecting Performance Changes (Brunnert/Krcmar 2014c)
  - Capacity Planning (Brunnert et al. 2014a)
  - ...



[1] SPE and APM integration cycle taken from the DevOps Performance Working Group Poster presented at SOSP '14 and ICPE '15

# References

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