

Live Trace Visualization for Comprehending Large Software Landscapes: The ExplorViz Approach

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2013-09-28

ExplorViz

- ▶ In many enterprise architectures the number of systems is constantly increasing
- ▶ Knowledge of the communication, internal behavior, and utilization of these software landscapes often gets lost
- ▶ Tools supporting the landscape and system comprehension for, e.g., component integration become important

- ▶ Interactive approach for the live, explorable visualization of software landscapes and their dynamic behavior
- ▶ Combination of landscape and system level perspective
- ▶ Our landscape level visualization bases on UML elements
- ▶ System level visualization utilizing the city metaphor for each software system

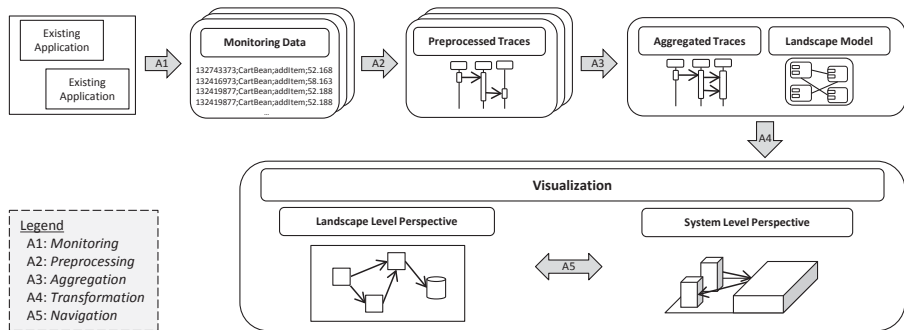


Figure 1 : Activities in our ExplorViz approach for live trace visualization of large software landscapes

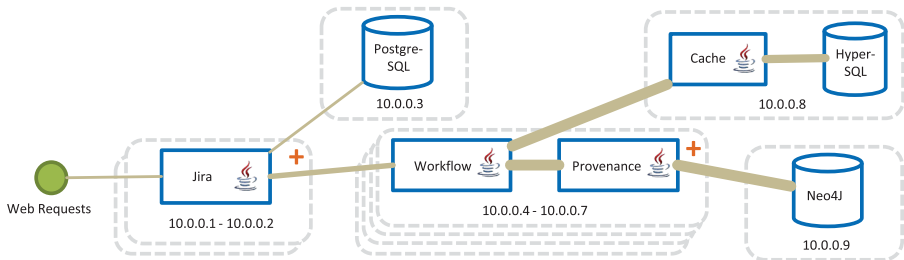
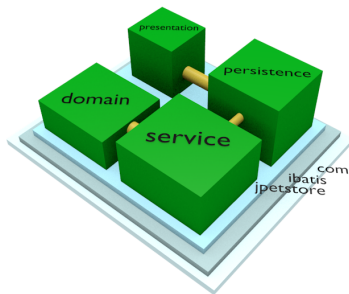
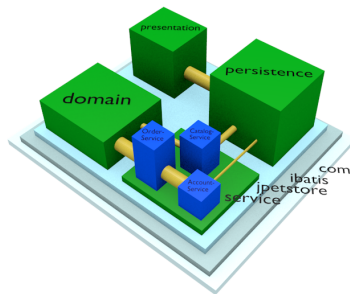


Figure 2 : Macro view on landscape level showing the communication between applications in the PubFlow (<http://pubflow.de>) software landscape



(a) Macro view visualizing four components of jPetStore



(b) Relationship view with opened service component

Figure 3 : Mockup of system level perspective on the example of jPetStore for demonstrating the exploration concept

- ▶ 2D visualization of program traces
 - ▶ Web Services Navigator [DPLP⁺05], Jive and Jove [RT12], ExtraViz [CHZ⁺07], sequence visualization [TTD12]
- ▶ 3D visualization of program traces
 - ▶ hemispheres based [BD04], static and dynamic properties in single view [BD06], TraceCrawler [GLW06], hierarchical edge bundling in city metaphor [CZB11], EvoSpaces [AD07]

Open Research Questions:

- ▶ Which stable layout is suitable for our 3D visualization?
 - ▶ Does the communication direction have to be directly perceivable?
 - ▶ Which clustering methods to provide a synthetic hierarchy?
 - ▶ Which baseline, when evaluating in a controlled experiment?
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Conclusions:

- ▶ ExplorViz¹: A web-based visualization approach which supports in the comprehension process of large software landscapes
- ▶ Combining the landscape and system level perspective

¹<http://www.explorviz.net>, ffi@informatik.uni-kiel.de



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