

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

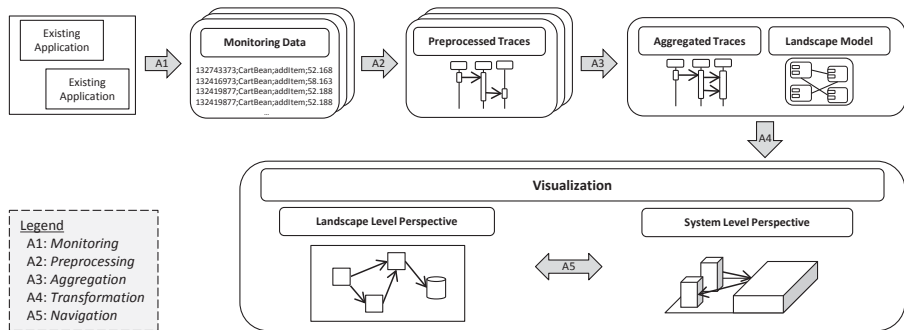
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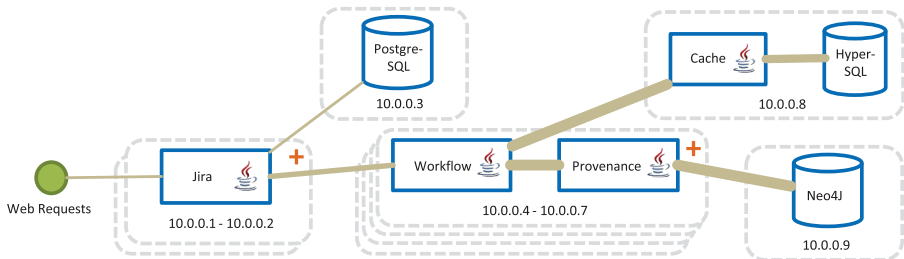
ExplorViz

- ▶ 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

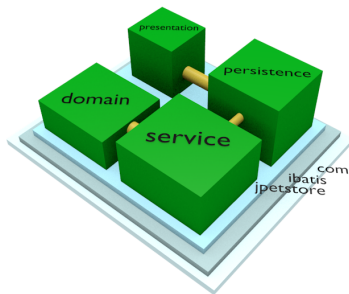
- ▶ Interactive approach for the live, explorable visualization of software landscapes and their dynamic behavior
- ▶ Combination of landscape and system level perspective
- ▶ Our landscape level visualization bases on UML elements
- ▶ System level visualization utilizing the city metaphor for each software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



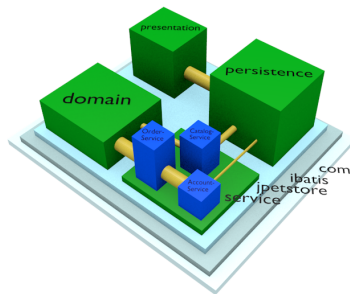
**Figure 1 :** Activities in our ExplorViz approach for live trace visualization of large software landscapes



**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<sup>+</sup>05], Jive and Jove [RT12], ExtraViz [CHZ<sup>+</sup>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:

- ▶ ExplorViz<sup>1</sup>: A web-based visualization approach which supports in the comprehension process of large software landscapes
- ▶ Combining the landscape and system level perspective

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<sup>1</sup><http://www.explorviz.net>, [ffi@informatik.uni-kiel.de](mailto:ffi@informatik.uni-kiel.de)



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