

Fine-grained Instrumentation and Monitoring of Legacy Applications in a Service-Oriented Environment

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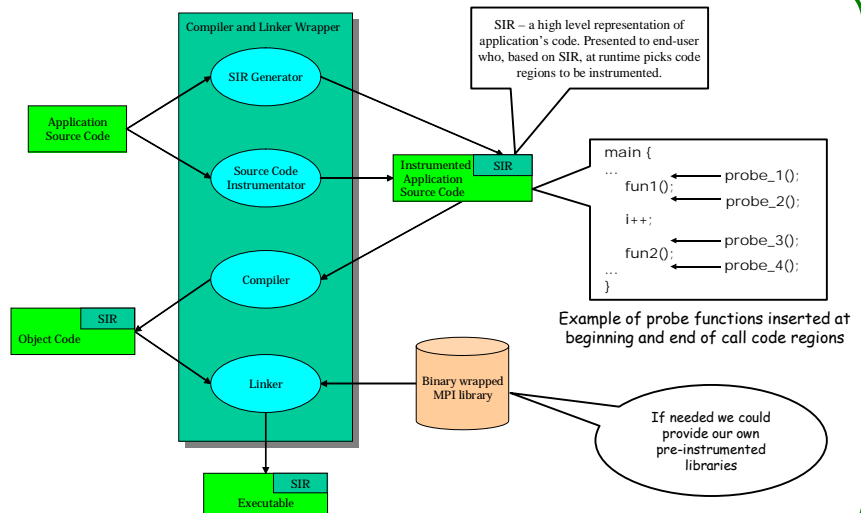
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Overview

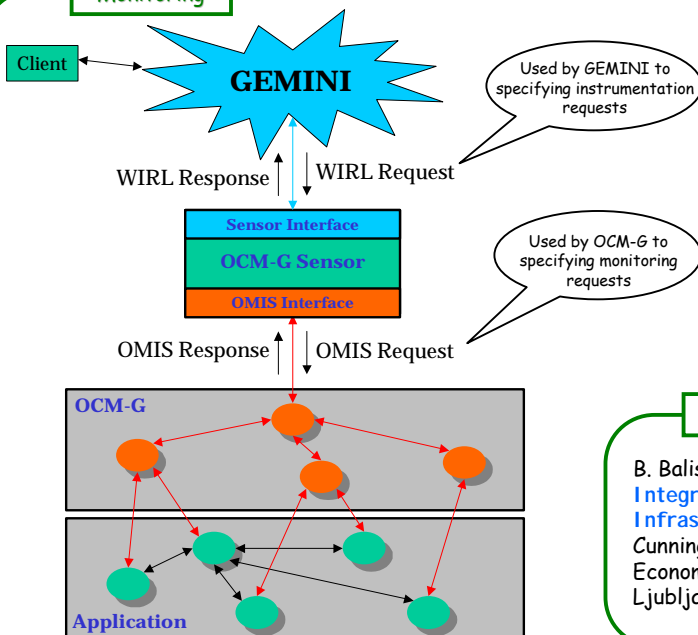
Grid systems based on modern service-oriented architecture (SOA) still heavily use legacy code. For debugging and performance measurement there is necessity to monitor such legacy applications. The basis of monitoring of applications is instrumentation which in a service-oriented environment can not be static - we usually do not have opportunity to instrument application source code and deploy it at runtime. We propose a solution for instrumentation which is: (1) dynamically enabled and disabled, (2) fine-grained to enable monitoring at the level of code regions, (3) accessible through a standardized instrumentation service to expose instrumentation functionality to arbitrary tools and services.

Instrumentation

Our approach to instrumentation is to combine source code instrumentation and binary wrapping with the dynamic control of the measurement process at runtime. The instrumentation is inserted statically via patching of source code or binary libraries, while activation and deactivation of the instrumentation is done at runtime. We provide a tool to automatically insert probe functions at defined places into source files and to generate SIR (Standard Intermediate Representation) descriptions of the code. The OCM-G system can dynamically enable/disable instrumentation probes. We include SIR into the application executable from where it can be retrieved by the OCM-G.



Monitoring



Sensor features and functionality:

- compliant with the GEMINI infrastructure
- hide legacy monitoring system - OCM-G
- delivers information to Monitoring Service of GEMINI
- used to convert interfaces and data representation between GEMINI and OCM-G (WIRL into OMIS)
- can dynamically enable/disable instrumentation probes
- intercepts events from application: beginning and end of code region

References

B. Baliś, M. Bubak, J. Dziwisz, H.-L. Truong, and T. Fahringer. [Integrated Monitoring Framework for Grid Infrastructure and Applications](#). In P. Cunningham and M. Cunningham, editors, *Innovation and the Knowledge Economy. Issues, Applications, Case Studies*, pages 269-276, Ljubljana, Slovenia, October 2005. IOS Press.

