

Dynamic analysis aids in many software development tasks, such as debugging, program comprehension, and performance optimization. However, implementing a new dynamic analysis tool is a non-trivial task.

To simplify development of dynamic analyses, researchers at Charles University and Università della Svizzera italiana in Lugano have jointly developed the DiSL and ShadowVM frameworks, which raise the level of abstraction for analysis tool developers and provide a convenient programming model both for bytecode instrumentation and for analysis execution.

Even though those frameworks were successfully used to develop many different dynamic analyses, it turned out that the internal design of the original implementation of both frameworks made further development of new features, such as support for instrumentation-time reflection, extremely difficult.

Both frameworks provide a client and server part and while they are designed to be used together, the design prevents sharing of information between the two client parts and the two server parts. This not only increases the amount of data that need to be exchanged over network, but also makes configuration of all parts more difficult.

In this work we propose and implement a new architecture of the analysis suite so that the functionality of the DiSL and ShadowVM frameworks can be hosted by a single server accommodating multiple clients.