

Application Performance Management Dynamic Architecture Discovery

- Continuous monitoring and feedback (self-*)
- Architecture-based performance analysis
- Automatic anomaly detection and diagnosis
- Distributed tracing and trace-based analysis

- Extraction of architectural models
- Extraction of usage profiles
- Reverse engineering of legacy systems
- Software visualization

Software System with Monitoring Instrumentation

```

16 package kieker.examples.userguide.ch5bookstore;
17
18 import kieker.monitoring.annotation.OperationExecutionMonitoringProbe;
19
20 public class Bookstore {
21
22     private final Catalog catalog = new Catalog();
23     private final CRM crm = new CRM(this.catalog);
24
25     @OperationExecutionMonitoringProbe
26     public void searchBook() {
27         this.catalog.getBook(false);
28         this.crm.getOffers();
29     }
30 }
    
```

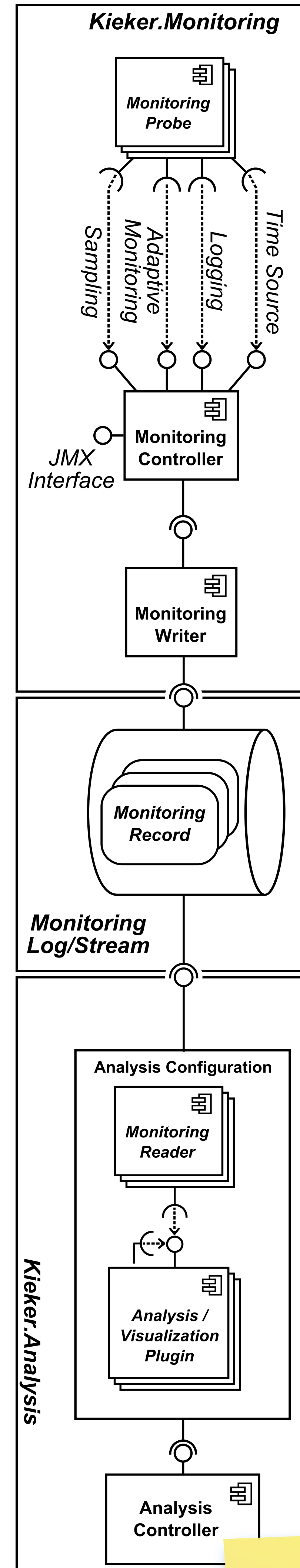
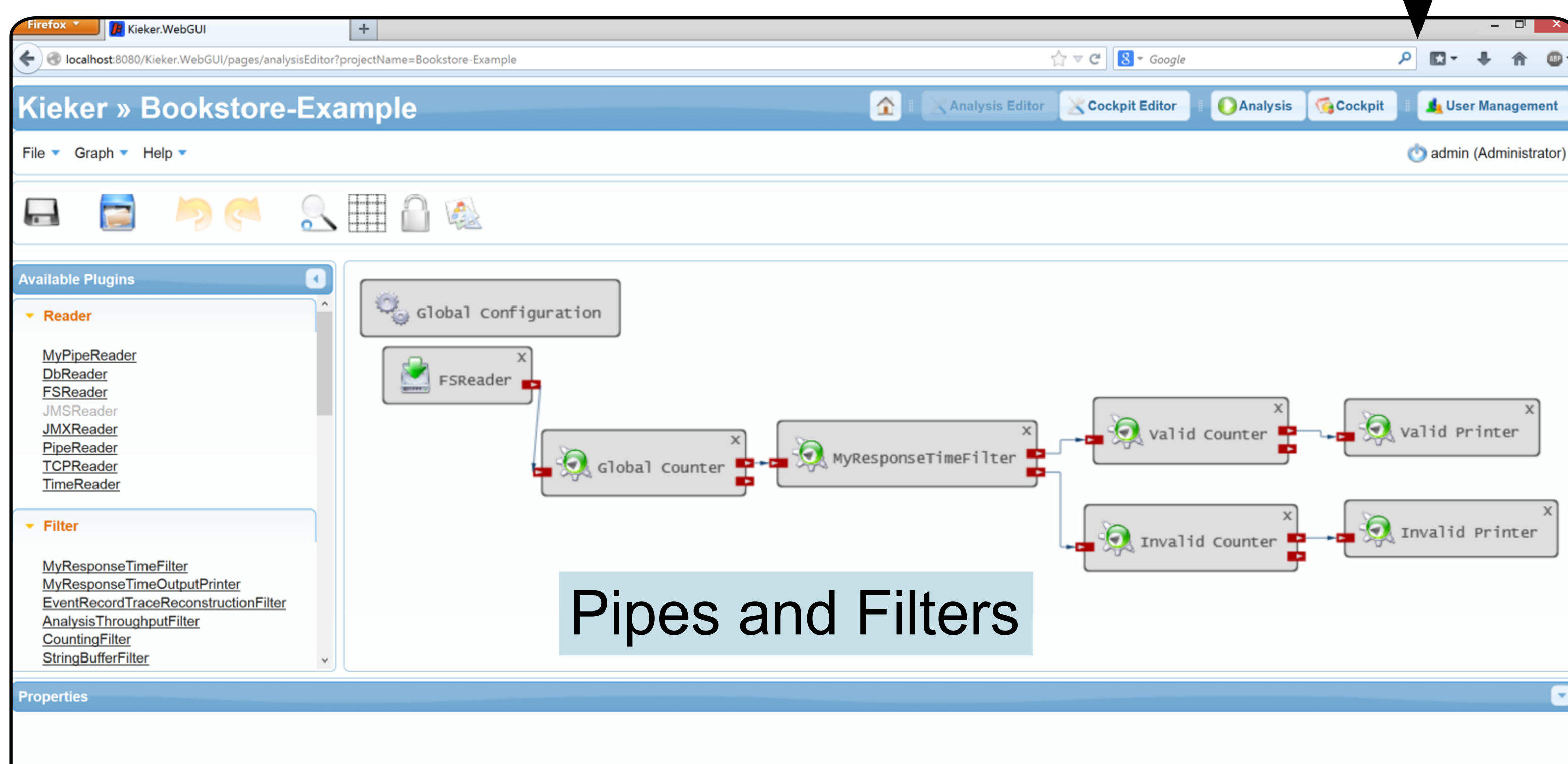
Non-Intrusive Instrumentation

Monitoring Log/Stream

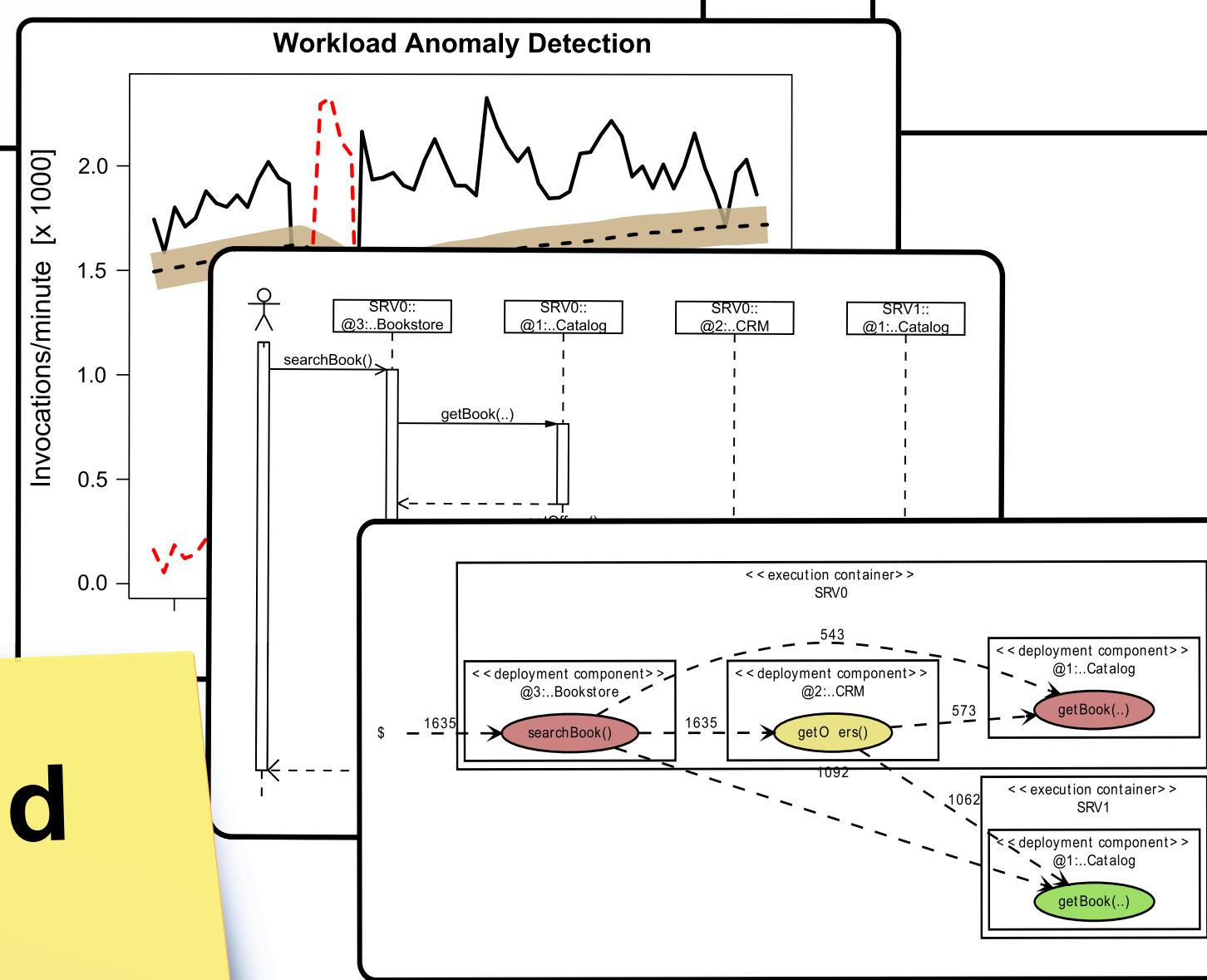
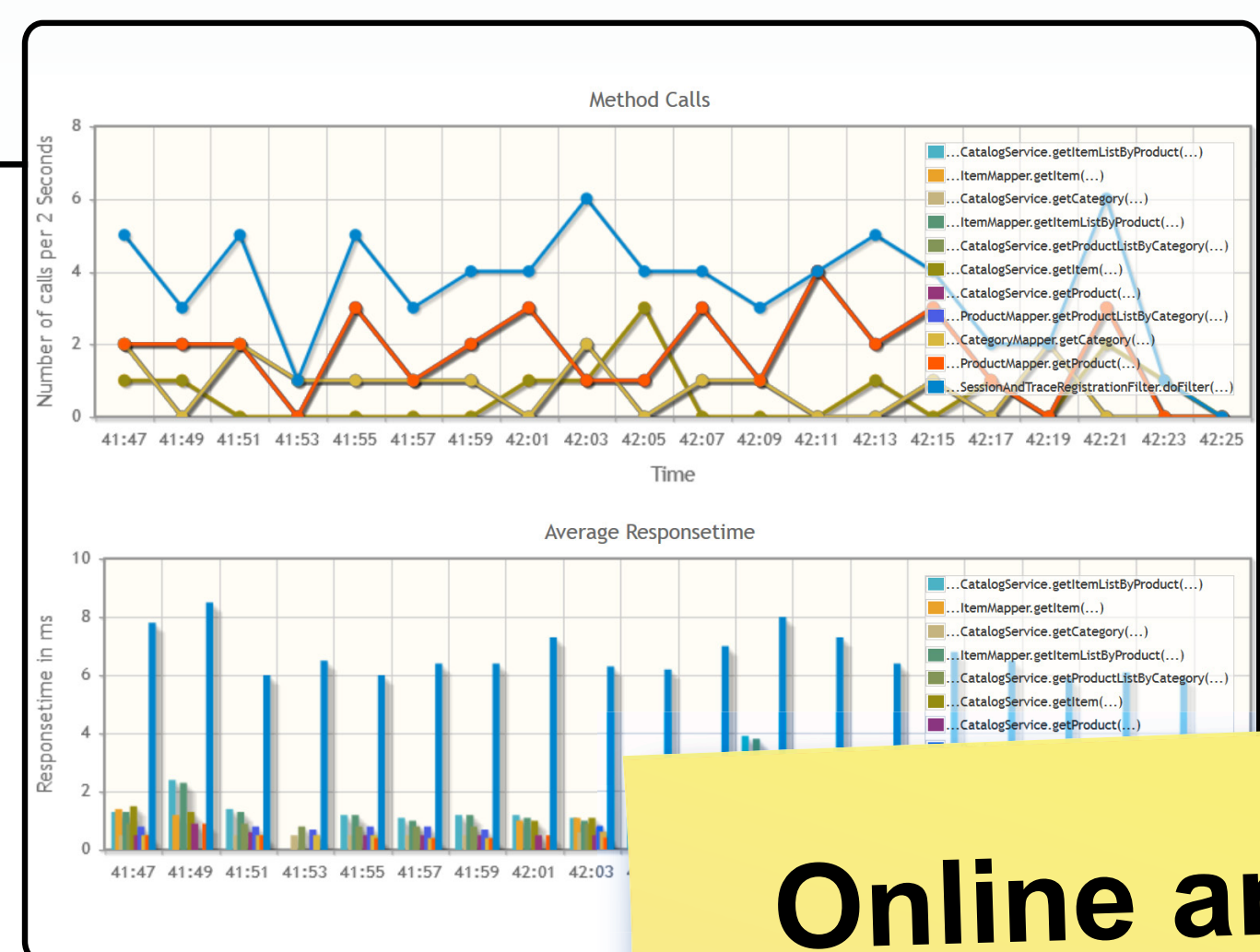
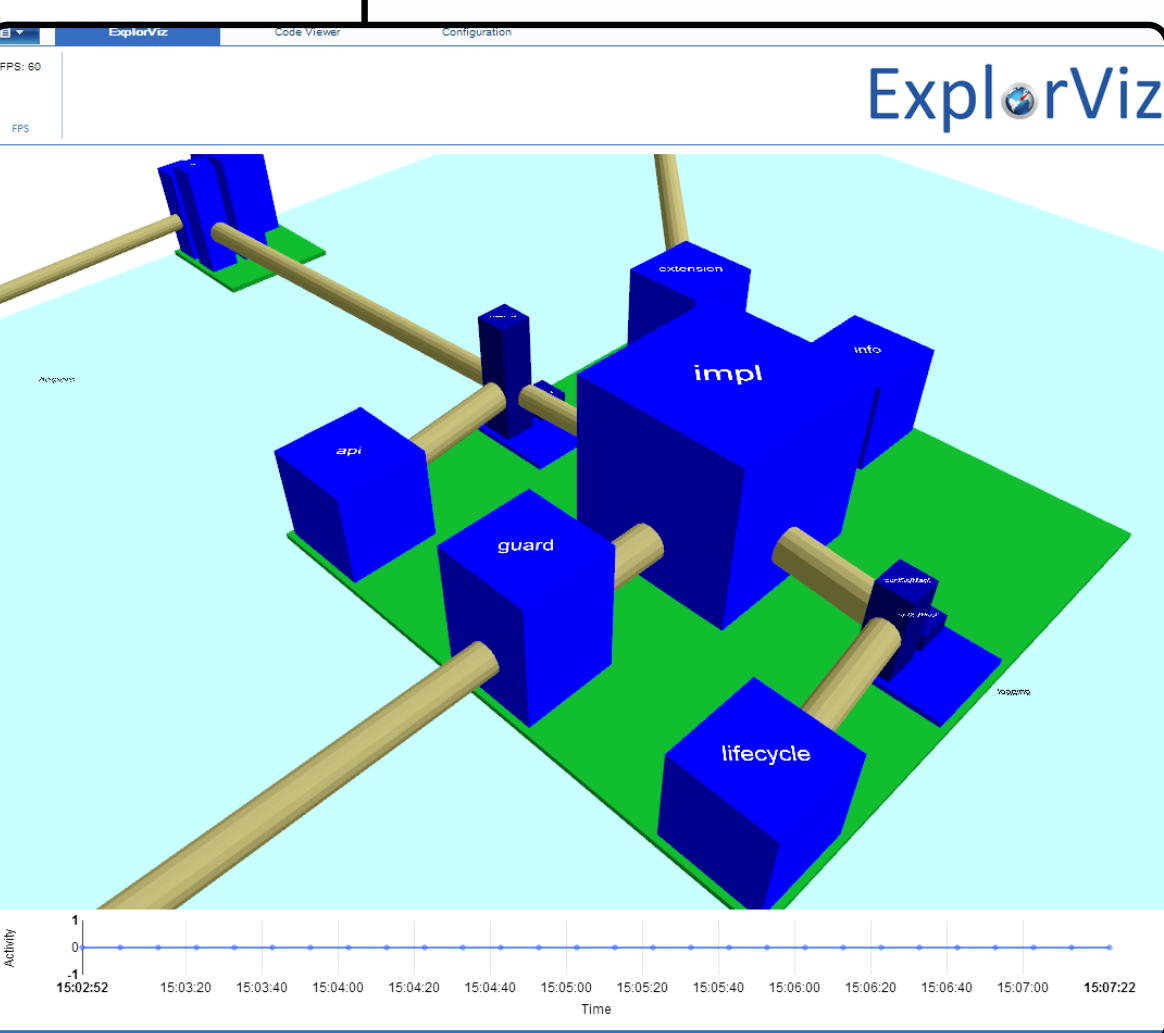
Time	Source	Event	Value
6314	128315654611966000	bookstoreTracing.Catalog.getBook(boolean)	N/A
6315	128315654611970000	bookstoreTracing.Catalog.getBook(boolean)	N/A
6316	128315654611973000	bookstoreTracing.Catalog.getBook(boolean)	N/A
6317	128315654611976000	bookstoreTracing.Bookstore.searchBook()	N/A
6318	128315654611979000	bookstoreTracing.Catalog.getBook(boolean)	N/A
6319	128315654611982000	bookstoreTracing.Catalog.getBook(boolean)	N/A
6320	128315654611985000	bookstoreTracing.Catalog.getBook(boolean)	N/A
6321	128315654611988000	bookstoreTracing.CRM.getOffers()	N/A
6322	128315654611991000	bookstoreTracing.Bookstore.searchBook()	N/A
6323	128315654611994000	bookstoreTracing.Catalog.getBook(boolean)	N/A
6324	128315654611997000	bookstoreTracing.Catalog.getBook(boolean)	N/A
6325	128315654612000000	bookstoreTracing.Catalog.getBook(boolean)	N/A
6326	128315654612003000	bookstoreTracing.Catalog.getBook(boolean)	N/A
6327	128315654612006000	bookstoreTracing.CRM.getOffers()	N/A
6328	128315654612009000	bookstoreTracing.Bookstore.searchBook()	N/A
6329	128315654612012000	bookstoreTracing.Catalog.getBook(boolean)	N/A
6330	128315654612015000	bookstoreTracing.Catalog.getBook(boolean)	N/A
6331	128315654612018000	bookstoreTracing.Catalog.getBook(boolean)	N/A
6332	128315654612021000	bookstoreTracing.CRM.getOffers()	N/A
6333	128315654612024000	bookstoreTracing.Catalog.getBook(boolean)	N/A
6334	128315654612027000	bookstoreTracing.Catalog.getBook(boolean)	N/A

Low Performance Overhead

Analysis Configuration (via API and Web GUI)



Monitoring Probes/Samplers	Monitoring Writers	Monitoring Records	Monitoring Readers	Analysis/Visualization Plugins
Control-flow tracing: Manual, AspectJ, Servlet, Spring, CXF/SOAP, VB6, COBOL, ... <custom interception technology>	Resource monitoring: Servlet, Jigar, CPU utilization, Memory usage <custom monitoring probe>	Operation execution: Control-flow events, CPU utilization, Memory/swap usage, Resource utilization	File system, Java Messaging Service (JMS), Java Management Ext. (JMX), Database (SQL), TCP/IP, Named pipe, Real-time replayer <custom monitoring reader>	Pipes and filters framework: Performance Analysis, Dependency graphs, Sequence diagrams, Call graphs, Architecture reconstruction, Trace analysis, <custom visualization>, <custom trace analysis>, <analysis reconstruction plug-in>, <analysis plug-in/tool>



Online and Offline Analysis

Modular and Extensible Architecture

Kieker is part of the SPEC® RG's repository of peer-reviewed tools for quantitative system evaluation and analysis

