CLIF

CLIF is a Load Injection Framework

Rationale

While ObjectWeb's offer was growing, a common necessity about middleware performance assessment has resulted in the creation of the JMOB project (Java Middleware Open Benchmarking). This project is a portal to several development projects, such as RUBiS and RUBBoS benchmarks, and CLIF.
The aim of CLIF is to provide a generic infrastructure to generate load on any kind of system, and gather performance measurements (request response times, computing resources usage).

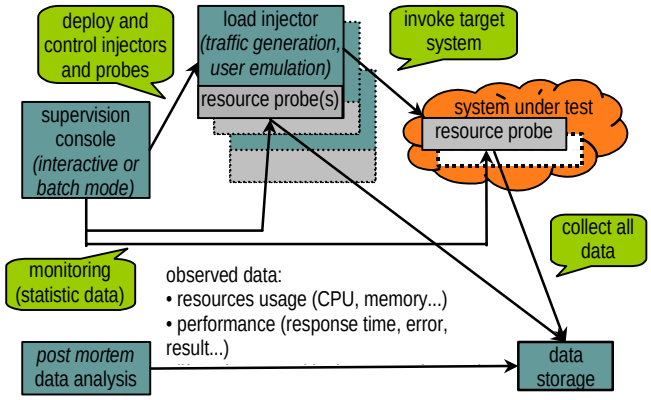
What makes CLIF different

Since the very beginning of CLIF project, our goal is to overcome a number of typical limitations of existing similar projects, especially in terms of versatility. CLIF's infrastructure should:

- be independent from the system under test (SUT) and its associated invocation protocols;
- not enforce any specific definition model of load injection scenarios;
- be able to generate high loads thanks to an efficient distributed injection;
- be suitable and adaptable for a great range of user skills and needs (plain users, advanced users, developers);
- be user friendly and support centralized deployment, control and monitoring features of distributed injectors and probes;
- run on common operating systems supporting a standard Java™ runtime.

Features

To support such a high level flexibility, CLIF follows a framework approach based on the concepts shown by the figure below.



CLIF is basically a framework for deploying, controlling the execution of, and monitoring, load injectors and resource probes, from a supervision console. While load injectors generate requests and measure response times, probes measure the computing resources usage (such as CPU or memory, or any other kind of hardware or software resource). Supervision is achieved either from graphical user interfaces, or from command-line tools enabling batch programming of tests.
The traffic generated by an injector may be defined using the optional ISAC extension. An ISAC scenario specifies arbitrary populations of arbitrary behaviors invoking the SUT. The latest ISAC execution engine is able to run more than a million of behavior instances on a single PC. ISAC is generic and extensible for any SUT.

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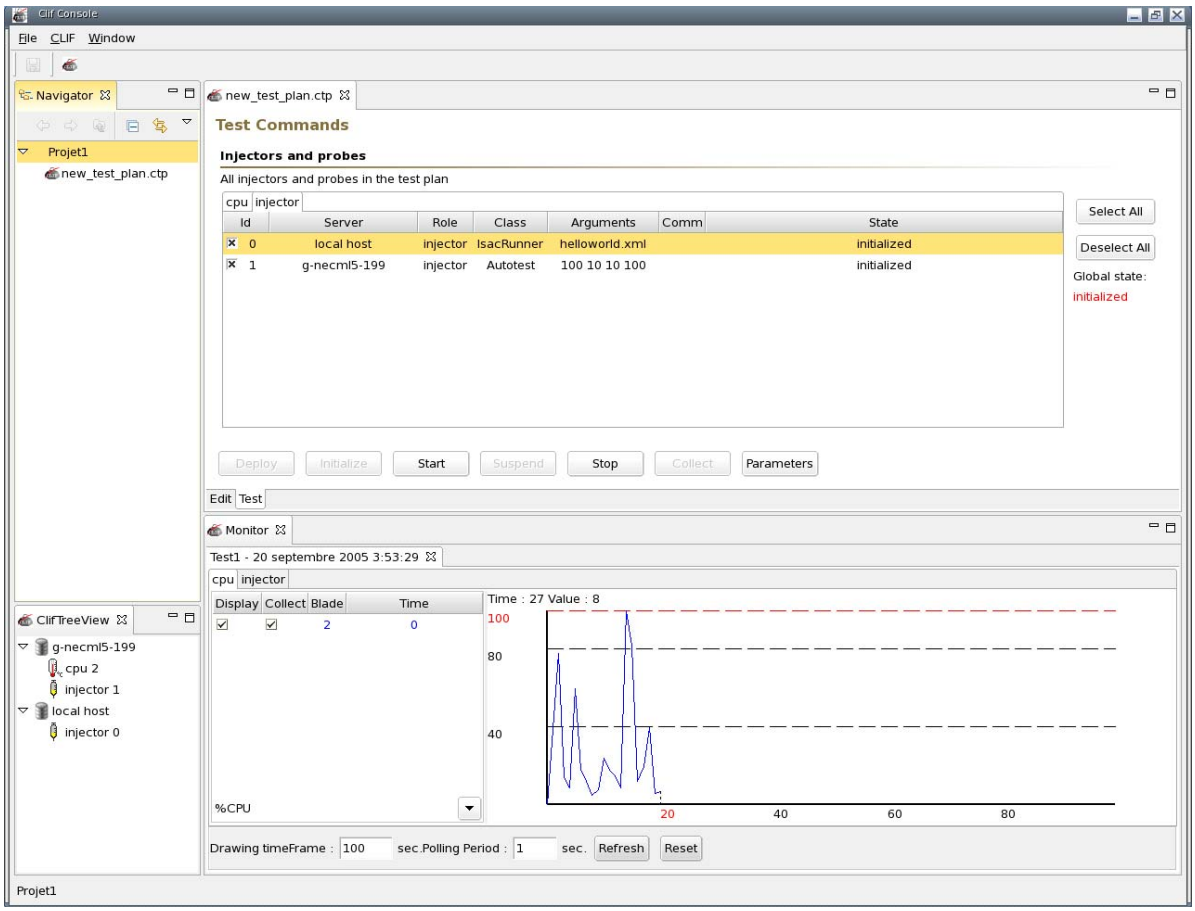

Fractal inside

CLIF is developed on Java™ 2, and designed according to ObjectWeb's Fractal component model, using Julia reference implementation. Although this is transient for the end user, it enables quick and clean customizations and specific wrappings of CLIF framework

Eclipse™-based tools

The latest version of CLIF provides a complete set of GUIs based on Eclipse environment, to edit test plans and ISAC scenarios, as well as to deploy, execute and monitor tests. These tools are available as plug-ins or standalone applications.

Partners

France Telecom's R&D division is Europe's leading telecommunication R&D centre and contributes to ObjectWeb through its Middleware and Advanced Platforms division. Research projects cover topics such as the design and development of flexible distributed object-oriented platforms (ORBs and the like) and component-based systems, persistence and transactions, real-time quality of service, formal aspects of distributed systems (process calculi and similar), and applications of distributed systems, in particular, the design of enterprise information systems. More information about France Telecom R&D is available at www.rd.francetelecom.com.

INRIA is the French National Institute for Research in Computer Science and Control. It is a scientific and technological institute operating under the dual authority of the Ministry of Research and the Ministry of Industry. The main missions of INRIA are to undertake basic and applied research, to create experimental systems, to organize international scientific exchange, to ensure the transfer and dissemination of knowledge and expertise, to contribute to the effective implementation of research findings, to contribute to cooperative development programs, especially through training, to carry out scientific evaluations, to contribute to standardization. More information about INRIA can be found at www.inria.fr.

About ObjectWeb

ObjectWeb is a consortium of leading companies and research organizations from around the world who have joined forces to produce the next generation of Open Source Middleware. Based on Open Standards, ObjectWeb's middleware includes application servers, components, frameworks and tools. Founded in 2002 by Bull, France Telecom and INRIA, ObjectWeb is hosted by INRIA, and is sponsored by Together Teamlösungen GmbH. To find out more about ObjectWeb, visit our web site at www.objectweb.org.

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