

Kalibro Metrics: a multi-repository and multi-language source code analysis tool

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What is Kalibro

- Kalibro Metrics goal is to improve the readability of source code metrics. It allows a source code metric user to create a configuration of thresholds associated with qualitative evaluation, including comments and recommendations.
- Using these configurations, Kalibro provides that a “view layer” shows metric results in a friendly way, helping software engineers to spot design flaws to refactor, project managers to control source code quality, and software adopters and researchers to compare specific source code characteristics across free software projects.
- These configurations are shared among its users via the Kalibro Web Service and a source code tracking network to enhance metric results interpretation.

Why Kalibro?

- We have identified, in particular, two limitations from current available tools, i.e., lack of the following features:
 - ▷ To collect automatically source code metrics values independent of the programming language;
 - ▷ To interpret measurement results, associating them with source code quality.

Kalibro Features

- Download source code from Subversion, Git, Mercurial, Bazaar, and CVS repositories.
- Download source code from local and remote zip and tarball (.tar, .tar.gz, and tar.bz) files.
- Creation of configurations, i.e., a set of metrics for being used in the evaluation of a software source code.
- Creation of ranges associated with a metric and a qualitative evaluation.
- Creation of new metrics (via JavaScript) based on the ones provided by the metric collector tool.
- Calculation of statistics results for higher granularity modules (e.g. average LOC of classes inside a package).
- Possibility of exporting results to a CSV (comma-separated values) file.
- Calculation of a grade for the source code analysis projects, based on given weights for each metric and grades for ranges. This allows cross-project comparisons.
- Possibility of making interpretation more user-friendly by associating colors with ranges.

Kalibro Architecture

- **KalibroCore** is the heart of Kalibro Metrics. It contains all logic, including database access, metric collector tool interaction, statistics computation and compound metric scripts evaluation. It includes a Java abstract class (KalibroFacade) to access all its functionality.
- **KalibroService** is a Web Service interface for using Kalibro.

Kalibro Plug-in for Mezuro networking

- A social network to track source code metrics.
 - ▷ This environment promotes an open and collaborative networking to analyze hundreds of thousands software projects, specially Free Software, through an automated tracking of their source code repositories.
- Mezuro is a powerful environment to enhance Kalibro features, using the social network potential.
 - ▷ The idea is based on the fact that people improve their writing skills when they read good books and papers. Similarly, software engineers can increase the quality of their source codes reviewing good and clean codes.
 - ▷ a developer can find through source code metrics software projects implemented in the same context and language, they can compare their source code characteristics and know other related projects.
- Users just need to give a source code repository URL.
- Users can access the source code analysis report from an asynchronous way, i.e. when they wish or need.
- The history of source code metric values and analysis are recorded.
- All free and public project analysis are available to any user.
- Any user can suggest metric threshold configurations and share them on the Mezuro network.

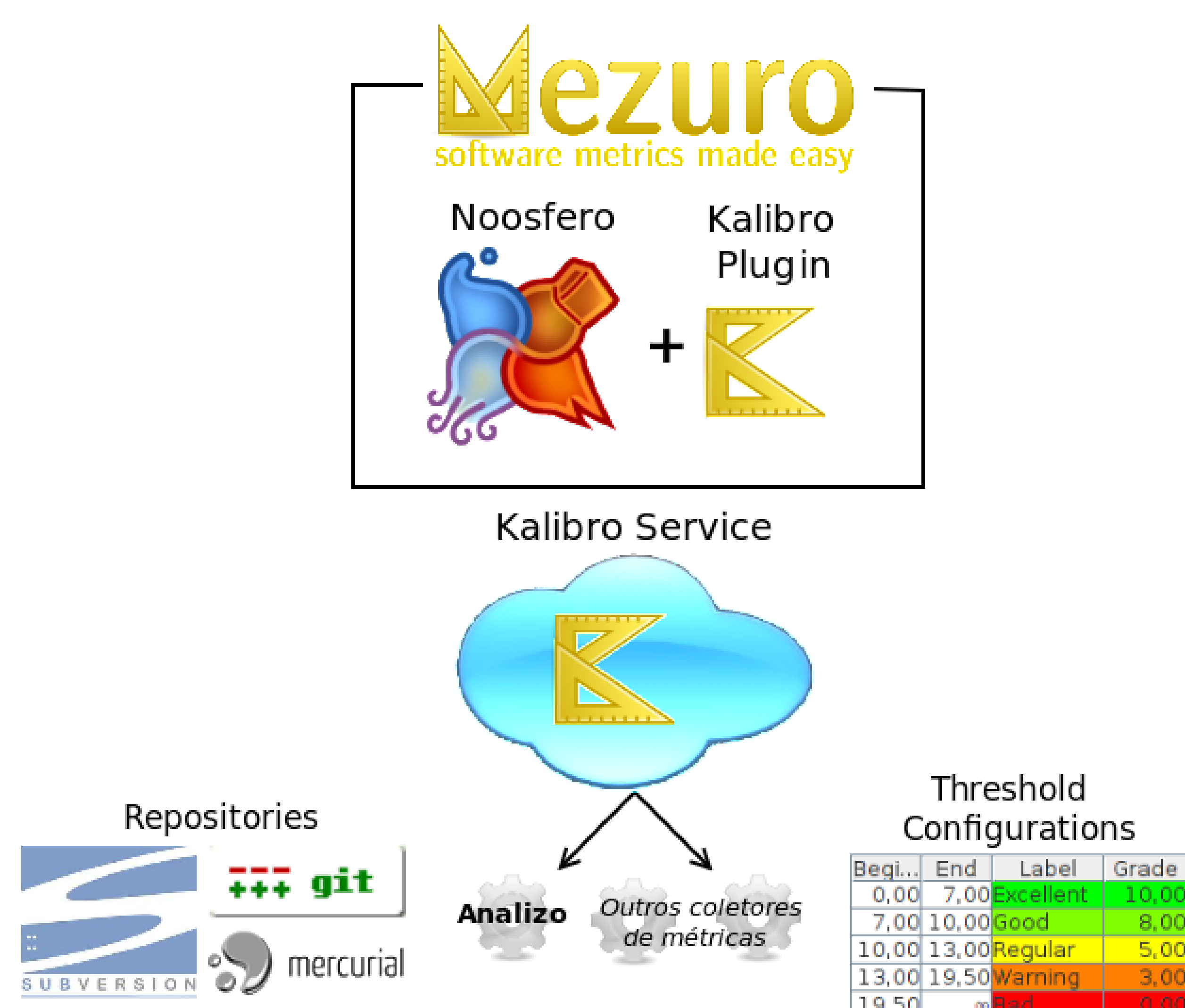


Figure: kalibro interaction diagram.