Bachelor’s Thesis

Design and Implementation of a Distributed Bibliography Management Solution With a RESTful Interface

Description:
Referring readers to related publications is a cornerstone of academic practice, in teaching just as when publishing own work. Often, the efforts of finding and collecting bibliographic information are duplicated across different researchers, articles, and writing tools. Given the high volume of citations, this can quickly amount to a substantial wasted effort. The Distributed Embedded Systems Group currently runs a proprietary bibliography management solution to curate a central repository of bibliographic information optimized for automatic export to personal and course webpages, editable via a web frontend, and usable via Endnote and BibTeX. The current solution, however, has various drawbacks that we would like to avoid in a new approach.

Tasks:
In the context of this thesis, a new bibliography management solution will be designed from the ground up. In a first step, a database scheme will need to be designed that is rigid enough to enforce consistency while at the same time being flexible enough to allow for different use cases as well as future extensibility. The scheme will also need to lend itself to change tracking and history browsing without substantially impacting performance. In a second step, a backend service using the database for storing bibliographic information will need to be designed and implemented, which exposes a multi-purpose RESTful API for frontend applications and batch processes. Finally, a web frontend needs to be designed to allow easy interaction with the web service for browsing and managing existing information, adding new information, as well as bulk data import and export.

Keywords:
AngularJS, WSGI, SQLAlchemy, Bottle, SQLite, REST, Apache

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