

Superimposed Applications using SPARCE

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1. Introduction

People often impose new interpretations onto existing information. In the process, they work with information in two layers: a *base layer*, where the original information resides, and a *superimposed layer*, where only the new interpretations reside. In this arrangement, people like to view base-layer selections (along with contextual information) and navigate back to selections, regardless of base type. Unfortunately, base applications differ in their support for these operations. Abstractions defined in the *Superimposed Pluggable Architecture for Contexts and Excerpts (SPARCE)* [2] ease communication between the two layers; they can also make up for some of the deficiencies of base applications (see Figure 1). Benefits of using SPARCE include capabilities to:

- Consult base information not owned by SPARCE or its applications.
- Work with a range of base types: from highly structured to semi-structured to relatively unstructured.
- Support new base applications and context definitions with minimal affect on existing applications.
- View content and context of base information from within superimposed applications.

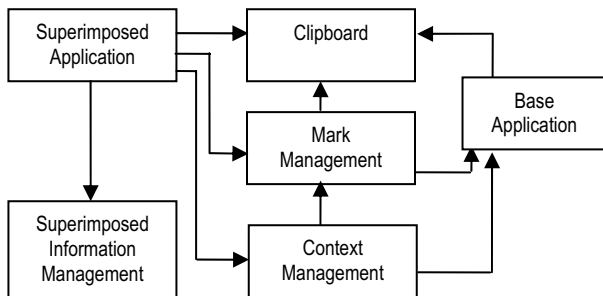


Figure 1: SPARCE reference model

SPARCE provides three key abstractions for superimposed information management: mark, context, and excerpt. A *mark* represents a selection of information inside a base layer. *Context* is information concerning a base-layer element, including presentation information such as font name and containing information such as containing paragraph. An *excerpt* is the content of a marked base-layer element. An excerpt can be of various types, such as plain text, formatted text, and image.

2. Demonstration

We demonstrate two applications, RIDPad and Schematics Browser, for use in the *appeal process* of the US Forest Service (USFS). The appeal process produces an *appeal packet* containing documents relevant to a USFS decision being appealed by the public. The packet also includes a *RID letter* (RID = Records, Information, Documentation) listing the issues raised in appeal letters and a response for each issue. This letter presents information from other documents in a variety of forms such as excerpts and commentaries.

RIDPad is a superimposed application one can use to collect and organize information needed to prepare a RID letter. Figure 2 shows a RIDPad instance containing information from three base documents (two base applications). A RIDPad item is associated with a mark. Using the mark, a user can navigate to the base layer, or browse its context from within RIDPad via a *Context Browser*.

The *Schematics Browser* demonstrates the use of a *superimposed schematic*, an E-R schema superimposed over base information [1]. A superimposed schematic supports structured navigation over a base of free-form documents.

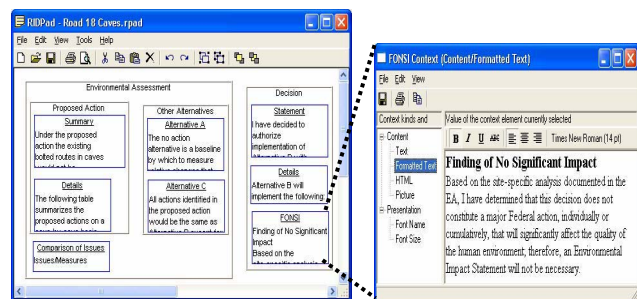


Figure 2: RIDPad and Context Browser

3. References

- [1] Bowers S, Delcambre L, Maier D. 2002. Superimposed Schematics: Introducing E-R Structure for In-Situ Information Selections. In: Proceedings of ER 2002; Pages 90–104; Springer LNCS 2503; 2002.
- [2] Murthy S, Maier D. 2003. SPARCE: Superimposed Pluggable Architecture for Contexts and Excerpts. OGI CSE Technical Report #CSE-03-010; 2003; May 5.
- [3] SPARCE Home Page: <http://cse.ogi.edu/sparce>