

Integration of external applications into hypermedia systems within heterogeneous distributed environments

Hypermedia systems have evolved from isolated, stand-alone systems to systems that interoperate within networks, in some cases even cross-platform. However, the integration of external applications (i.e. external to the hypermedia application) is so far only provided locally: A hypermedia system running on a certain platform (= hardware + operating system) needs to know which applications are available in order to start them. The information needed includes location (= path), working directory, calling syntax, etc. In the case of hypermedia systems interoperating across heterogeneous networks (i.e. network nodes with different platforms), this information has to be customized for every single node: Not only will applications reside in different directories on different nodes, but also applications available on one platform may not exist on another.

The approach presented here solves this problem. We propose (and have already implemented a first version of) an application integration service (AIS) that is known network-wide, i.e. it is available to every instance of the hypermedia system in the network. Via this service, the invocation of an application can be requested. The AIS then takes care that the application is started locally.

This concept of a component providing an application integration service is not restricted to the same hypermedia application running on different nodes in the network. Using the AIS, information about applications available in the network can be shared with other hypermedia systems as well. Even more, the service may be used by other types of applications as well, e.g. by workflow management systems.

Evaluation of semantic hypermedia links for reading of scholarly writing

Although the WWW has proven to be a prolific means of disseminating scientific and scholarly information, the Web's current linking mechanisms lack the semantic information about the link's destination. This absence of semantic information is often blamed for wasted navigation attempts and disorientation, which are more pronounced for articles originally written for paper publication, as opposed to the articles especially designed for on-line viewing. Any attempt to expand the departing links and destination nodes with semantic/contextual information must confront the issues of quantity and presentation style of such information. We present a plan of research that consists of a series of experimental studies. The objective is to determine the satisfactory levels of the quantity and presentation style of semantic information within the outgoing link markers in scholarly papers published on the Web. We hope to be able to speculate intelligently about other types of documents in the Web.

Bridging the gap between hypermedia design and implementation: A research prototype

We present a CASE-design environment with a set of tools to design a hypermedia application visually and to specify its contents. This system features the ability of capturing the user's actions and automatically building an OOHDM, design methodology documentation. Our approach captures the whole development process: design, implementation and testing in a single interactive process, in order to achieve high output productivity, along with formal design and portability. This approach allows the user to design visually the application's conceptual model, navigational structure, interface, and even its prototype all in the same process, mixing an iterative and rapidly application prototype style of development process. This system supports Top-Down, Middle-Out and Bottom-up development, adding a new interesting dual capability: The software allows the authors to layout their hypermedia systems in the concrete terms of "how will it look" (visual design) and at the same time, to produce the corresponding design document. In this way, the user maps ideas through easy-to-use browsers that take care of the actual design by an automated notation-building procedure that maps user development to all other concurrent stages, enhancing and speeding up the design process. By contrast, the top-down approach gives the author the possibility of maturing specific details of application development within a given system's total range of possibilities right from a project's conceptual foundations. Finally, middle-out design provides interactivity between the different stages of development allowing the author changes at a step that would be relevant to other stages that are being simultaneously mapped.

Hypermedia-based structured modeling

In this poster, we propose a method of synthesizing hypermedia and structured modeling to develop a hypermedia-based structured modeling framework. With this approach, we will be able to augment a modeling system with hypermedia features and allow users to use models more effectively.

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