

VR Communities and the Semantic Web

Authors:

[Mike Lindelsee](#)

[Gabe Wachob](#)

From our perspective, the Semantic Web is going to provide an incredible layer of abstraction on top of the World Wide Web that will allow information to be discovered, correlated and viewed in completely new ways. The Semantic Web will allow interaction between producers and consumers of information without pre-arrangement -- using information gleaned from "casual sources" (i.e., arbitrary meetings between people, agents, data, services, etc. in cyberspace).

Our primary interest in the Semantic Web is in its application to various representations of the elements that make up the World Wide Web -- people, agents, services, data, etc. These representations could be visual, aural and/or tactile (other senses as I/O devices become available). With the constantly changing nature and structure of the data on the Web, it is extremely hard to find a stable way to visualize the information on the Web. The Semantic Web will lay the foundation for programmatic understanding of the relationships of the elements of the Web. This will lead to straightforward mechanisms for visualizing these elements. As new elements are added to the Web, removed from the Web, changed, moved, reorganized, etc., the relationships can be captured and visualized using the Semantic Web.

Traditional Virtual Reality (VR) attempts to visualize data in ways that are comfortable and "natural." Our interests go beyond this into completely new ways to visualize the elements of the Web while maintaining comfortable and intuitive interfaces. Our belief is that a more natural, intuitive interface on the Web (or Semantic Web) will foster the development of larger communities of interacting users on the Web and facilitate easier access to both data and services as they become available.

As we see it, the most important practical uses of the Semantic Web will be in areas with deep wells of interconnected information where meta information is very important to the consumers of the information. For instance, governments and the legal community meet this criterion. Issues such as "where did that document come from," "who asserted that statement" and "what other persons are affiliated with the author of the document" are important in these domains (governmental and legal) and will drive the adoption of the Semantic Web within these communities. Specific applications that allow rapid access to data that has been traditionally difficult to find and correlation of related data will immediately show the benefits of the Semantic Web.

Textual representations of highly "connected" data or large amounts of data are hard for people to comprehend. Hence our interest in finding alternate means of representing data, relationships, etc. The Semantic Web will enable programmatic access of this data, but will quite probably overload the people accessing the data (much as search engines do today). Our approach of alternate visualizations of the data and relationships is just one means of giving the end users of the Semantic Web one more tool for easily extracting meaningful data from the Web in a rapid fashion.

Our current research has led us to agent-related languages such as DAML+OIL and transport technologies such as APEX over BEEP. Although we aren't planning on providing services or data in the near term, we do plan on looking at how those technologies can be organized for efficient, large scale transfer between many points (i.e., agents and avatars in a virtual representation of a physical system).

In support of our work, research and tools in the following areas will be necessary.

- Large-scale storage
- Processing in real-time to common vocabularies
 - inferencing
 - filtering
- Protocols for transferring RDF from point to point
- Protocols and languages for describing who and for what purpose a party makes a statement, etc.

In summary, we see the Semantic Web as a foundation for not only better programmatic access to the elements of the Web, but also the basis for alternate ways to view and interact with the Web.

WiredObjects, Inc.

[Mike Lindelsee](#)

[Gabe Wachob](#)

Last modified: Wed May 30 22:29:50 PDT 2001