



THE SEMANTIC WEB

ENABLING ADAPTIVE INFORMATION ACROSS THE ENTERPRISE

/// FACT SHEET



The Semantic Web, led by the W3 Consortium, is an emerging industry standard framework and set of technologies that will enable industry to fully realize the information paradigm. The Semantic Web promises to enable data, information, knowledge, and their associations with each other to be instantiated, shared and reused across applications, enterprises, and community boundaries.

QUOTE

"The business market for this integration of data and programs is huge. The companies who choose to start exploiting Semantic Web technologies will be the first to reap the rewards."

James Hendler, Tim Berners-Lee, and Eric Miller

Overview

The very large-scale availability of information on the Internet and internal corporate intranets can be seen as much a curse as it is a blessing. Everybody wants ever more information, but the more information there is being aimed in the direction of the unfortunate user, the harder it is for them to locate any particular piece of it. Even when a specific piece of information is successfully located, it is even harder still to usefully combine it with other related information we may already possess. This problem occurs at many different levels, ranging from the groaning hard-drives on our home PCs to the mass of unstructured and poorly classified information on the World Wide Web. The need to make all this much easier for the mere mortal to manage is commonly understood, and best described as a requirement to enable information based sharing of knowledge and understanding. The key to addressing that challenge is seen to be the development of a standard approach to enabling computers themselves to better understand the semantics of the information.

The Semantic Web is now being built in response to the above problems of Information Overload and lack of Semantic Interoperability. It was originally based on the Resource Description Framework, but many other equally important protocols and technologies have been added to fully enable a data driven semantically rich environment. The increase in industry focus with respect to Service Orientated Architecture (SOA), Rich Internet Applications (RIA) and Extensible Mark-up Language (XML) as a common content structure are now enabling structured and semi-structured data to be shared, transmitted and mixed across different applications and collaboration environments.

This is now leading the Semantic Web development to be broken down into two major parts:

- **Part One:** Cause data, information and knowledge to be more collaborative.
- **Part Two:** Aids clearer understanding of the Web, permitting easier computer processing.

EDS DEFENCE ARE AT THE FOREFRONT OF GLOBAL SEMANTIC WEB DEVELOPMENT

EDS Defence UK are promoting common discussion, exchange of ideas, and global focus around the development of the Semantic Web. The present work is intended to be a forum for learning and innovation. Its overall goal is to foster awareness of the Semantic Web, its technologies and the emerging business opportunities. We strive to cater for all interested parties, from the professionally curious to in-depth technical experts working on Semantic Web related projects and clients developing future business strategies. The present Semantic Web work will actively promote the involvement and use of other related EDS Communities of interest and EDS Innovation as a whole.

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How does it work?

Currently, data and information is usually stored by its name. In the very near future the Semantic Web will allow data and information to be stored, filed, and retrieved in relation to its conceptual association with other forms of data. This type of associative processing and realisation of information should bring computer and user interaction closer. The very exciting aspect of the Semantic Web is that, for the first time, data storage will incorporate embedded logic that is very similar to the way humans retain and access cognitive knowledge.

The other very important development is that data will have a recognised, industry-wide standard set of processing layers and languages (schemas) that will provide an accepted method of applying business logic to the processing of data. A reasonable parallel to the potential benefit of this type of standardisation is the adoption and implementation of the TCP/IP stack in Internet Communications. This key step permitted the Internet to grow to its present size and do all the extraordinary things that we take so much for granted today.

Where can it be used?

The Semantic Web's technologies, protocols and applications are being developed so that it can be scaled to work as the underlying workhouse for the internet. It will, however, similarly enhance the utility of intranets and also be applicable to such devices as stand alone Palmtops.

What are the Implications for Information Exploitation?

The ability to apply and use data in the way humans apply basic logic of association is potentially very significant. It will probably lead to the creation of a global knowledge landscape in which Autonomous Computer Intelligence will become viable. In the short to mid term, solving data interoperability and enabling a better method of classification are sufficient drivers to inspire innovative designers to strive to fully realise the emergent opportunities offered by Semantic Web developments.

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