

Chapter XIV

Features for Killer Apps from a Semantic Web Perspective

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ABSTRACT

There are certain features that distinguish killer apps from other ordinary applications. This chapter examines those features in the context of the Semantic Web, in the hope that a better understanding of the characteristics of killer apps might encourage their consideration when developing Semantic Web applications. Killer apps are highly transformative technologies that create new e-commerce venues and widespread patterns of behaviour. Information technology, generally, and the Web, in particular, have benefited from killer apps to create new networks of users and increase its value. The Semantic Web community on the other hand is still awaiting a killer app that proves the superiority of its technologies. The authors hope that this chapter will help to highlight some of the common ingredients of killer apps in e-commerce, and discuss how such applications might emerge in the Semantic Web.

INTRODUCTION

The **Semantic Web** (SW) is gaining momentum; as more researchers gravitate towards it, more of

its technologies are being used, as more standards emerge and are accepted. There are various visions of where the technology might go, what tasks it might help with, and how information should be

structured and stored for maximum applicability (Berners-Lee, Hall, Hendler, O'Hara, Shadbolt, & Weitzner, 2006; Berners-Lee, Hendler, & Lassila, 2001; Marshall & Shipman, 2003; Uschold, 2003). What is certainly clear is that no one who wishes seriously to address the problems of knowledge management in the 21st century can ignore the SW.

In many respects, the growth of the SW mirrors the growth of the World Wide Web (WWW) in its early stages, as the manifest advantages of its expressivity became clear to academic users. However, once the original phase of academically led growth of the WWW was over, to the surprise of many commentators, the Web began its exponential growth and its integration with many aspects of ordinary life. Technologies emerged to enable users to, for example, transfer funds securely from a credit card to a vendor's account, download large files with real time video or audio, or find arbitrary Web sites on the basis of their content.

It is important to note that the growth of the WWW had three separate but linked components, which led to three distinct sets of incentives. In the first place, there were quick wins from putting documents on the Web. Prior to the WWW, there was a culture of privacy about documents, and the proselytisers of the Web had to convince a lot of people that documents should be published and made available to all. This was perceived as a risk by document owners, and involved breaking down preconceptions about ownership, privacy, confidentiality, and commercial advantage. To do this, when a person or an organisation posted documents, there had to be immediate and tangible gains from the individual act of publication, an increase in one's social circle, an expansion of business, or a wider set of business opportunities. Without such immediate and individual gains, independent of any future network effects, fewer documents would have appeared on the Web.

However, those network effects also had to come into play. Because network effects are part of

the context, and largely independent of individual decisions, they can sometimes be overlooked. But the creation of large business markets online happened because more and more people started an online existence. The evolution of social networks or multiplayer game scenarios depends on the critical mass of people spending a certain amount of time indoors next to the computer. But the network effects really do kick in, and an online presence for a business or a person is now so much more rewarding both financially and socially because so much of so many lives takes place online. *In extremis* the failure to engage with the WWW can now mean the serious loss of business.

Further, the tools had to be available for the WWW to take off. If creating HTML pages was at all difficult, involving steep learning curves, flaky or expensive software, and advanced design skills, then the WWW could not have integrated so easily with the rest of the environment. And if publishing documents online led to a backward step in information processing, if the documents, by being published, were somehow removed from an organisation's standard information management practices, then such an organisation might end up worse off than before, which would have strangled the global Web at birth, and it would have remained an academic tool. For instance, an organisation's practice in posting documents on the WWW might well compromise its version management control; one could imagine a situation that a draft document, posted on the Web, might be edited by two different people in parallel, and then two incompatible versions would circulate in parallel. The right tools, and the right management practices, needed to be in place in advance, to prevent such hiccups occurring; certainly not all of the potential pitfalls of posting pages would be easily predictable in advance.

The SW aims to do for data what the WWW did for documents. Most realistic visions of the future of a successful SW include a version of the WWW's exponential growth. The SW infra-

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