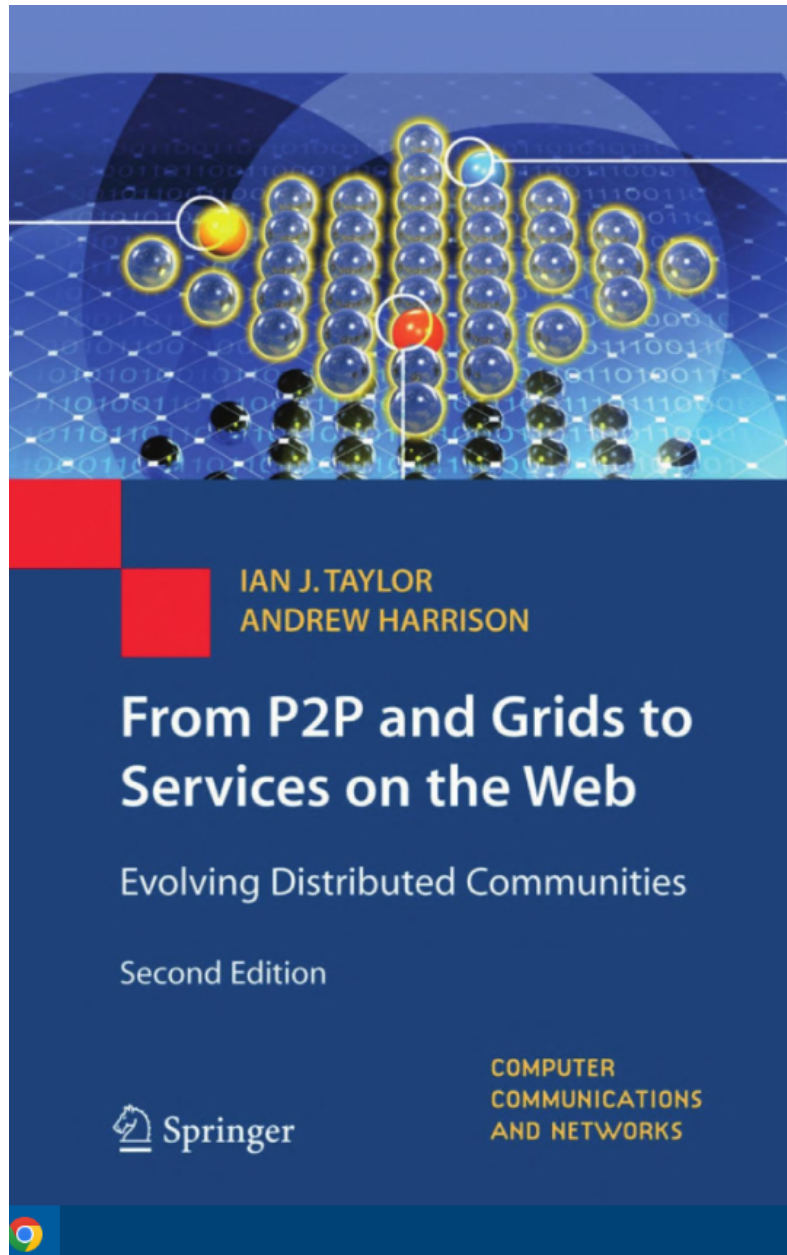




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- **Web Services:** are a software system designed to support interoperable machine-to-machine interaction over a network [95]. In simple terms, Web Services provide the definitions (and infrastructure) to allow applications to exchange XML messages with each other.

BPEL	Service Flow and Composition	Semantics
Trading Partner Agreement	Service Agreement	
UDDI/WS Inspection	Service Discovery	
UDDI	Service Publication	
WSDL	Service Description	
WS Security	Secure Messaging	
SOAP	Messaging	
HTTP, FTP, SMTP, MQ etc	Transport	

Fig. 7.4. A taxonomy of the various technologies used to represent and deploy Web Services and those that can be influenced by semantics.

These two technologies do not compete, but rather they complement each other. In a keynote speech [96], Berners-Lee said, “Web Services meet immediate technology needs, while the Semantic Web has the potential for future exponential growth.” Such convergence has led to a number of groups that are focusing on this integration, e.g., [97] and [98]. In a recent paper the authors noted [99], “Semantic Web Enabled Web Services (SWWS) will transform the Web from a static collection of information into a distributed device of computation on the basis of Semantic Web technology making content within the World Wide Web machine-processable and machine-interpretable.”

Further, the authors define a taxonomy (see Fig. 7.4) that illustrates the various Web Services technologies with those that can be influenced by semantics. Anything from the service description upwards can be enhanced to include a rich layer of semantics that can be understood by applications.

In this chapter, we will take a look at the core infrastructure that can enable machine-to-machine interactions now using Web Services. For more information on the Semantic Web, see the references listed above, as well as Section 5.7.