Linked Data Principles in a nutshell

The first Linked Data principle advocates using URI references to identify, not just Web documents and digital content, but also real world objects and abstract concepts. These may include tangible things such as people, places and cars, or those that are more abstract, such as the relationship type of *knowing somebody*, the set of all green cars in the world, or the color green itself. This principle can be seen as extending the scope of the Web from online resources to encompass any object or concept in the world.

The HTTP protocol is the Web's universal access mechanism. In the classic Web, HTTP URIs are used to combine globally unique identification with a simple, well-understood retrieval mechanism. Thus, the second Linked Data principle advocates the use of HTTP URIs to identify objects and abstract concepts, enabling these URIs to be *dereferenced* (i.e., looked up) over the HTTP protocol into a description of the identified object or concept.

In order to enable a wide range of different applications to process Web content, it is important to agree on standardized content formats. The agreement on HTML as a dominant document format was an important factor that made the Web scale. The third Linked Data principle therefore advocates use of a single data model for publishing structured data on the Web – the Resource Description Framework (RDF), a simple graph-based data model that has been designed for use in the context of the Web. The RDF data model is explained in more detail later in this chapter.

The fourth Linked Data principle advocates the use of hyperlinks to connect not only Web documents, but any type of thing. For example, a hyperlink may be set between a person and a place, or between a place and a company. In contrast to the classic Web where hyperlinks are largely untyped, hyperlinks that connect things in a Linked Data context have types which describe the relationship between the things. For example, a hyperlink of the type *friend of* may be set between two people, or a hyperlink of the type *based near* may be set between a person and a place. Hyperlinks in the Linked Data context are called *RDF links* in order to distinguish them from hyperlinks between classic Web documents.

Across the Web, many different servers are responsible for answering requests attempting to dereference HTTP URIs in many different namespaces, and (in a Linked Data context) returning RDF descriptions of the resources identified by these URIs. Therefore, in a Linked Data context, if an RDF link connects URIs in different namespaces, it ultimately connects resources in different data sets.

Just as hyperlinks in the classic Web connect documents into a single global information space, Linked Data uses hyperlinks to connect disparate data into a single global data space. These links, in turn, enable applications to navigate the data space. For example, a Linked Data application that has looked up a URI and retrieved RDF data describing a person may follow links from that data to data on different Web servers, describing, for instance, the place where the person lives or the company for which the person works.

As the resulting Web of Data is based on standards and a common data model, it becomes possible to implement generic applications that operate over the complete data space. Examples of such applications include Linked Data browsers which enable the user to view data from one data source and then follow RDF links within the data to other data sources. Other examples are Linked Data Search engines that crawl the Web of Data and provide sophisticated query capabilities on top of the complete data space.

In summary, the Linked Data principles lay the foundations for extending the Web with a global data space based on the same architectural principles as the classic document Web.