

application of stateless requests to the semantics of the GET request: we can start to imagine the potential to cache the results from arbitrary requests. The address of the responder (the main portion of the URL) plus the full state of the request (URL hierarchy plus query parameters) becomes a compound hash key into a result set (e.g., database query, applying a transformation to another piece of data, etc.). You will not get these caching benefits for free, but environments that leverage the potential suddenly become easily imaginable. One of the many compelling features of the NetKernel resource-oriented environment<sup>#</sup> is that it deeply and fully takes advantage of this potential to enable a form of architectural memoization,<sup>\*</sup> with almost no effort on your part. We will see more about this later in the “Applied Resource-Oriented Architecture” section.

With a common naming scheme for all the items that interest us and a logical request process that allows the form of the thing to change over time or in a different context, we almost have the infrastructure necessary to turn our organizational information management on its head. The final tool we need is the ability to express metadata about the things we are addressing. This is where the Resource Description Framework (RDF) comes in. This W3C Recommendation uses a graph model to allow open-ended expressions of information about our named entities. Who created it? When was it created? What is it about? What is it related to? The ability for us to name and address existing data stored in relational databases allows us to describe any data we like without having to convert it into a new form. This is a common expectation and complaint about RDF that does not hold up in practice. We will usually leave the data where it is and integrate at a level that makes sense.

In the following listing, we see an N3 expression of some RDF to describe the creator, title, copyright date, and license associated with a particular resource. The example shows the use of three terms from the Dublin Core Metadata Initiative<sup>†</sup> and one term from the Creative Commons<sup>‡</sup> community. We are free to reuse terms from whatever vocabularies exist, or to create new ones where we need to describe new terms:

```
@prefix dc: <http://purl.org/dc/elements/1.1/> .
@prefix cc: <http://creativecommons.org/ns/> .
<http://bosatsu.net/team/brian/index.html> dc:creator
    <http://purl.org/people/briansletten> .
<http://bosatsu.net/team/brian/index.html> dc:title
    "Brian Sletten's Homepage" .
<http://bosatsu.net/team/brian/index.html> dc:dateCopyrighted
    "2008-04-26T14:22Z" .
<http://bosatsu.net/team/brian/index.html> cc:license
    <http://creativecommons.org/licenses/by-nc/3.0/> .
```

<sup>#</sup> <http://1060.org>

<sup>\*</sup> <http://en.wikipedia.org/wiki/Memoization>

<sup>†</sup> <http://dublincore.org>

<sup>‡</sup> <http://creativecommons.org/ns>