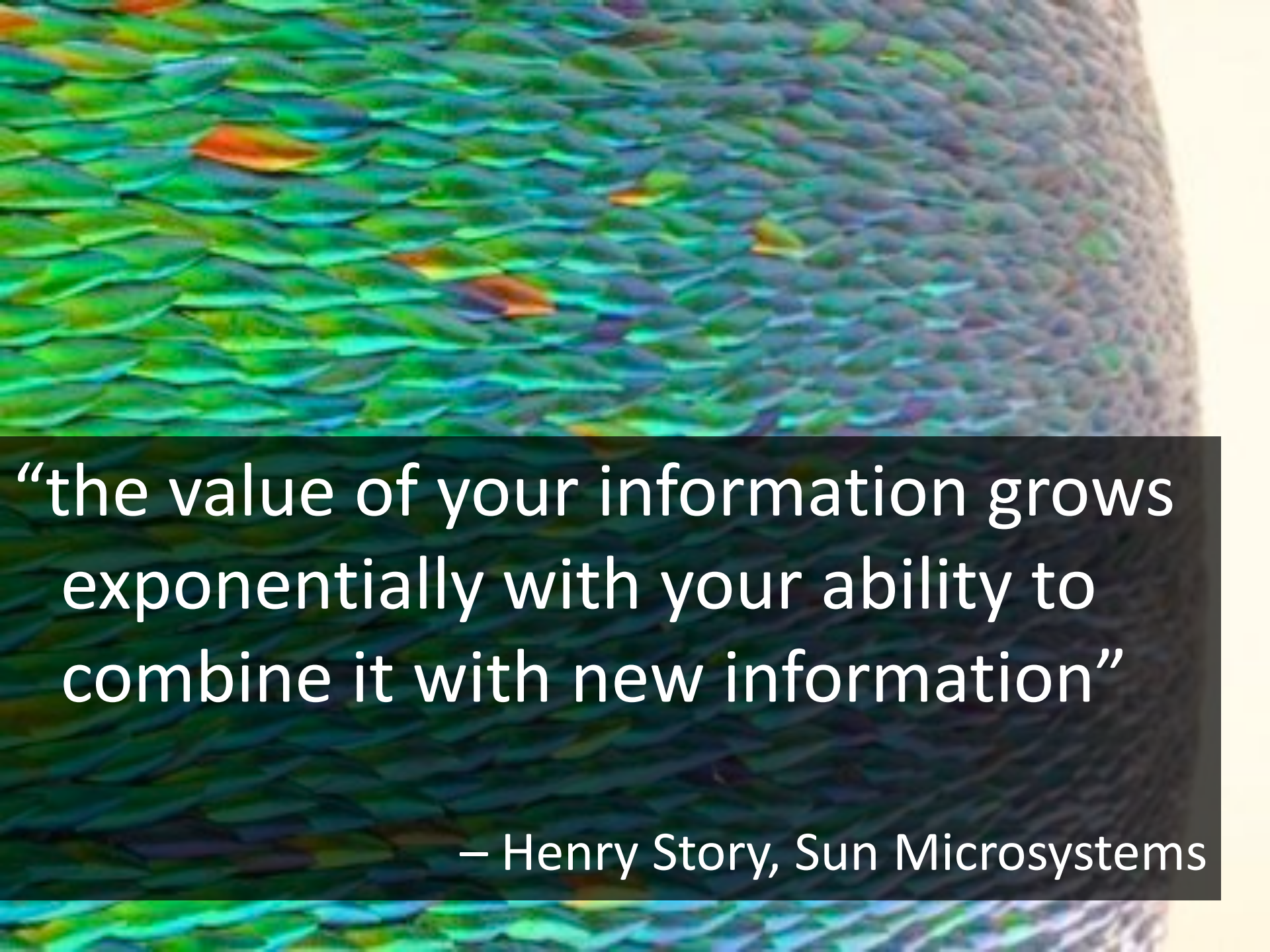


Hacking Climate Change with Drupal and the Semantic Web



David Peterson & Nicholas Roberts
Drupalcon 2008, Szeged Hungary





“the value of your information grows exponentially with your ability to combine it with new information”

– Henry Story, Sun Microsystems

In its present form, the Web is a loose collection of data islands called websites.




Clear Picture?



Structured Data = Information

- Data and information are not the same
- Data is raw, non-structured text and numbers
- Information is taking that raw data and turning it into something meaningful


Our View

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Steinhausen Flying Back Automatic Watch-Rose Gold-TW499RG
Other products by [Steinhausen](#)
No customer reviews yet. [Be the first.](#) [More about this product](#)

Price: **\$500.00**
[Special Offers Available](#)

Availability: In Stock. Ships from and sold by [Timecove](#).

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A Computer's View

```
<div class="buying"><b class="sans"> Steinhausen Flying Back Automatic Watch-Rose Gold-TW499RG<!--aoeui--></b> <br>Other products by <a
href="/s.html?ie=UTF8&amp;node=3888811&amp;brand=Steinhausen"> Steinhausen</a> </div>

<b class="h1">Special Offers and Product Promotions</b>

<div class="content">
<ul class="qpUL">

<li>Get free shipping on this item when you spend $125.00 or more on Qualifying Items offered by Timecove. <a
href="/gp/promotions/details/popup/A19RHN75E613JQ" target="AmazonHelp" onclick="return
amz_js_PopWin(this.href,'AmazonHelp','width=450,height=600,resizable=1,scrollbars=1,toolbar=1,status=1');">Here's how</a> (restrictions apply)
</li><input name="specialOffersHidden" id="specialOffersHidden" type="hidden">
</ul>
</div>
<script type="text/javascript">
showHideElement('specialOffersHidden', 'specialOffersDiv');
showHideElement('productPromosHidden', 'heroQuickPromoDiv');
</script>

</div>
<a name="moreAboutThisProduct" id="moreAboutThisProduct"></a>
<hr class="bucketDivider" noshade="noshade" size="1"><div class="bucket" align="left"><b class="h1" align="left">Product Specifications</b><div
class="content"><table class="techSpecTable" cellspacing="0"><tbody><tr class="techSpecRowHeader"><td class="techSpecHeader"
colspan="2">Watch Information</td></tr><tr class="techSpecRow"><td class="techSpecTD1">Brand Name:</td><td
class="techSpecTD2">Steinhausen</td></tr><tr class="techSpecRow"><td class="techSpecTD1">Part Number:</td><td
class="techSpecTD2">TW499RG</td></tr></tbody></table></div></div>
<hr class="bucketDivider" noshade="true" size="1">
<div class="bucket" id="productDescription">
<b class="h1">Product Description</b><br>
```


Towards Understanding

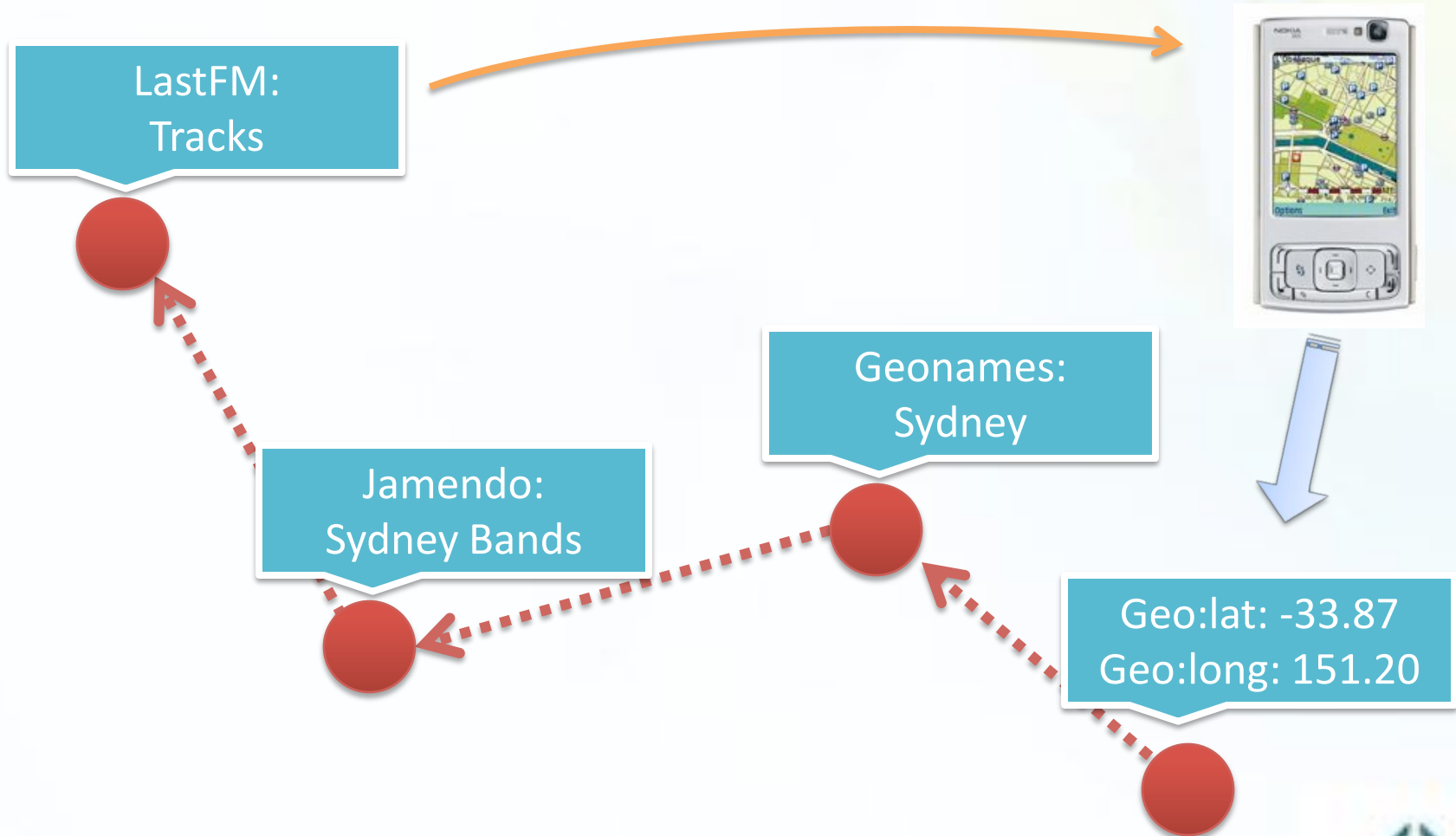
- What if the computer knew that this was *something*?
- And not just anything but a watch



Connections

- Definition of watch is linked to Wikipedia entry
 - *<http://en.wikipedia.org/wiki/Watch>*
- Now things become really interesting
 - You now have created a shared vocabulary
 - Use within your enterprise to overcome integration difficulties
 - Use on the global Web

Linked Data

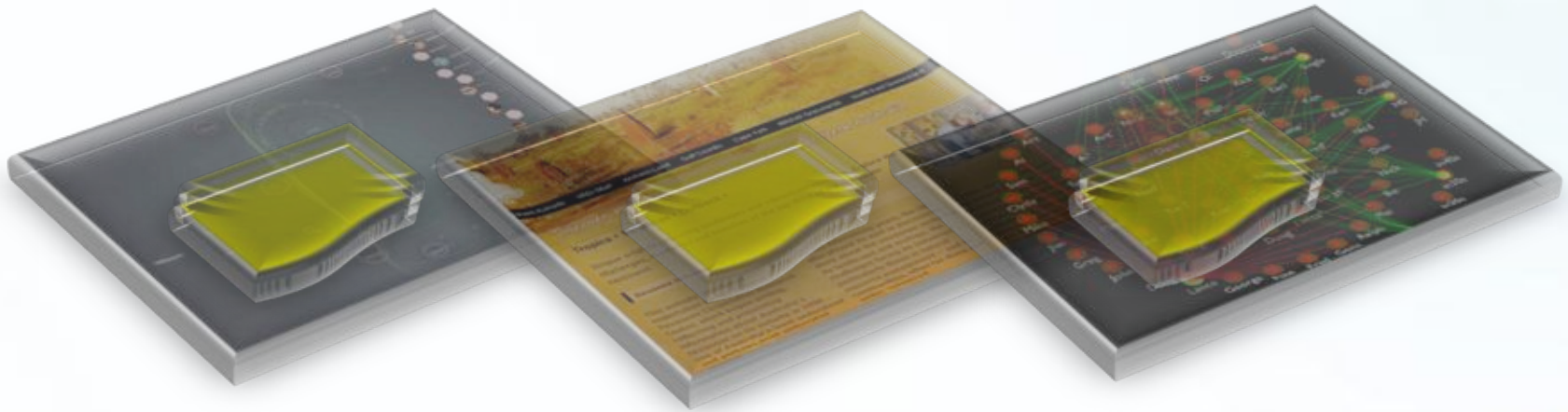


Embedded Metadata

- The metadata is carried along with the data
- Standards
 - Microformats
 - RDFa
- New forms of documents

Query the Web

- Extract structured information via microformats & RDFa
- Create rich data feeds on the fly



Sun JSP

PHP

ASP.Net

An Important Question

```
SELECT ?episode,  
?chalkboard_gag  
WHERE {
```

```
?episode skos:subject <Simpsons_episodes_season_12>.
```

```
?episode wiki:blackboard ?chalkboard_gag.
```

```
}
```



Chalkboard Gags – Episode 12

episode	chalkboard_gag
Homer vs. Dignity	"I will not surprise the incontinent"
A Tale of Two Springfields	"I will not plant subliminAL messaGOREs"
Bye Bye Nerdie	"I will not scare the vice president"
Children of a Lesser Clod	"Today is not Mothra's Day"
...	...



Trident Fish Bar
Fresh Prawns & Oysters • Fish
Seafood Packs • Burgers • Loc


GIANT



GLOBAL



GRAPH

A close-up, low-angle shot of a classic street lamp. The lamp has a dark, ornate metal frame and a large, glowing yellow light globe. It is set against a clear, bright blue sky. The lamp's arm extends horizontally to the right, and another arm extends diagonally downwards to the left. The overall mood is serene and timeless.

“It's not the documents,
it is the things they
are about which are
important. Obvious,
really.”

Tim Berners-Lee

Meaning

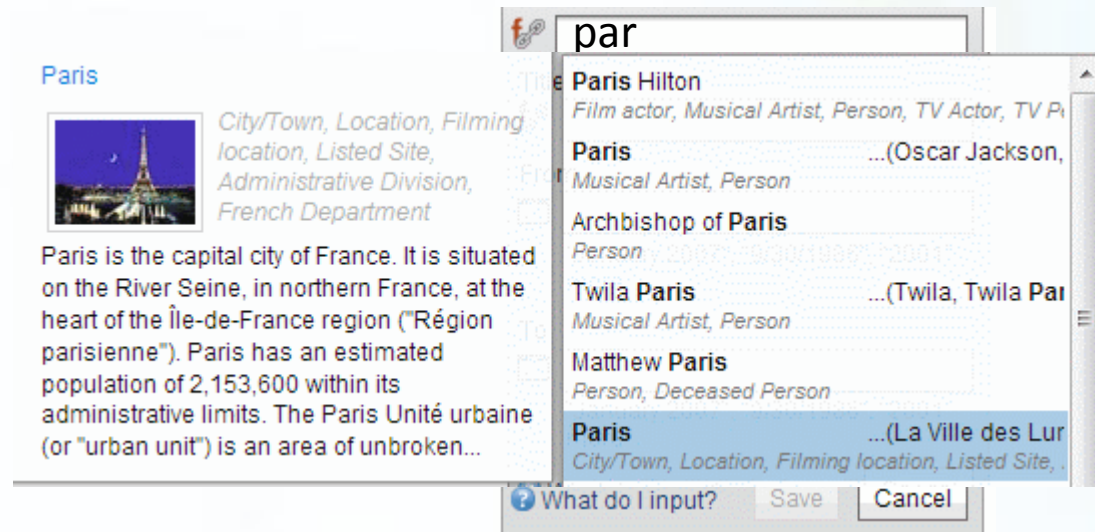
06 africa amsterdam animals april architecture art august australia autumn baby
barcelona beach berlin birthday black blackandwhite blue boston bw california
cameraphone camping canada canon car cat cats chicago china christmas
church city clouds color concert day dc dog england europe fall family festival
film florida flower flowers food france friends fun garden geotagged
germany girl graffiti green halloween hawaii hiking holiday home honeymoon hongkong
house india ireland island italy japan july june kids lake landscape light live london
macro may me mexico mountain mountains museum music nature new newyork
newyorkcity newzealand night nikon nyc ocean october paris park party people
portrait red river roadtrip rock rome san sanfrancisco scotland sea seattle september
show sky snow spain spring street summer sun sunset sydney taiwan texas
thailand tokyo toronto travel tree trees trip uk urban usa vacation vancouver
washington water wedding white winter yellow york zoo

What do you Really Mean?

- Concept tagging
- Paris
 - City?
 - Person?
- What happens when someone tags their photo with “paris”

Concept Tagging

- “par” into tags box
 - person?
 - city?



Clarity

- Image is tagged with the concept of *“Paris the city”*
- A lot of things come with that for free
 - Disambiguates the item being tagged, meaning is explicit
 - Adds a wealth of metadata
 - Searches are much more powerful
 - “give me all images that are about cities in European with over 1 million people”

More Powerful, Automatically

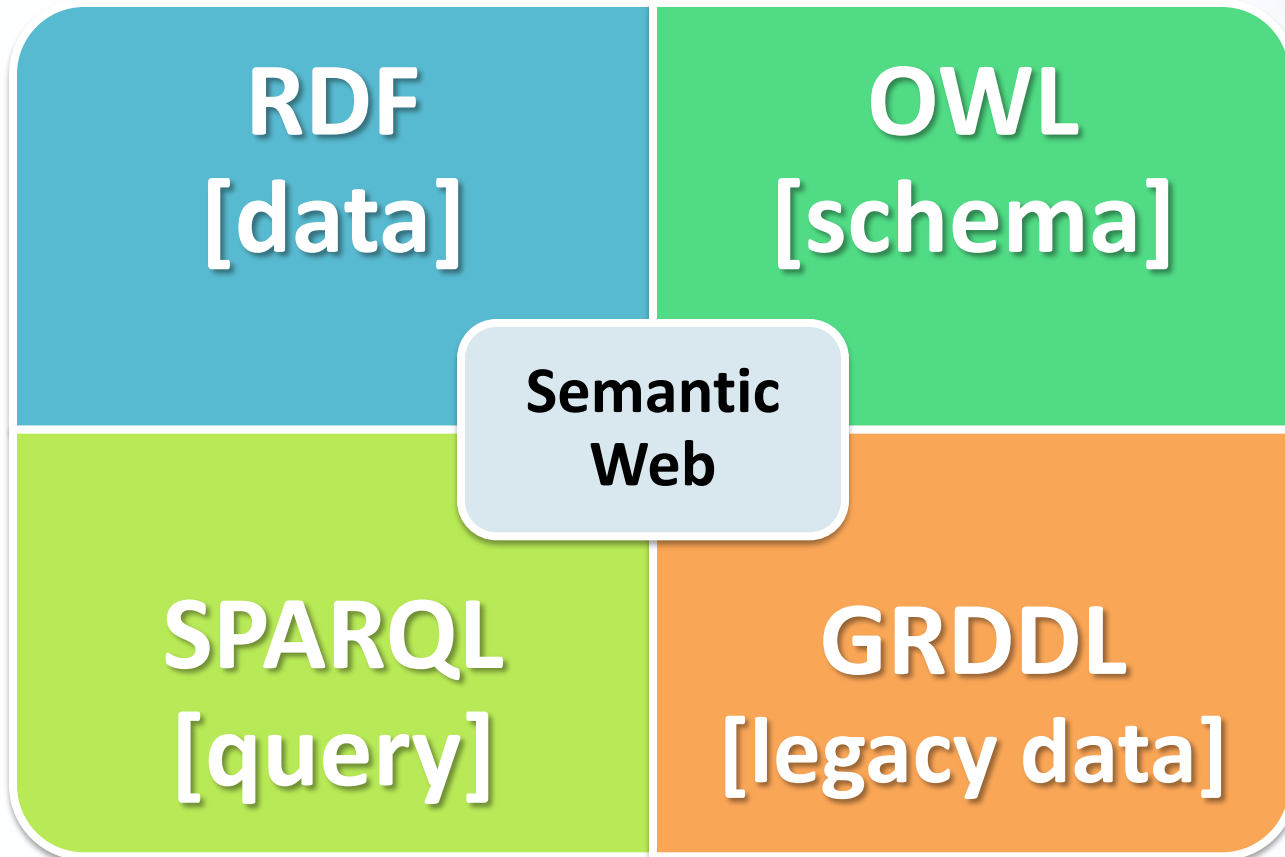
- Not a radical re-wiring of existing infrastructure
- *Existing* data, and *existing* connections can be made far more powerful
- A richer and more intuitive way to express oneself

Semantic Web

- There will be many Semantic Webs
- Lives alongside current Web
- Integrating data by giving it more structure
- Flexible data model



Semantic Web Toolkit



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