Towards Interoperable Provenance Publication on the Linked Data Web

prov:wasAttributedTo

Jun Zhao
Olaf Hartig
<semantic web layered cake 2007>  
prov:wasAttributedTo <steve bratt> ;  
prov:wasDerivedFrom  
<semantic web layered cake 2000> .

<>  
 rdf:type prov:Activity ;  
prov:used <semantic web layered cake 2007>;  
prov:startedAtTime “2007-01-30T00:00:00”^^xsd:dateTime .

<semantic web layered cake 2000>  
prov:wasAttributedTo <Berners-Lee> ;  
prov:wasGeneratedBy [  
 rdf:type prov:Activity ;  
prov:startedAtTime  
“2000-12-06T00:00:00”^^xsd:dateTime;  
prov:location <washington d.c> ;  
] .
prov:wasGeneratedBy [ 
  prov:wasAssociatedWith "http://www.wordle.net/" ; 
  prov:endedAtTime "2012-04-12"^^xsd:dateTime ; 
] ;
prov:wasAttributedTo "jun zhao" .
Main Page

Provenance Working Group

Mission: to support the widespread publication and use of provenance information of Web documents, data, and resources. The Working Group will publish W3C Recommendations that define a language for exchanging provenance information among applications. (See Charter)

The Working Group is based on an extensive review and roadmap developed by a prior incubator group.

Exchange provenance information among applications
http://ns.slideshare.net/junzhao/slide-ldow-2012

WHERE to find PROVENANCE?
HTTP/1.1 200 OK
Content-Type: text/turtle
Date: Wed, 10 April 2012 10:58:02 GMT
Link: http://ns.slideshare.net/junzhao/slide-ldow-2012/provnc/; rel="provenance"; anchor="http://ns.slideshare.net/junzhao/slide-ldow-2012"
Content-Length: 18556

rdfs:label "presentation for ldow 2012";

GET //ns.slideshare.net/junzhao/slide-ldow-2012 HTTP/1.1
Host: ns.slideshare.net
Accept: text/turtle
What is described?

Who generated the forecast of Lyon?

Who generated the forecast of Lyon on April 16, 2012?

<table>
<thead>
<tr>
<th>Unchanged properties</th>
<th>Changed properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Forecast of Lyon</td>
<td>• Creation time of the forecast</td>
</tr>
<tr>
<td>• Creator of the forecast data</td>
<td>• Raw data used to generate the forecast</td>
</tr>
</tbody>
</table>
Provenance Entities

• A *flexible* notion from Provenance WG
  • With a lifetime and some attributes that do not vary
  • Subject to provenance providers / application needs

• Firmer notion
  • Something of an immutable piece of state
  • The Provenance Vocabulary
    - http://purl.org/net/provenance/ns-20120314
  • OPMV
    - http://purl.org/net/opmv/ns-20101006
Forecast Of Lyon

prov:wasAttributedTo

prov:wasGeneratedBy

prov:used

prov:startedAt

"2012-04-10T11:00:00" ^ xsd:dateTime

prov:Agent

prov:Activity

prov:Entity

<http://ns.forecast.net/lyon>

<http://ns.forecast.net/data-x>

<http://ns.forecast.net/sat>
Forecast Of Lyon at 10am

prov:wasAttributedTo

prov:createdBy

prov:usedData

prov:completedAt

<http://ns.forecast.net/sat>

prov:Agent

prov:DataCreation

prov:Immutable

prv:createdBy

prv:completedAt

"2012-04-10T10:00:00" ^ xsd:dateTime

Forecast Of Lyon at 11am

prov:wasAttributedTo

prov:createdBy

prov:usedData

prov:completedAt

<http://ns.forecast.net/sat> prov:Agent

<http://ns.forecast.net/lyon-11am> prov:Immutable

prv:createdBy

prv:completedAt

"2012-04-10T11:00:00" ^ xsd:dateTime

<http://ns.forecast.net/lyon-10am>

prov:createdBy

prov:completedAt

"2012-04-10T10:00:00" ^ xsd:dateTime
Trust

Provenance Vocabulary

Provenance Access

Provenance Representation

Provenance Semantics
Take-home Messages

• Provenance publisher:
  • Think again about what is described in your provenance
  • Make sure “sufficient” historical records can be accessed
  • Make sure your provenance is made accessible

• Provenance consumer:
  • Think again what you are accessing
    − Does it talk about the same thing you think it does?
    − Will it stay there forever if you don't cache it locally?
WG release expected April 19

Look out to:

http://www.w3.org/2011/prov/
Provenance Tutorial
International Provenance and Annotation Workshop (IPAW 2012)
Santa Barbara, California
June 19, 2012
http://ipaw2012.bren.ucsb.edu/

WG Updates
SWPM Workshop at ESWC2012
Heraklion, Greece
May 27, 2012
http://sites.google.com/site/swpm2012/
These slides have been created by Jun Zhao and Olaf Hartig

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