RDF Isolation API

RDF Next Step Workshop 2010

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RDF Isolation API

- Need an API to…
  - Manage RDF services
  - Manage multiple RDF store states
  - Managing queries
  - Describe relationships between services

RDF Isolation API

- CRUD operations for services
- CRUD operations for named queries
- Hypermedia links resources together
- Cacheable and serial evaluation
- Simple named query parameters
- Distributed revision control

Hypermedia

- All resources are represented using
  - application/sparql-query
- Explicit linking
  - No “well-known locations”
- Queries link using SERVICE
- Services and graphs link using WITH
- Service descriptions may link to named queries using rdf+xml

Hypermedia

```
HTTP/1.1 200 Ok
Content-Type: application/sparql-query

DESCRIBE ?book
FROM </graph>
WHERE {
 SERVICE </service> {
  ?book dc:creator "$author" .
 }
}
```

Cacheable & Serial Eval

- Named queries can be evaluated using cacheable GET requests
- Named queries can also be evaluated serially using POST requests
- Ad-hoc queries can be serially evaluated using POST requests to a service or graph

Cacheable & Serial Eval

```
HTTP/1.1 200 Ok
Content-Type: text/turtle
Cache-Control: max-age=30
Age: 0

<http://example.com/book3> dc:title "A new book" ;
  dc:creator "A.N.Other" .
```

Simple Query Parameters

- Query parameter are explicitly identified
- Each query parameter is exclusively
  - Absolute IRI or relative IRI
  - plain literal with an explicit language
  - typed literal with an explicit datatype
- Only string values of literal labels and relative IRIs need to be passed for evaluation
- The BINDINGS clause can be used to combine query parameters

Simple Query Parameters

```
POST /query HTTP/1.1
Accept: text/turtle
Content-Type: application/x-www-form-urlencoded

author=A.N.Other
```

Distributed Revisions

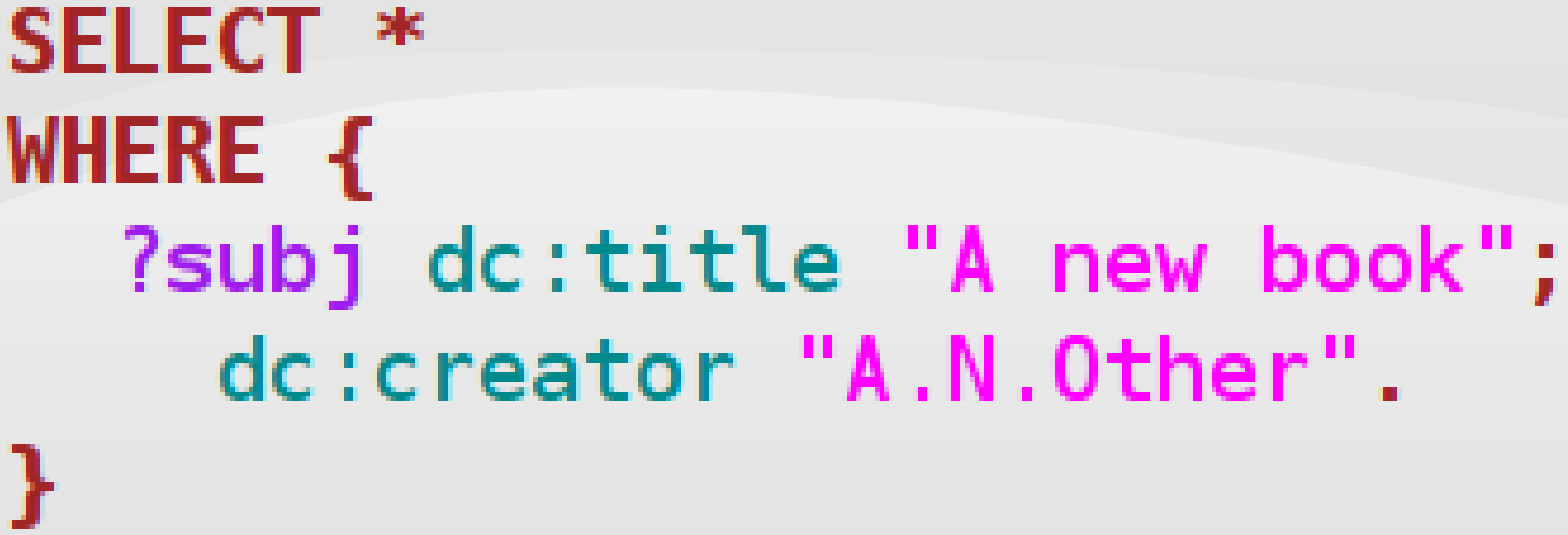
- Services maybe compossed of others
- Services may store only a delta against other services
- Anybody can create their own virtual service from an accessible service
- Services can reject merging deltas to enforce data consistency

Distributed Revisions

```
PUT /branch HTTP/1.1
Content-Type: application/sparql-query

INSERT { ?s ?p ?o }
WHERE {
  SERVICE </service> {
    ?s ?p ?o
  }
}
```

Distributed Revisions

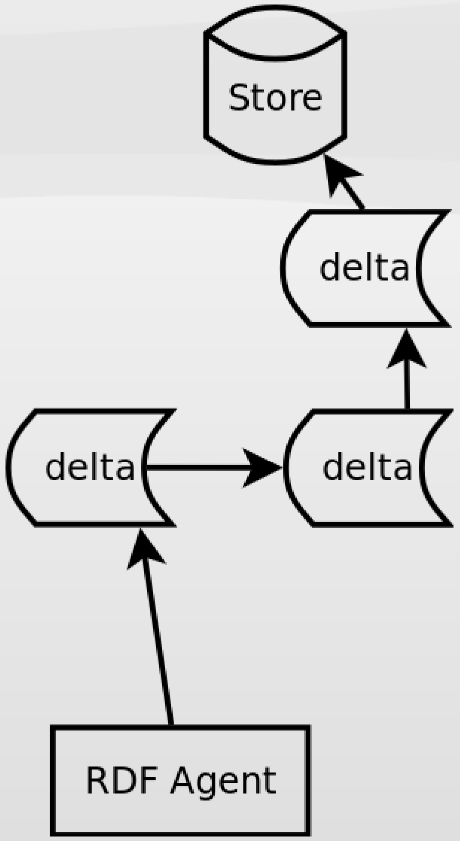


```
SELECT *
WHERE {
  ?subj dc:title "A new book";
    dc:creator "A.N.Other".
}
```

Distributed Revisions

```
SELECT *
WHERE {
   { ?subj dc:title "A new book" }
       UNION { SELECT ?subj {}
       BINDINGS ?subj { (<book3>) (<book4>) }
   FILTER ?subj = <book3> || ?subj = <book4> ||
       EXISTS { ?subj dc:creator "A.N. Other" })
}
```

Distributed Revisions



Distributed Revisions

```
PUT /union HTTP/1.1
Content-Type: application/sparql-query-fed

INSERT { ?s ?p ?o }
WHERE {
   SERVICE <//example.com/service> {
       ?s ?p ?o
       FILTER regex(str(?s), "^http://example.com/", "i")
   }
   SERVICE <//example.org/service> {
       ?s ?p ?o
       FILTER regex(str(?s), "^http://example.org/", "i")
   }
}
```

Thanks