Exhibit: Lightweight Structured Data Publishing
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Outline

• Introduction
• Theory
• Demo
• Questions
RDF + SIMILE Tools

- Semantic web is based on RDF
- RDF is used to represent metadata about resources on the web
- SIMILE tools assist in the storage, querying, transformation and mapping of very large collections of RDF data.
What is Exhibit?

- A MIT SIMILE project
- A Semantic Web Application by David F. Huynh
- Standardizes a model of structured data involving objects with properties and values
- Implements a RDF subset
- JavaScript + CSS + DOM + HTML + JSON
- Deals with reasoning and semantic web technologies to enable “on-the-fly” generation of GUI interfaces
Why is it important?

- Collections arise everywhere
- Harder to create, maintain, and utilize (with HTML, Why?)
- Exhibit is a tool that lets anyone take a collection of anything they care about and put it on the web as a rich, interactive, web2.0 style site without doing any programming.
What does it Provide?

• Faceted browsing
  – for data collections on websites
  – Browsing arbitrary structured data
• Clean way to separate content from presentation
• Support easy repurposing of content in multiple presentations
• Easy creation of complex presentations for an infinite variety of content
Benefits

• Lowers the barrier to publishing
• No installation, configuration or maintenance
• Copy and paste evolution
• Incremental complexity
• No network effect required
• Fine grained control over presentation
  – HTML syntax + expressivity
Benefits contd..

• Makes each author’s job easier and the published data more useful to:
  - Readers get more powerful UIs,
  - Mashup creators can more easily repurpose data
  - Semantic web enthusiasts can feed the data to the nascent semantic web
Various Publishing frameworks
Architecture

Figure 11. Exhibit's architecture.
Creating the data

```json
{
  "items": [
    {
      "photo": "http://www.cs.iitm.ernet.in/khemani/dk.gif",
      "url": "http://www.cs.iitm.ernet.in/khemani/",
      "uri": "http://localhost/deepak+khemani",
      "last-name": "Khemani",
      "position": "associate professor",
      "floor": "2nd floor",
      "office": "BSB 306",
      "phone": "2257-4365",
      "email": "khemani@cse.iitm.ernet.in",
      "type": "Person",
      "label": "Deepak Khemani",
      "group": "AIDB"
    },
    {
      "photo": "http://www.cs.iitm.ernet.in/~tag/tag.jpg",
      "url": "http://www.cs.iitm.ernet.in/~tag/",
      "uri": "http://localhost/tag",
      "last-name": "Gonsalves",
      "position": "professor",
      "floor": "9th floor",
      "office": "BSB 308",
      "phone": "2257-4353",
      "email": "tag@lantana.tenet.res.in",
      "type": "Person",
      "label": "Timothy A. Gonsalves",
      "group": "DON"
    }
  ]
}```
Creating the presentation

```html
<html>
<head>
  <title>Topher's Breakfast Cereal
          Character Guide</title>
  <link type="text/javascript" 
       rel="exhibit/data" href="cereal-characters.js" />
  <script type="text/javascript"
    src="http://static.simile.mit.edu/exhibit/api/exhibit-api.js">
  </script>
</head>
<body>
<table width="100%">
  <tr valign="top">
    <td width="25%">
      <div id="exhibit-browse-panel"></div>
    </td>
    <td>
      <div id="exhibit-control-panel"></div>
    </td>
  </tr>
</table>
</body>
</html>
```

- Link to one or more data files
- Include Exhibit
- Declare the exhibit's panels using predefined IDs and lay them out
Data Model

- Set of items
- Each item has a type and several properties
- A lot of exhibits are flat, but some contain items that reference one another.
- In those exhibits, data models are graphs
Data Model contd...

- **Items**
  - label, id

- **Types**
  - Uri, id, label and plurallabel

- **Properties**
  - uri, id, label, reverselabel, plurallabel, reverseplurallabel, groupinglabel

- **Value types:**
  - text, number, date, boolean, url, item

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Figure 7. Schema information can be added to the JSON file to improve Exhibit’s user interface.
Expressions

• Expression language for selecting data to display in lenses and views
• A sequence of one or more property IDs, each preceded by a hop operator.
• In RDF,
  – The .hop operator traverses from subject to object
  – The !hop operator traverses from object to subject
Exporters

CSE Faculty@ IITM

The original data comes from this page. Here is the Exhibit XML data file.
Demo

- CSE Dept Professors@ IITM
Long Tail of Information Domains

- head:
  - consumer products + reviews
  - news articles
  - locations + events
  - photos + music + videos
  - software projects

- tail:
  - sugar packet collection
  - lock picking
  - breakfast cereal characters
  - itinerary of King John (12th century)
  - Fore Cemetery burial chronology
Thank You!!
Visit:
http://simile.mit.edu/exhibit

Questions??
Backup
3 People filtered from 20 originally (Reset All Filters)

sorted by: labels; then by... • ✓ grouped as sorted

Deepak Khemani
Office: BSB 306
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more...

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7 People filtered from 20 originally (Reset All Filters)
sorted by: labels; then by... • grouped as sorted

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- ✓ grouped as sorted

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Krishna Moorthy Sivalingam
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20 People

sorted by: group and last-name; then by...

VP (1)

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TCS (3)

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10 People filtered from 20 originally (Reset All Filters)

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Phone: 2257-4378

Shankar Balachandran
Office: BSB 340

Positions
5 assistant
5 associate
9 professor
1 visiting

Office Floors
4 2nd floor
1 3rd floor
1 4th floor
1 5th floor
1 6th floor
1 7th floor
1 9th floor