WIKINEXT

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Application Semantic Wiki

Wiki World

- **Wiki** is a website where users can add, modify, or delete content via a web browser

- **Wiki software** (wiki engine) : implementation

- **Application (enterprise) wiki** is a wiki engine where users can create/modify applications into the wiki page (ex: XWiki, TWiki)

- **Semantic wiki** is a wiki that uses models of knowledge (i.e: Semantic Media Wiki)
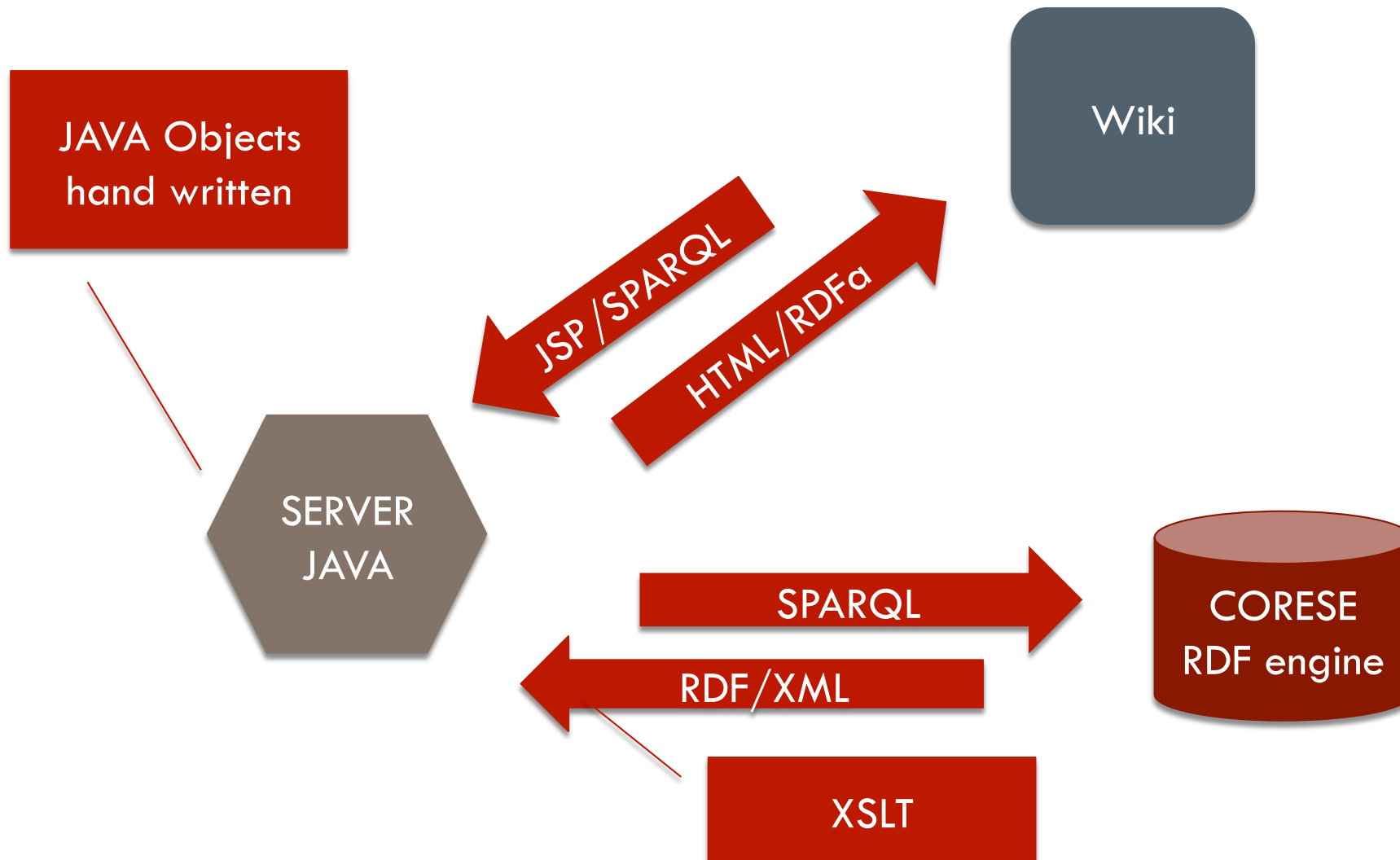
WikiNext

- Semantic Wiki:
  - Write collaboratively semantized documents
- Application Wiki :
  - Write applications within the wiki
  - Take advantages of the Linked Open Data,
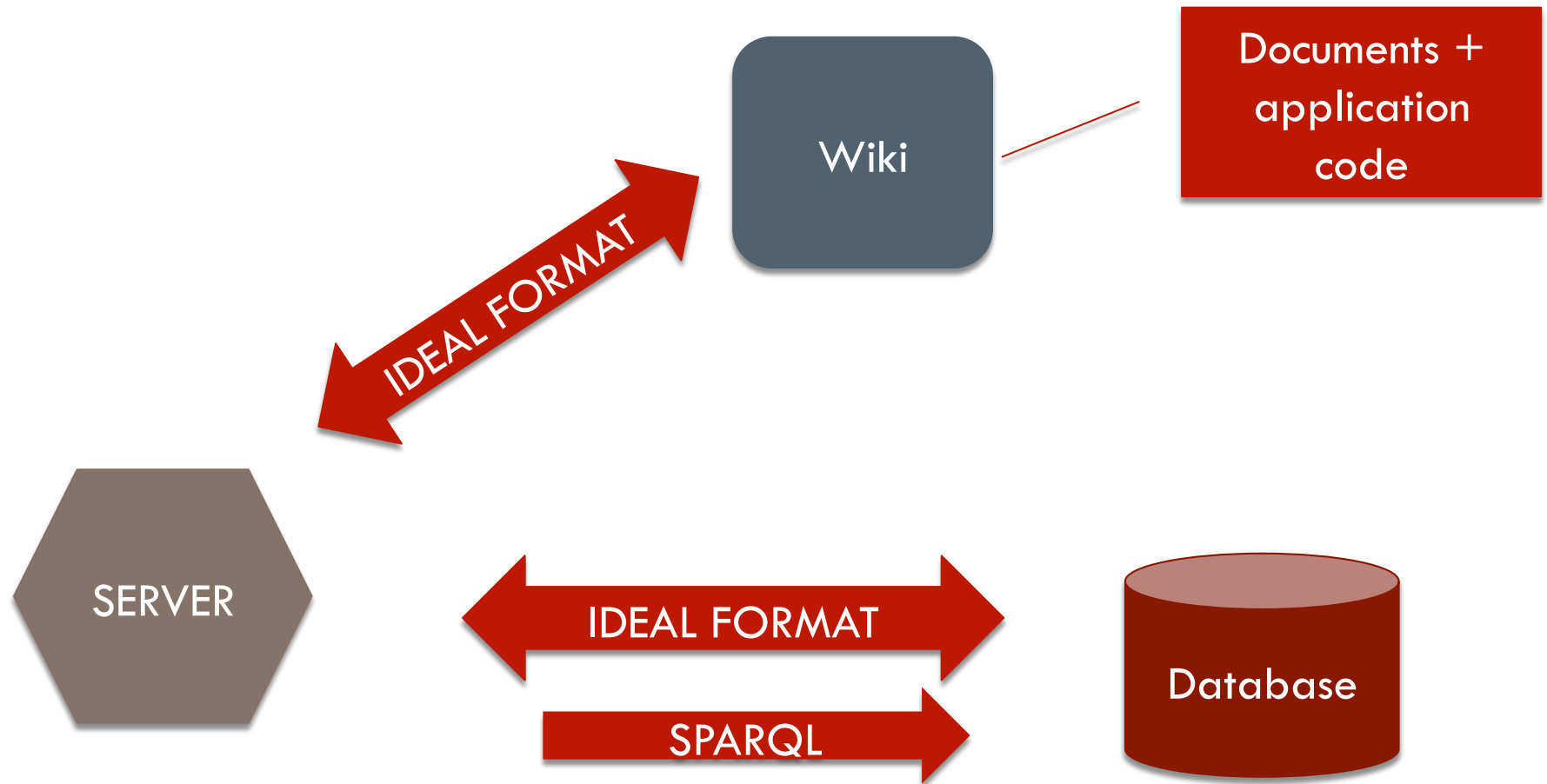- Take advantages of the new technologies : Web Services, HTML5, WebSockets, etc.

Choosing technology

- Programming language
  - Simply, untyped
  - Easy to learn for users

- Unified representation format for data and meta-data
  - RDF/RDFa Triples
  - Documents
  - Applications

The SweetWiki way (2005-2009)

JAVA Objects
hand written

Wiki

JSP/SPARQL

HTML/RDFa

SERVER
JAVA

SPARQL

CORESE
RDF engine

RDF/XML

XSLT

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Modern way

Wiki

Documents + application code

IDEAL FORMAT

SERVER

IDEAL FORMAT

SPARQL

Database

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Browsers

- Browser = Layout engine + JavaScript engine
  - Google Chrome (WebKit + V8)
  - Safari (WebKit + Nitro)
  - Mozilla FireFox (TraceMonkey)
  - Opera (Caracan)
  - Internet Explorer

- And...

JavaScript engines are independent

- □ V8 by Google

- □ TraceMonkey by Mozilla

- □ SpiderMonkey by Mozilla

- □ Rhino by Mozilla

- □ Nitro by Apple

- □ Caracan by Opera

- □ And JS is no more a web-browser only language !

CommonJS

- Specification to create server-side applications based on JS engine

- Open proposal system with voting on mailing list

- Used in:
  - CouchDB
  - MongoDB
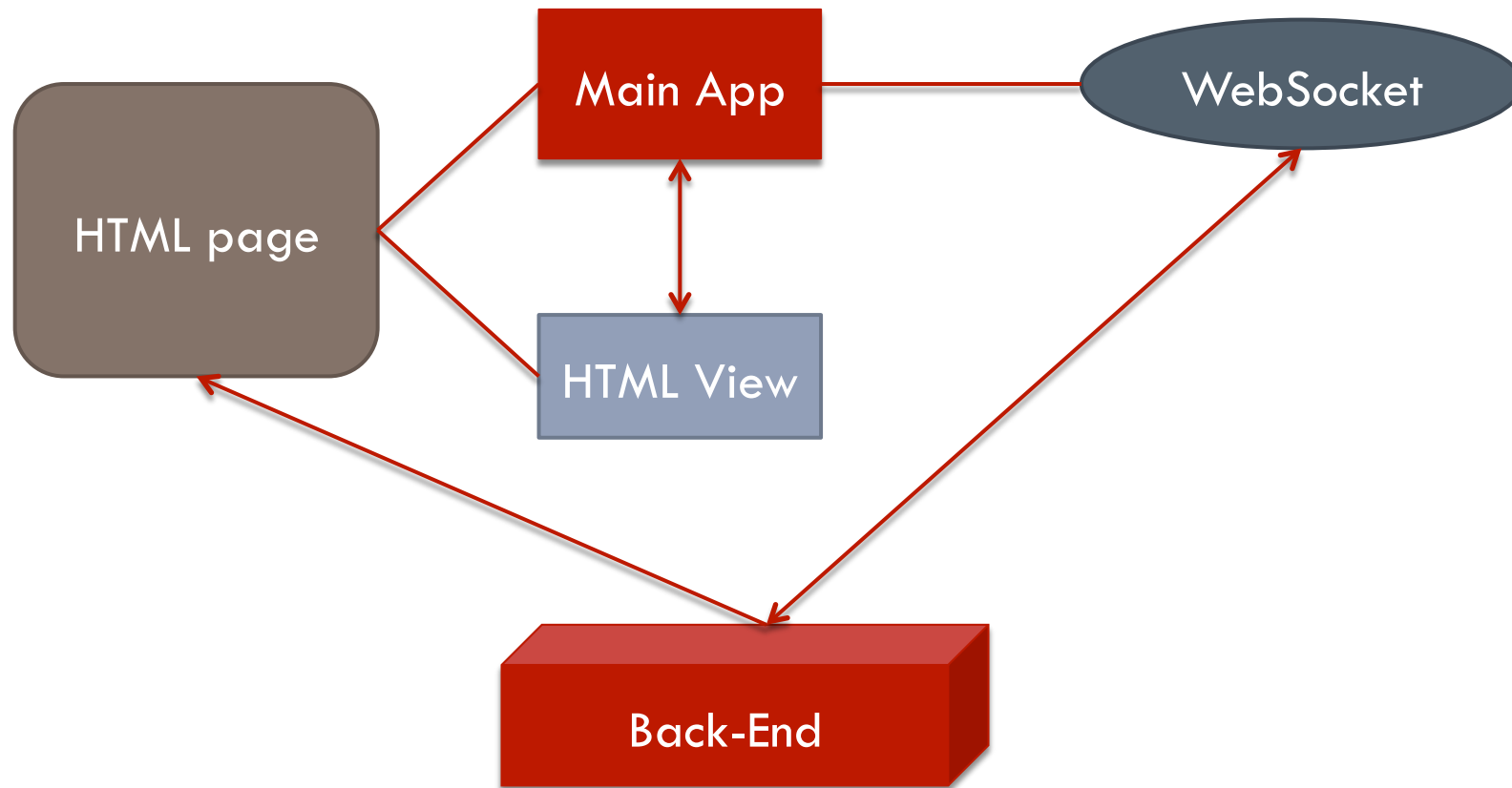 - SproutCore
  - node.js
  - XULJet

Approach

- Page = Application

- JavaScript – everywhere

- JSON as main data format

- Real-time interaction – WebSockets (page-server)

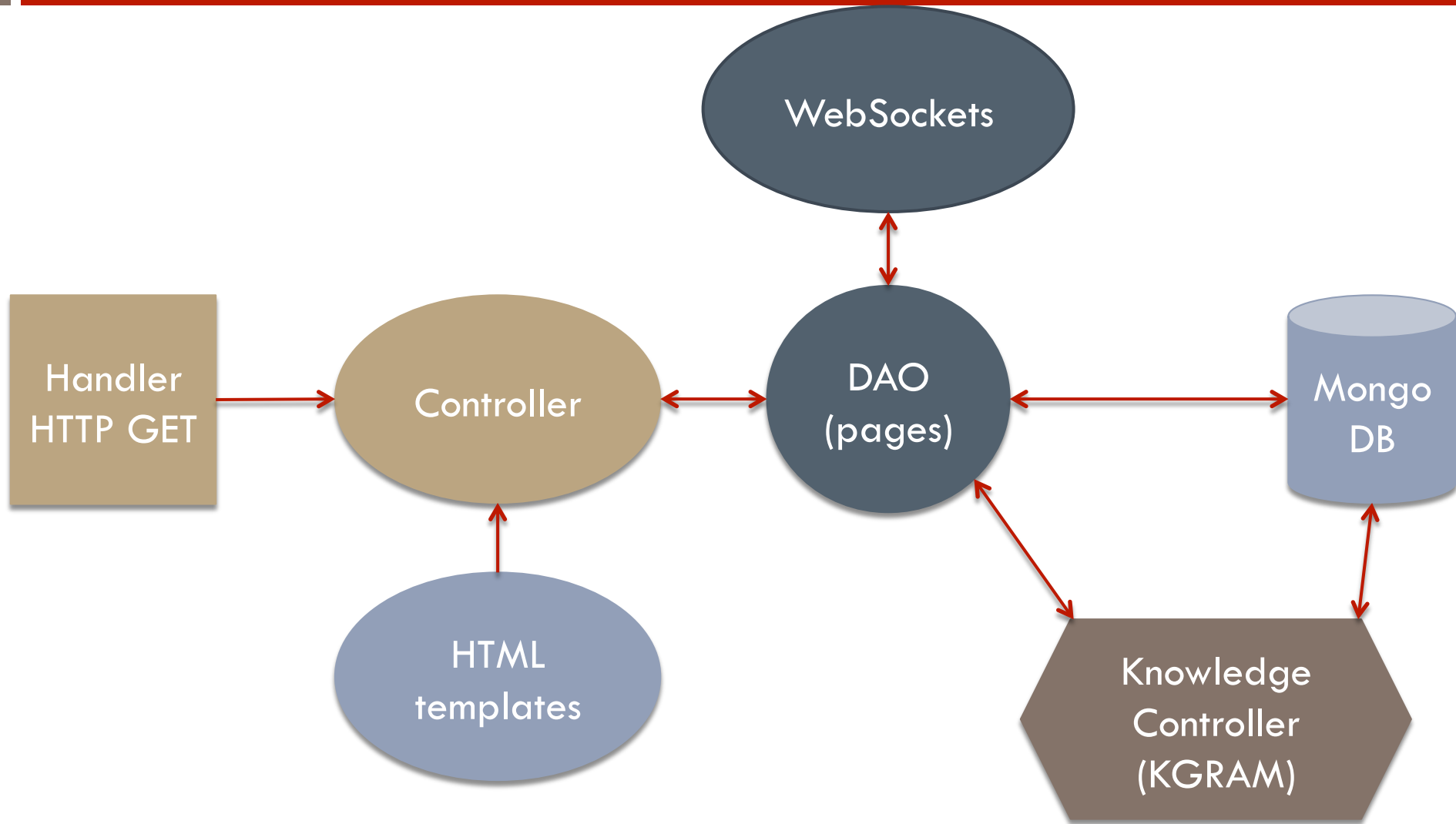- Storage – MongoDB – document-oriented database based on JSON format

Technology

- Node.js – HTTP Server
  - nowjs – RPC library based on socket.io communication library: WebSockets, Comet etc
- MongoDB – database
- Mustache – logic less template engine
- Aloha – HTML5 in-place WYSIWYG editor
- ACE – code editor
- VIE2 – RDFa framework

Front-end schema

Back-end schema

Welcome, **Pavel Arapov**!

Welcome to WikiNEXT !

Format | Insert

B *I* | AaBbCc Paragraph | **AaBb** Heading 1 | **AaBb** Heading 2 | *AaBb* Heading 3

WikiNEXT

Funny Page with RDFa

Welcome to Fun Page

» **Just For Fun**
» **New Page**
» **Welcome**
» **HTML5 Slides**
» **Presentation of WikiNEXT**
» **Application test**

New Page :

New Page

Create

Content
Something about this page.

Nicolas DELAFORGE
What am i doing? I'm in **creation** of a beautiful system.
Real-time Collaboration Knowledge Base.

Knowledge Base

Funny Page with RDFa : dc:title
Pavel Arapov : dc:creator
Mon Feb 06 2012 16:38:54 GMT+0000 (UTC) : dc:date
Just For Fun : dc:subject
/wiki/4f30021e4a47310100000002 : @
<dc:source> : a

Nicolas DELAFORGE : foaf:name
<http://ns.inria.fr/isicil/id/person/ndelaforge> : @
<foaf:Person> : a

Guillaume HUSSON : foaf:name
<http://ns.inria.fr/isicil/id/person/ghusson> : @
<foaf:Person> : a
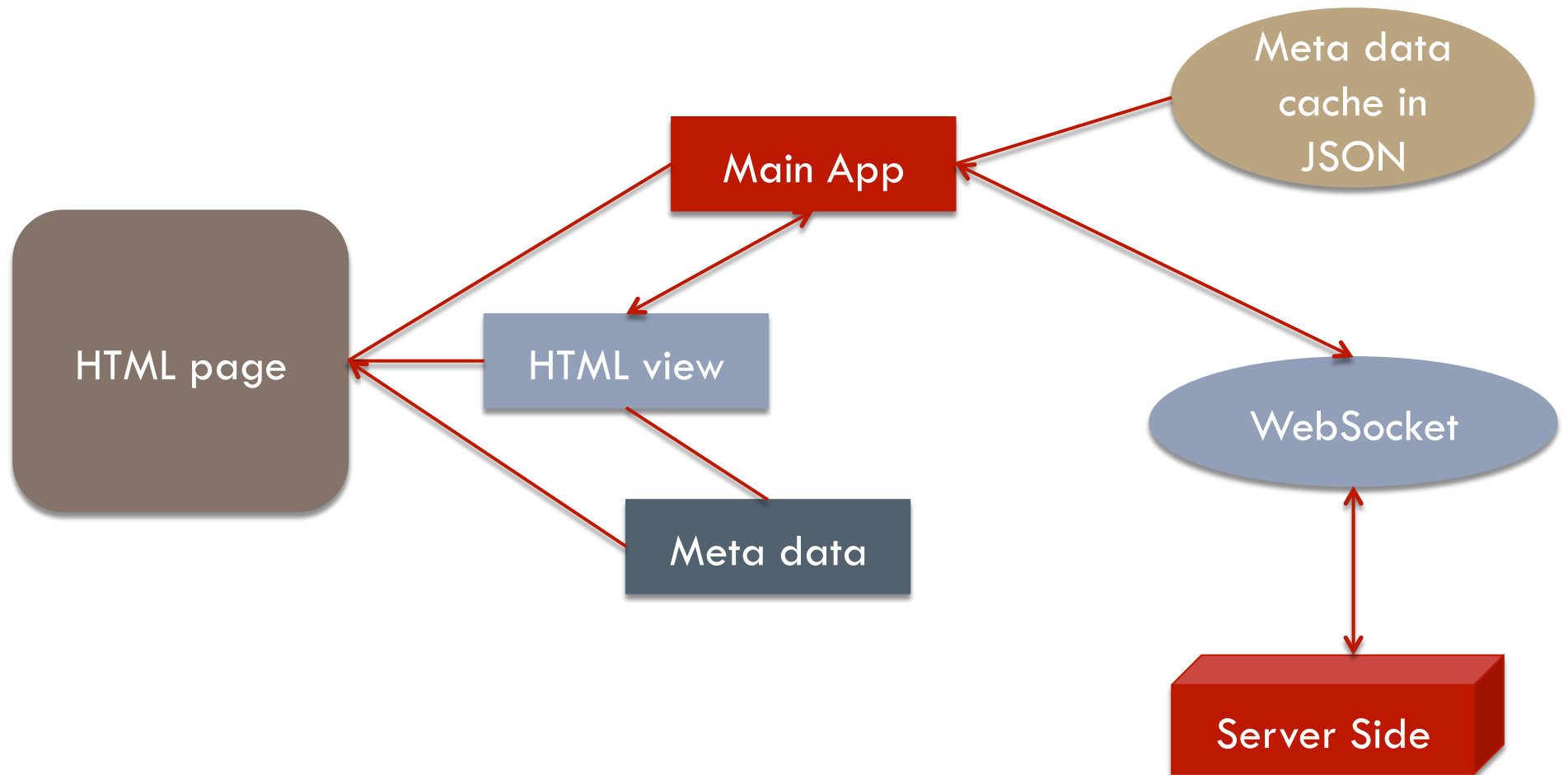
Welcome to WikiNEXT !

```
1    var paused = false;
2        // generic way to set animation up
3    window.requestAnimFrame = (function(callback){
4        return window.requestAnimationFrame ||
5                window.webkitRequestAnimationFrame ||
6                window.mozRequestAnimationFrame ||
7                window.oRequestAnimationFrame ||
8                window.msRequestAnimationFrame ||
9                function(callback){
10                   window.setTimeout(callback, 1000 / 60);
11               };
12   })();
13
14   var canvas = document.createElement('canvas');
15   canvas.setAttribute('width', 880);
16   canvas.setAttribute('height', 350);
17   canvas.setAttribute('id', 'canvas');
18   $('.article').append(canvas);
19   //var canvas = document.querySelector("#demo");
20   var context = canvas.getContext('2d');
21
22   canvas.addEventListener('click', pauseOnOff);
23
```

Knowledge base

- Each page has a local knowledge database
- Global knowledge database is based on summary of all local knowledge databases
- Collections of triples in JSON-LD* format

* json-ld.org – last specification can be found here

Knowledge spread

Results

- Early alpha version is available
  - wikinext.herokuapp.com
  - mainline.essi.fr (will be available soon)
- Inline edition
- Main App – page render
  - Creating application into the pages
- Local Knowledge base and synchronization
- No data rewrite between server/client/database

Future work

- ShareJS – OT library, real-time collaborative edit
- Extend the Wiki API
- Integrate connectors for Linked Open Data
- Extend the ontologies we use for describing documents and users' interactions (ISICIL model based on FOAF, SIOC, DC, etc.)
  - Add applications
- Templates for applications (visualization of data, automatic annotation, LOD querying, etc.)

THANK FOR YOUR ATTENTION

DEMO TIME

WIKINEXT.HEROKUAPP.COM

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