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 metadata
  - RDF/RDFa Triples
  - Documents
  - Applications
The SweetWiki way (2005-2009)

JAVA Objects
hand written

SERVER
JAVA

JSP/SPARQL

HTML/RDFa

SPARQL

RDF/XML

XSLT

Wiki

CORESE
RDF engine

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Modern way

SERVER

IDEAL FORMAT

Wiki

Documents + application code

IDEAL FORMAT

Database

SPARQL

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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

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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
Back-end schema

- Handler
  - HTTP GET
- Controller
- DAO (pages)
- WebSockets
- HTML templates
- Knowledge Controller (KGRAM)
- Mongo DB

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Welcome to WikiNEXT!

Funny Page with RDFa

Welcome to Fun Page

Content

Something about this page.

Nicolas DELAFORGE
What am i doing? I'm in creation of a beautiful system.

Real-time Collaboration Knowledge Base.

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```javascript
var paused = false;

// generic way to set animation up
window.requestAnimFrame = (function(callback){
    return window.requestAnimationFrame ||
    window.webkitRequestAnimationFrame ||
    window.mozRequestAnimationFrame ||
    window.oRequestAnimationFrame ||
    window.msRequestAnimationFrame ||
    function(callback){
        window.setTimeout(callback, 1000 / 60);
    }
})(

var canvas = document.createElement('canvas');
canvas.setAttribute('width', 880);
canvas.setAttribute('height', 350);
canvas.setAttribute('id', 'canvas');
$('article').append(canvas);

//var canvas = document.querySelector("#demo");
var context = canvas.getContext('2d');
canvas.addEventListener('click', pauseOnOff);
```
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

HTML page

Main App

HTML view

Meta data

Meta data cache in JSON

WebSocket

Server Side
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
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