CouchDB

relax

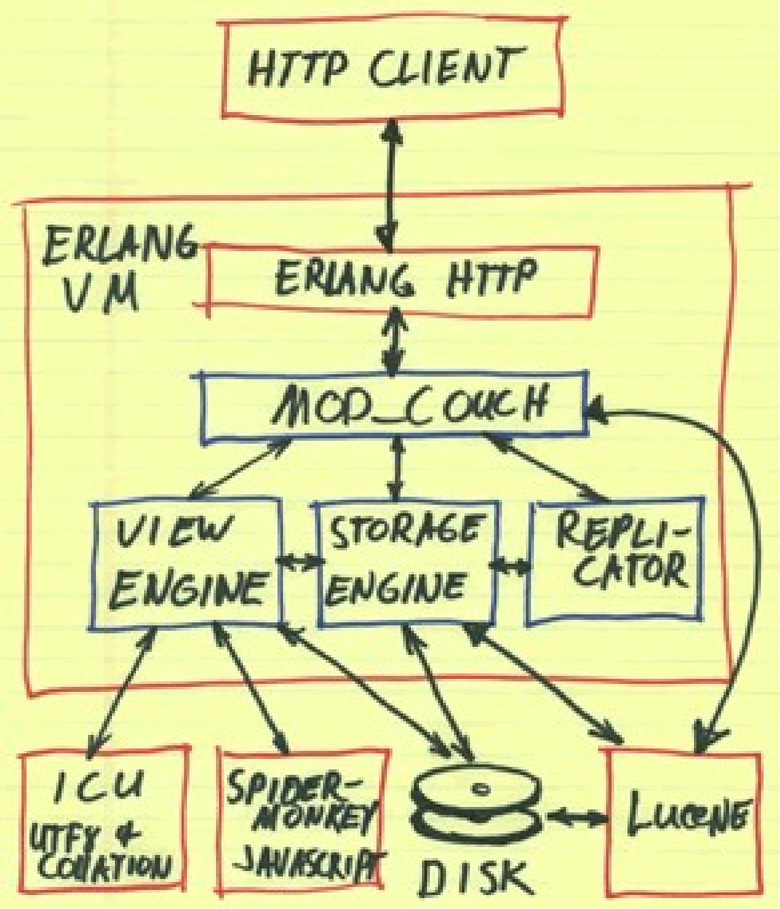
Vincenzo Di Somma

Cos'e` CouchDB

- Storage Key=Value
- Ottimo per le Applicazioni Web
- Funzionalita` native per la Replicazione
- Applicazioni ad High-Throughput

Funzionalita`

- Schema Free (JSON)
- Orientato ai Documenti, *(Non Relazionale)*
- Concorrenza Massiccia
- RESTful HTTP API
- JavaScript scripting
- Map/Reduce
- Replicazione N-Master
- Storage Robusto



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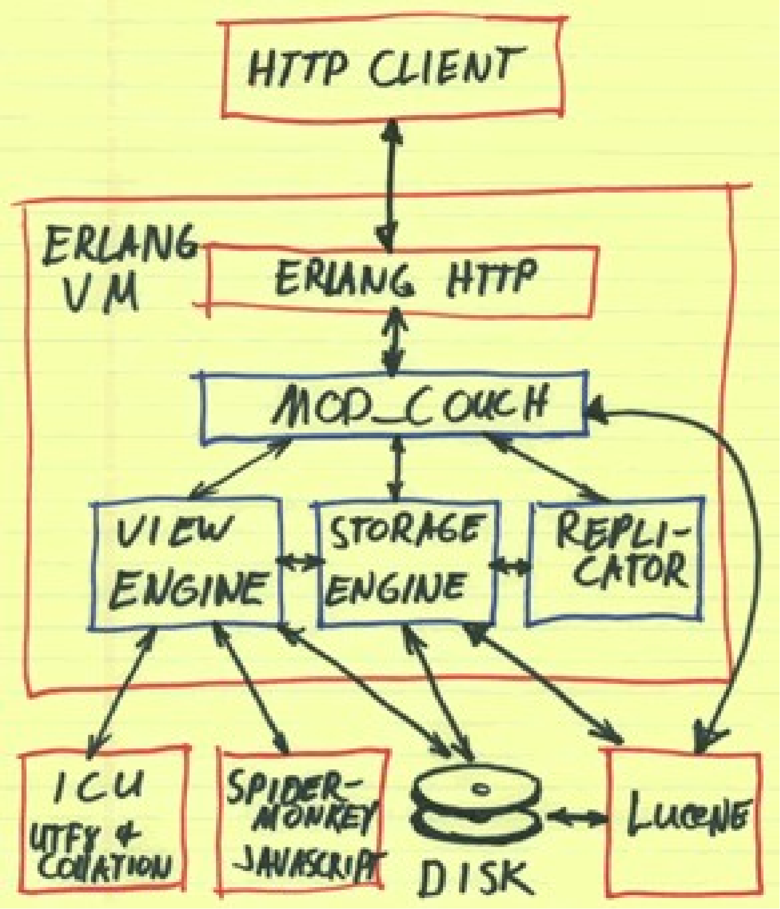

JSON

Schema Free (JSON)

```
{
    "_id": "BCCD12CBB",
    "_rev": "1-AB764C",
    "type": "person",
    "name": "Darth Vader",
    "age": 63,
    "headware":
    ["Helmet", "Sombrero"],
    "dark_side": true
}
```

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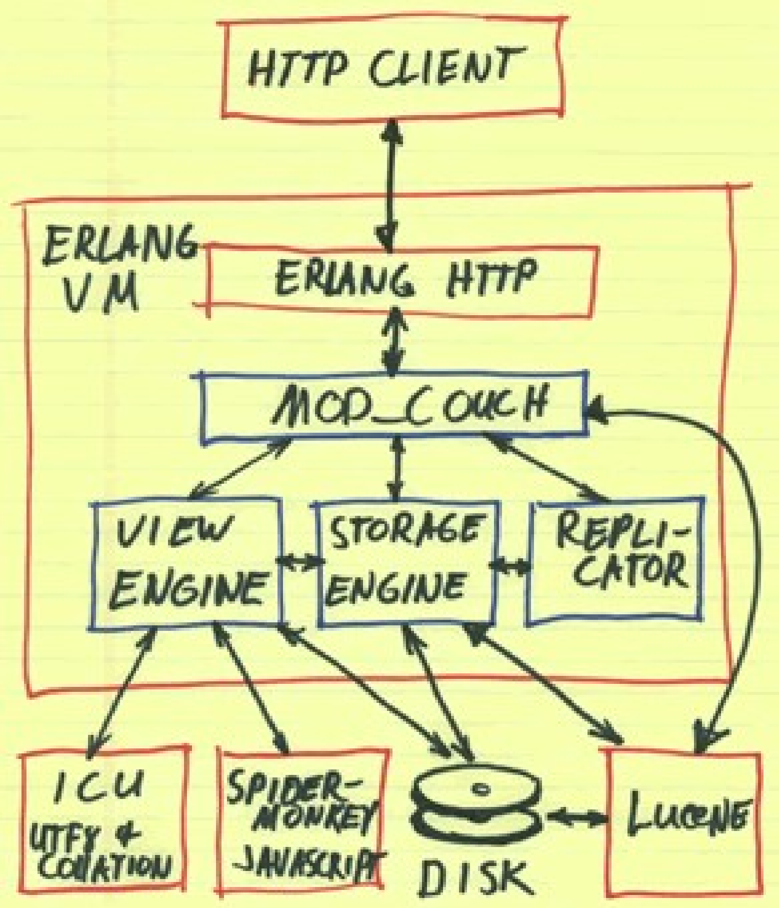

Orientato ai Documenti

- Documenti nel mondo reale
  - Fatture, lettere, moduli delle tasse
  - Stesso tipo != stessa truttura
  - Puo` essere non aggiornato (quindi?)
  - Nessuna referenza

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Modellare I dati naturalmente

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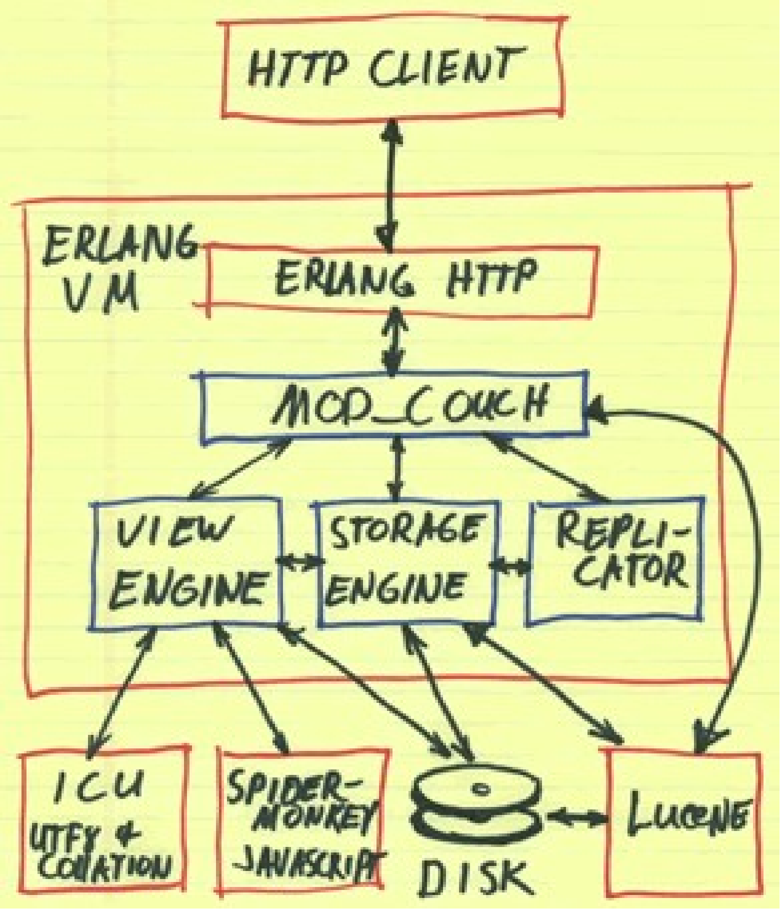

Concorrenza Massiccia

- Grazie ad Erlang
- Erlang meriterebbe un suo talk

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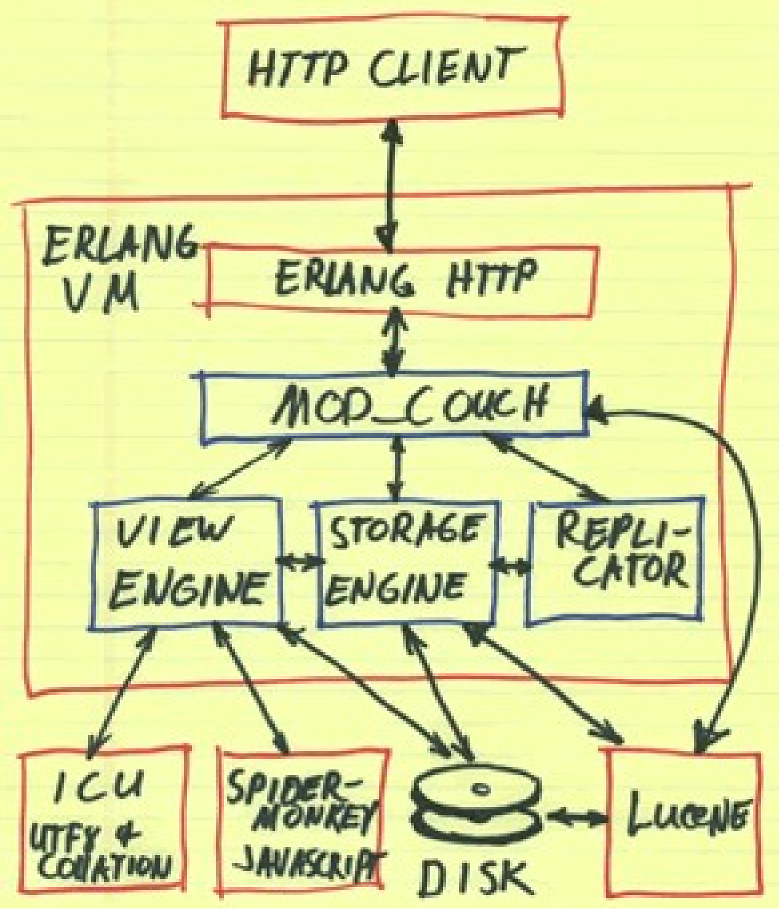

RESTFull API

- **C**reate

  HTTP PUT /db/mydocid

- **R**ead

  HTTP GET /db/mydocid

- **U**pdate

  HTTP PUT /db/mydocid

- **D**elete

  HTTP DELETE /db/mydocid

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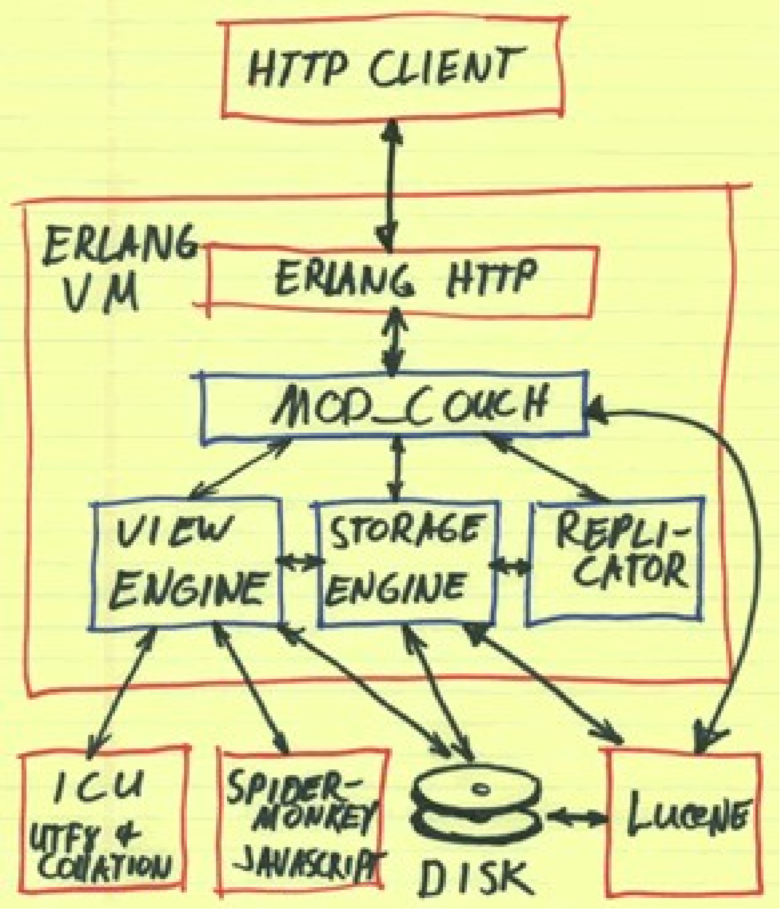
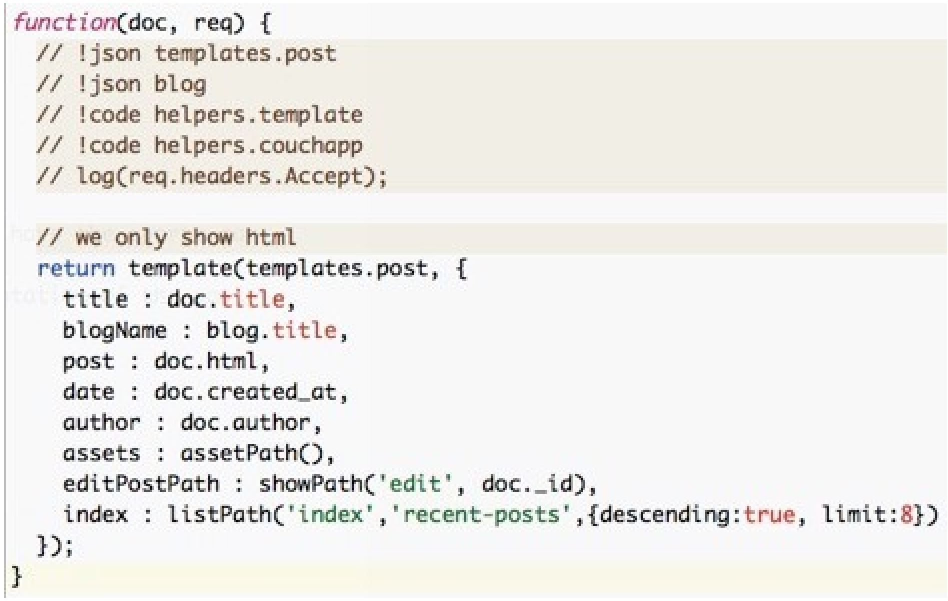


Javascript scripting

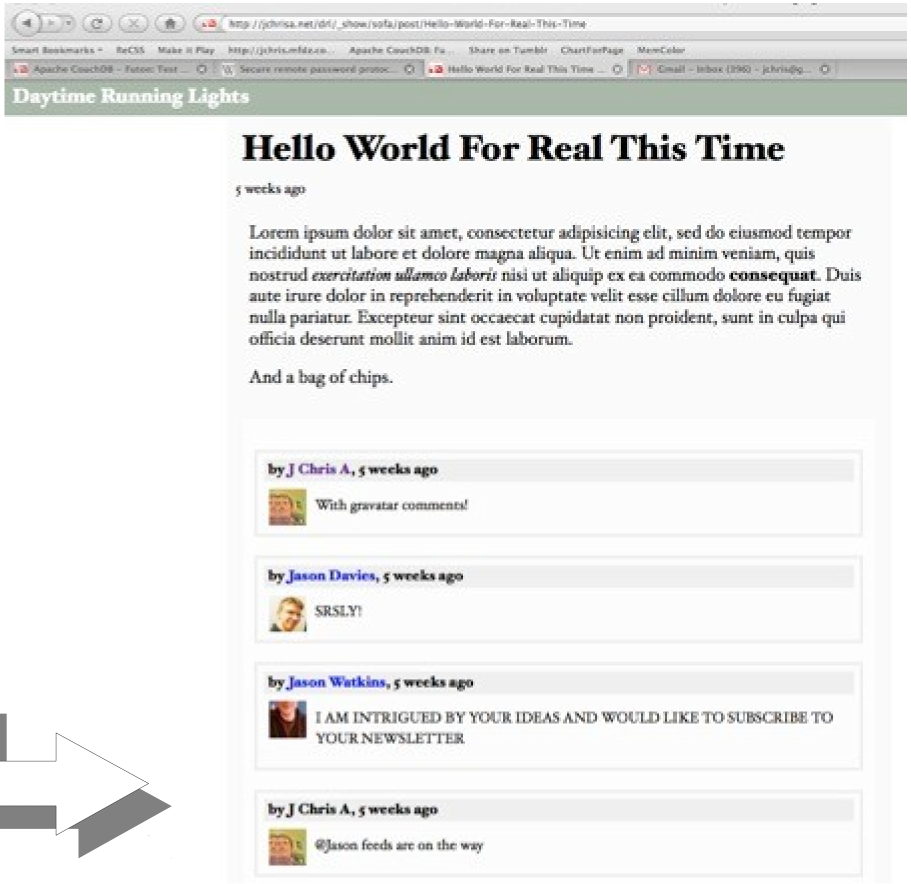
- La funzione Map estrae I dati dal documento
- La funzione Reduce aggrega per passaggi sucessivi
- Validazione
- Rendering HTML/XML

Render JSON in HTML



```
function(doc, req) {
  // !json templates.post
  // !json blog
  // !code helpers.template
  // !code helpers.couchapp
  // log(req.headers.Accept);

  // we only show html
  return template(templates.post, {
    title : doc.title,
    blogName : blog.title,
    post : doc.html,
    date : doc.created_at,
    author : doc.author,
    assets : assetPath(),
    editPostPath : showPath('edit', doc._id),
    index : listPath('index','recent-posts',{descending:true, limit:8})
  });
}
```



http://jchrisa.net/drl/_show/sofa/post/Hello-World-For-Real-This-Time
Smart Bookmarks
ReCSS
Make it Play
http://jchris.mfdz.co...
Apache CouchDB Fu...
Share on Tumblr
ChartForPage
MemColor
Apache CouchDB - Futon: Test ...
Secure remote password protoc...
Hello World For Real This Time ...
Gmail - Inbox (396) - jchris@g...

Daytime Running Lights

Hello World For Real This Time

5 weeks ago

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud *exercitation ullamco laboris* nisi ut aliquip ex ea commodo **consequat**. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

And a bag of chips.

by J Chris A, 5 weeks ago

With gravatar comments!

by Jason Davies, 5 weeks ago

SRSLY!

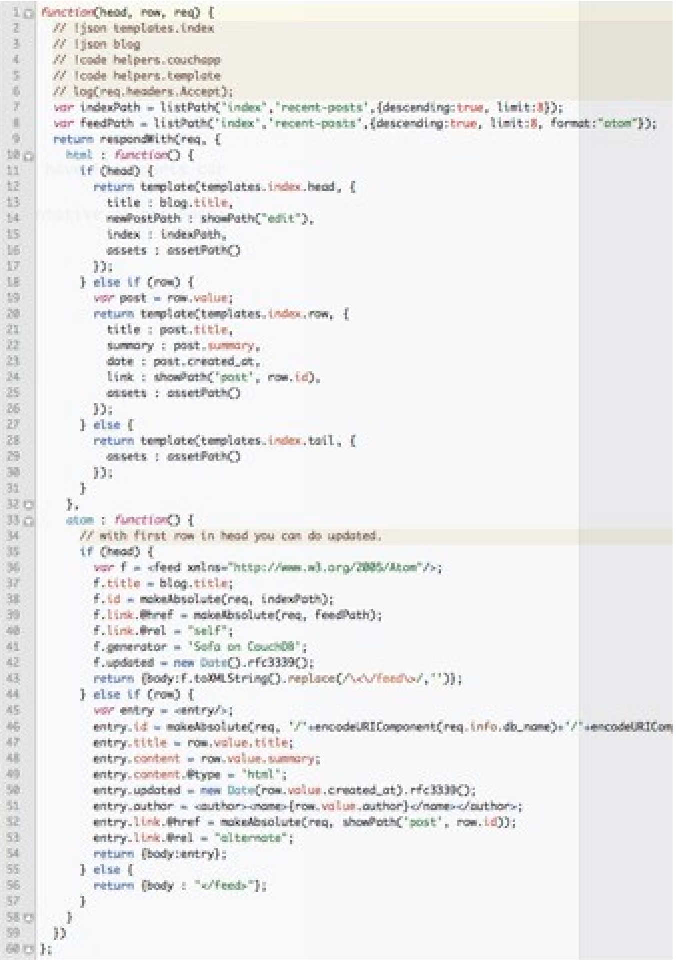
by Jason Watkins, 5 weeks ago

I AM INTRIGUED BY YOUR IDEAS AND WOULD LIKE TO SUBSCRIBE TO YOUR NEWSLETTER

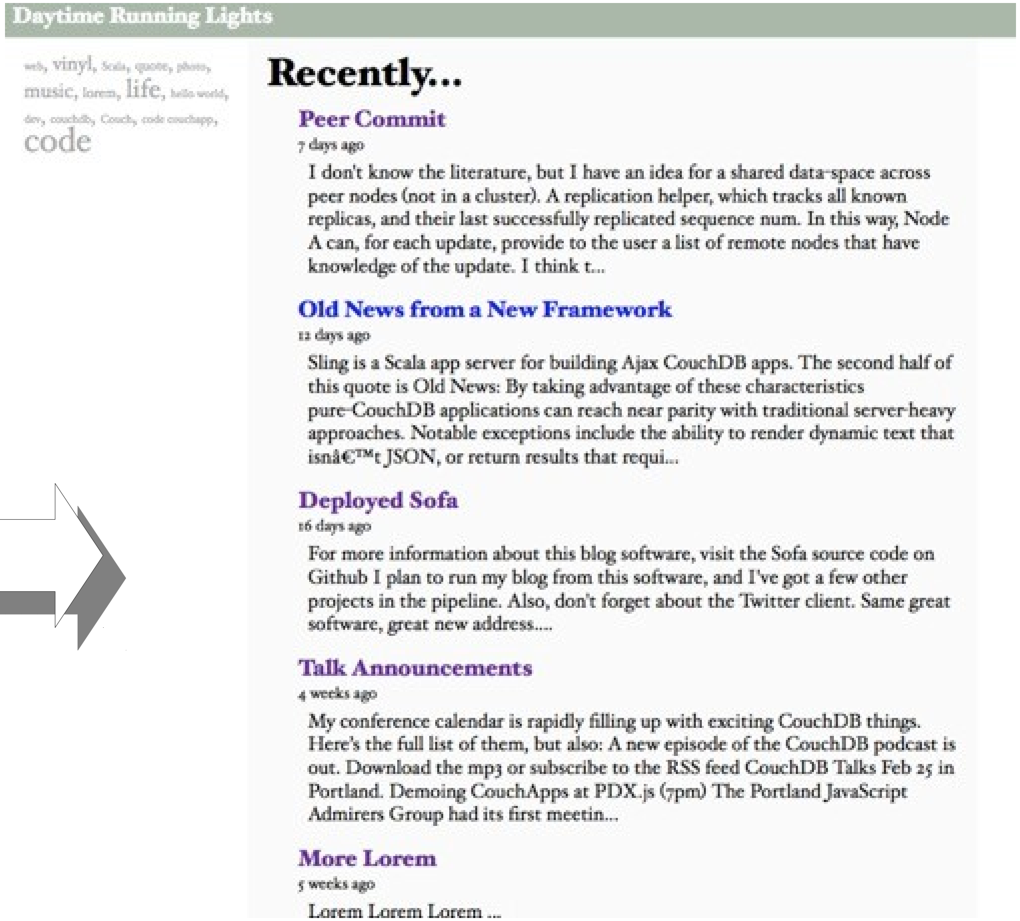
by J Chris A, 5 weeks ago

@Jason feeds are on the way

Render View in HTML



```
function(head, row, req) {
  // !json templates.index
  // !json blog
  // !code helpers.couchapp
  // !code helpers.template
  // log(req.headers.Accept);
  var indexPath = listPath('index','recent-posts',{descending:true, limit:8});
  var feedPath = listPath('index','recent-posts',{descending:true, limit:8, format:"atom"});
  return respondWith(req, {
    html : function() {
      if (head) {
        return template(templates.index.head, {
          title : blog.title,
          newPostPath : showPath("edit"),
          index : indexPath,
          assets : assetPath()
        });
      } else if (row) {
        var post = row.value;
        return template(templates.index.row, {
          title : post.title,
          summary : post.summary,
          date : post.created_at,
          link : showPath('post', row.id),
          assets : assetPath()
        });
      } else {
        return template(templates.index.tail, {
          assets : assetPath()
        });
      }
    },
    atom : function() {
      // with first row in head you can do updated.
      if (head) {
        var f = <feed xmlns="http://www.w3.org/2005/Atom"/>;
        f.title = blog.title;
        f.id = makeAbsolute(req, indexPath);
        f.link.@href = makeAbsolute(req, feedPath);
        f.link.@rel = "self";
        f.generator = 'Sofa on CouchDB';
        f.updated = new Date().rfc3339();
        return {body:f.toXMLString().replace(/\<\/feed\>/,'')};
      } else if (row) {
        var entry = <entry/>;
        entry.id = makeAbsolute(req, '/'+encodeURIComponent(req.info.db_name)+'/'+encodeURICom
        entry.title = row.value.title;
        entry.content = row.value.summary;
        entry.content.@type = 'html';
        entry.updated = new Date(row.value.created_at).rfc3339();
        entry.author = <author><name>{row.value.author}</name></author>;
        entry.link.@href = makeAbsolute(req, showPath('post', row.id));
        entry.link.@rel = "alternate";
        return {body:entry};
      } else {
        return {body : "</feed>"};
      }
    }
  })
};
```



Daytime Running Lights

web, vinyl, Scala, quote, photo,
music, lorem, life, hello world,
dev, couchdb, Couch, code couchapp,
code

Recently...

Peer Commit

7 days ago

I don't know the literature, but I have an idea for a shared data-space across peer nodes (not in a cluster). A replication helper, which tracks all known replicas, and their last successfully replicated sequence num. In this way, Node A can, for each update, provide to the user a list of remote nodes that have knowledge of the update. I think t...

Old News from a New Framework

12 days ago

Sling is a Scala app server for building Ajax CouchDB apps. The second half of this quote is Old News: By taking advantage of these characteristics pure-CouchDB applications can reach near parity with traditional server-heavy approaches. Notable exceptions include the ability to render dynamic text that isnâ€™t JSON, or return results that requi...

Deployed Sofa

16 days ago

For more information about this blog software, visit the Sofa source code on Github I plan to run my blog from this software, and I've got a few other projects in the pipeline. Also, don't forget about the Twitter client. Same great software, great new address....

Talk Announcements

4 weeks ago

My conference calendar is rapidly filling up with exciting CouchDB things. Here's the full list of them, but also: A new episode of the CouchDB podcast is out. Download the mp3 or subscribe to the RSS feed CouchDB Talks Feb 25 in Portland. Demoing CouchApps at PDX.js (7pm) The Portland JavaScript Admirers Group had its first meetin...

More Lorem

5 weeks ago

Lorem Lorem Lorem ...

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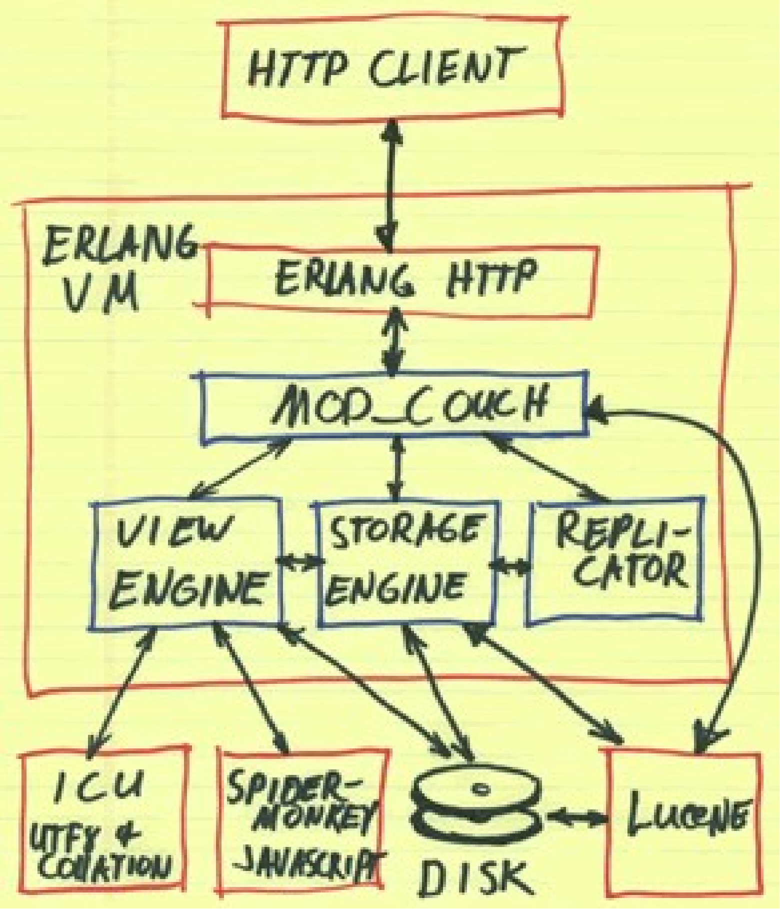

Map/Reduce

{ “user” : “Chris”,
“points” : 3 }{ “user” : “Joe”,
“points” : 10 }
{ “user” : “Alice”,
“points” : 5 }
{ “user” : “Mary”,
{“points” : 9 }
{ “user” : “Bob”,
“points” : 7 }

Map

```
function(doc) {
if (doc.user && doc.points) {
emit(doc.user, doc.points);
```

Reduce

```
function(keys, values, rereduce) {
 return sum(values);
```

{ “key” : “Alice”, “value” : 5 }
{ “key” : “Bob”, “value” : 7 }
{ “key” : “Chris”, “value” : 3 }
{ “key” : “Joe”, “value” : 10 }
{ “key” : “Mary”, “value” : 9 }

-

Alice ... Chris: 15
Everyone: 34

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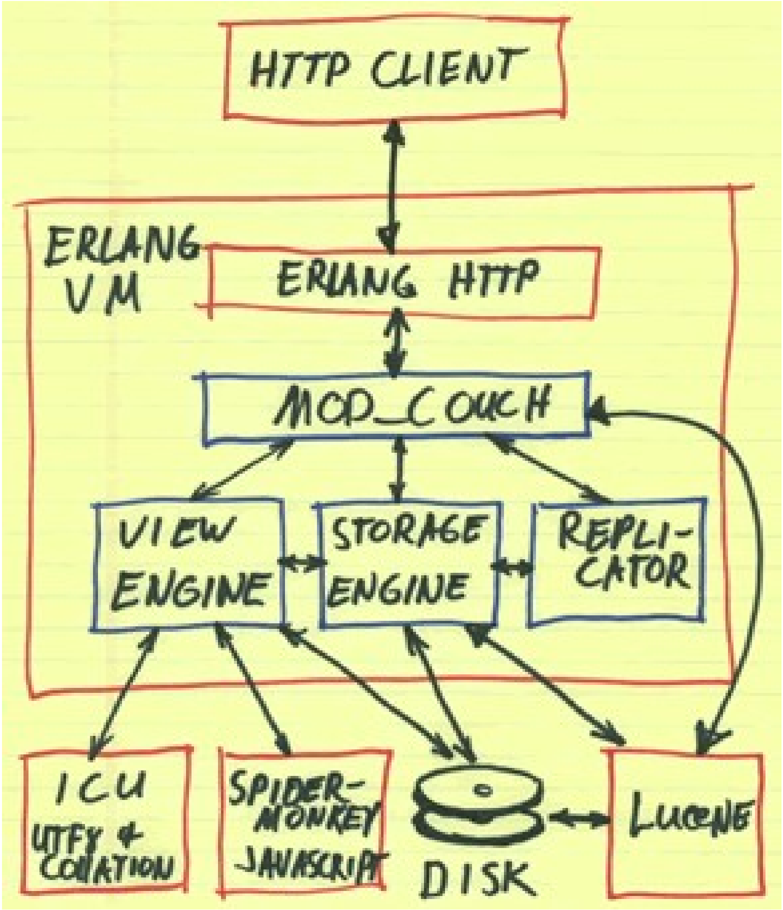

Replication

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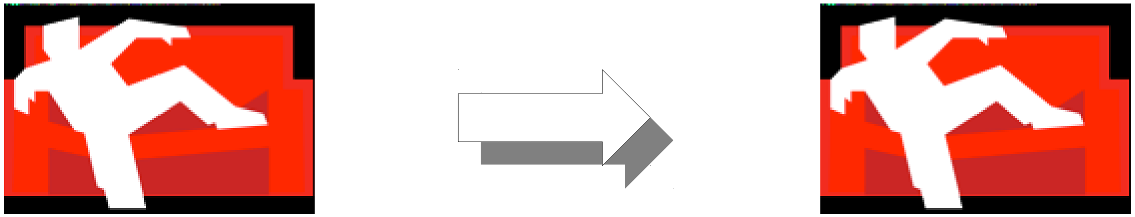
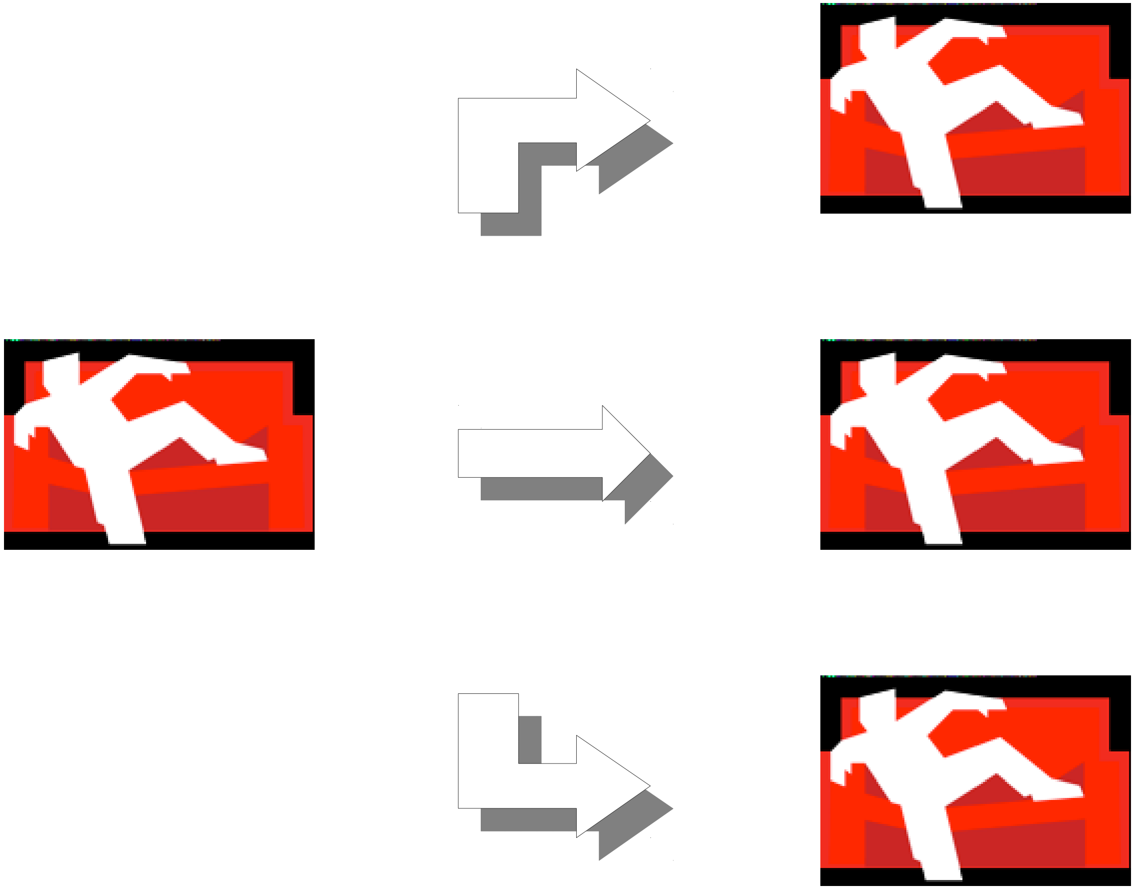


Replication



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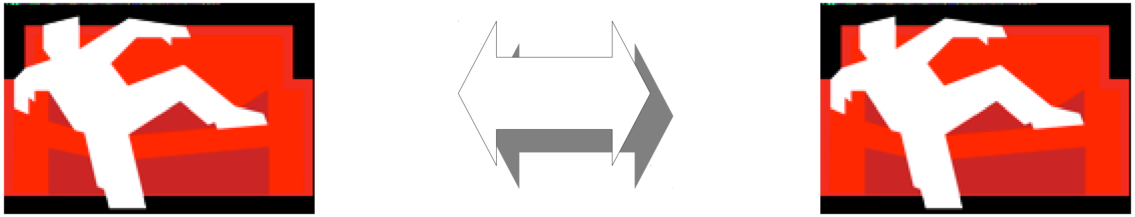

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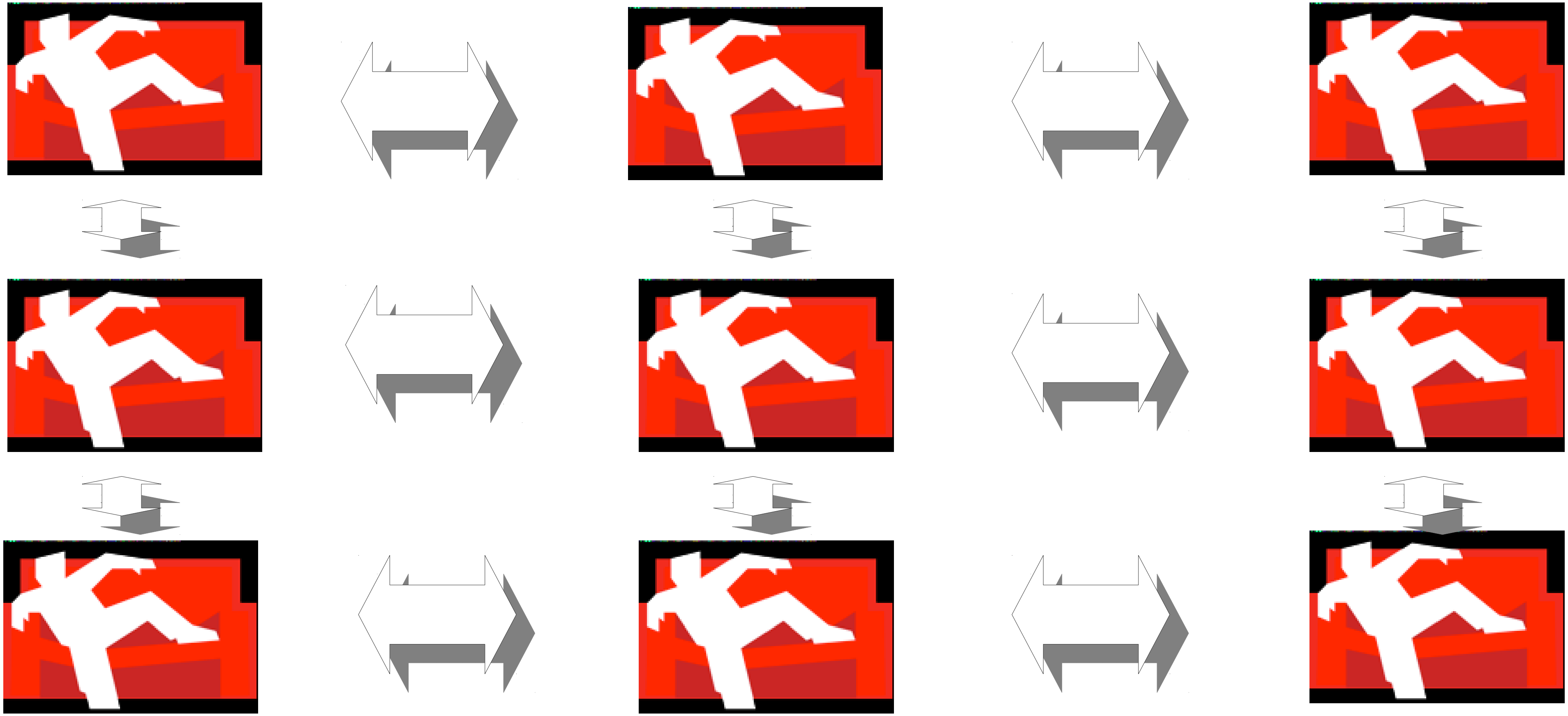

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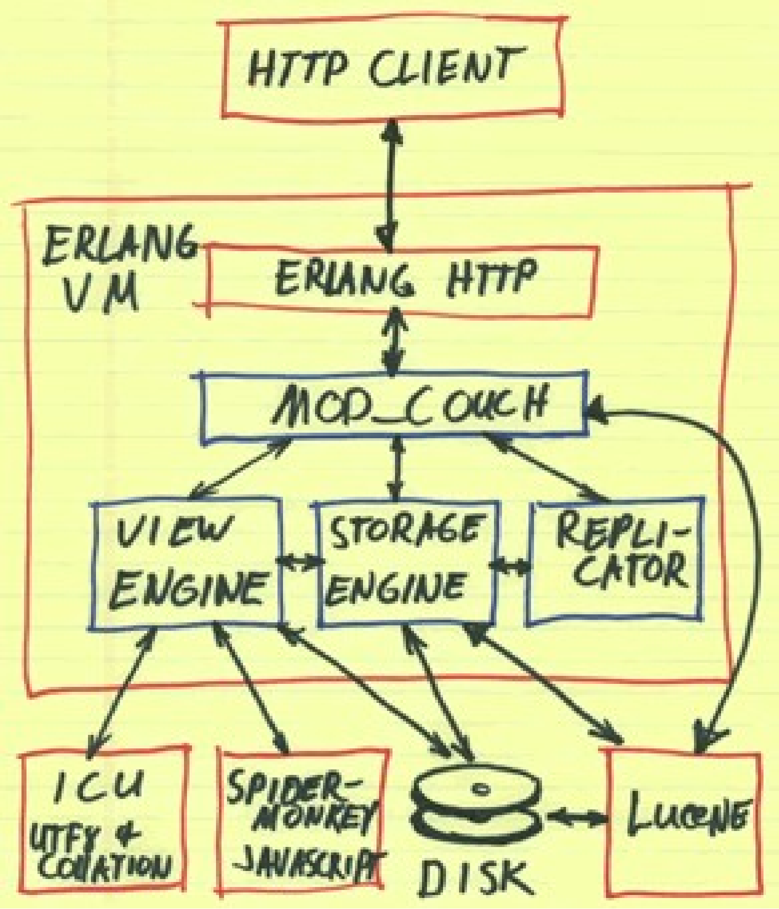

Storage Robusto

- Append Only
- Replicazione Flessibile
- Full fsync()

CouchApp

A CouchApp is just a JavaScript and HTML5 app that can be served directly to the browser from CouchDB, without any other software in the stack. There are many benefits (and some constraints) to doing it this way.

Hello world

```
<!DOCTYPE html>
<html>
  <head><title>Tiny CouchApp</title></head>
  <body>
    <h1>Tiny CouchApp</h1>
    <ul id="databases"></ul>
  </body>
  <script src="/_utils/script/jquery.js"></script>
  <script src="/_utils/script/jquery.couch.js"></script>
  <script>
    $.couch.allDbs({
      success : function(dbs) {
        dbs.forEach(function(db) {
          $("#databases").append('<li><a href="/_utils/database.html?'+db+'">'+db+'</a></li>');
        });
      }
    });
  </script>
</html>
```

CouchApp

Riferimenti:

- http://couchdb.apache.org/
- http://wiki.couchapp.org

Now RELAX

Domande...?