

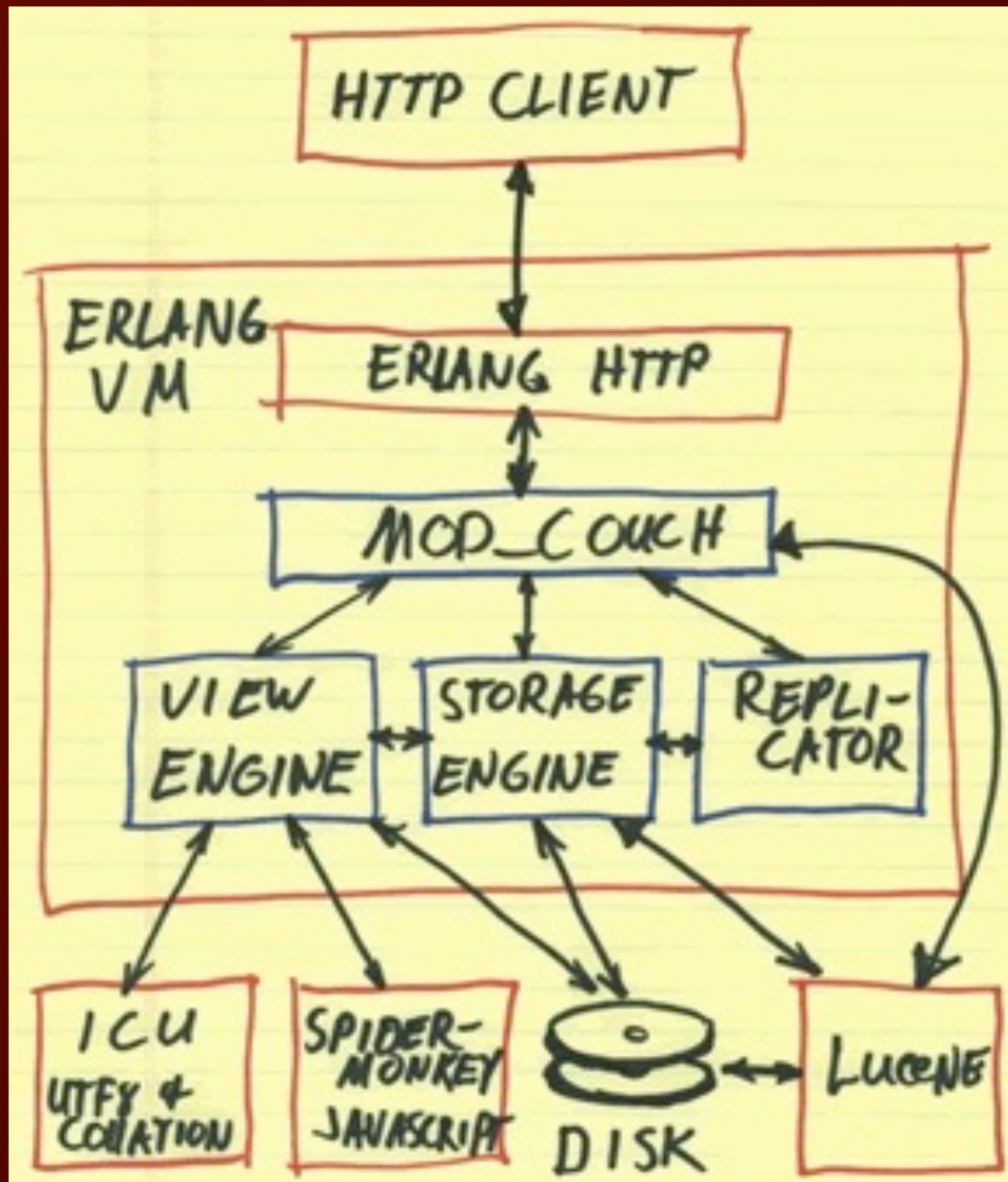
couchdb, ruby,
and you.

will leinweber



couchdb

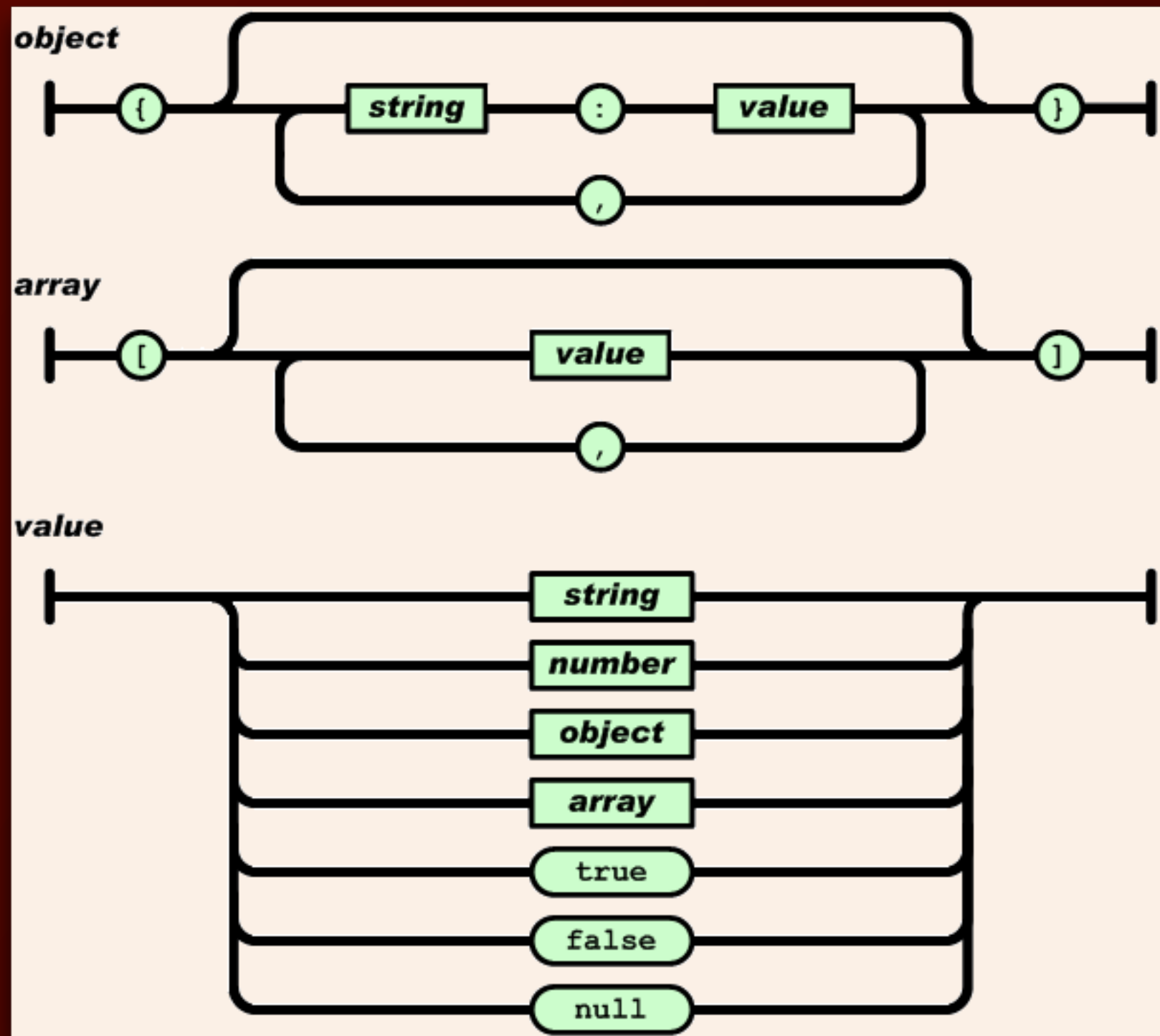






documents

json



rich documents


```
{
  "_id": "will",
  "_rev": "3-4352629382",
  "fullname": "Will Leinweber",
  "email": "will@bitfission.com",
  "sites": [
    {"blog": "bitfission.com", "hits": 42},
    {"github": "github.com/will"},
    {"twitter": "twitter.com/leinweber"},
    {"company": "merge.fm"}
  ]
}
```

schemas

http api

restful

```
~% curl localhost:5984/appdb/docid  
{"_id":"docid","_rev":"2-3779119708","look":"at all  
this data","its_awesome":true}
```



```
~% curl localhost:5984/appdb/docid -i
HTTP/1.1 200 OK
Server: CouchDB/0.11.0 (Erlang OTP/R13B)
Etag: "2-3779119708"
Date: Wed, 28 Apr 2010 06:46:42 GMT
Content-Type: text/plain; charset=utf-8
Content-Length: 83
Cache-Control: must-revalidate
```

caching

clustering

replication

couchapps!

views

javascript map/reduce

map

bit.ly/js CouchDB
example

```
{"_id":1,"name":"fish.jpg","user":"bob","camera":"nikon",  
  "info":{"width":100,"height":200,"size":12345},"tags":["tuna","shark"]}  
{"_id":2,"name":"trees.jpg","user":"john","camera":"canon",  
  "info":{"width":30,"height":250,"size":32091},"tags":["oak"]}  
{"_id":3,"name":"snow.png","user":"john","camera":"canon",  
  "info":{"width":64,"height":64,"size":1253},"tags":["tahoe","powder"]}  
{"_id":4,"name":"hawaii.png","user":"john","camera":"nikon",  
  "info":{"width":128,"height":64,"size":92834},"tags":["maui","tuna"]}  
{"_id":5,"name":"hawaii.gif","user":"bob","camera":"canon",  
  "info":{"width":320,"height":128,"size":49287},"tags":["maui"]}  
{"_id":6,"name":"island.gif","user":"zztop","camera":"nikon",  
  "info":{"width":640,"height":480,"size":50398},"tags":["maui"]}
```



```
function(doc) {  
  emit(doc.user, null);  
}
```

```
{  
  "total_rows": 6,  
  "rows": [  
    {"id": "1", "key": "bob", "value": null},  
    {"id": "5", "key": "bob", "value": null},  
    {"id": "2", "key": "john", "value": null},  
    {"id": "3", "key": "john", "value": null},  
    {"id": "4", "key": "john", "value": null},  
    {"id": "6", "key": "zztop", "value": null}  
  ]  
}
```

```
function(doc) {  
  emit(doc.name.match(/\w+\.(?w{3})/)[1], null);  
}
```

```
{  
  "total_rows": 6,  
  "rows": [  
    {"id": "5", "key": "gif", "value": null},  
    {"id": "6", "key": "gif", "value": null},  
    {"id": "1", "key": "jpg", "value": null},  
    {"id": "2", "key": "jpg", "value": null},  
    {"id": "3", "key": "png", "value": null},  
    {"id": "4", "key": "png", "value": null}  
  ]  
}
```

```
function(doc) {  
  emit(doc.name.match(/\w+\.(?w{3})/)[1], null);  
}
```

?key="jpg"

```
{  
  "total_rows": 2,  
  "rows": [  
    {"id": "1", "key": "jpg", "value": null},  
    {"id": "2", "key": "jpg", "value": null},  
  ]  
}
```

```
//map
function(doc) {
  emit("size",doc.info.size);
}
```

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

id	key	value	
1	"size"	12345	reduced 238208
2	"size"	32091	
3	"size"	1253	
4	"size"	92834	
5	"size"	49287	
6	"size"	50398	

{

"rows": [

{"key": "size", "value": 238208}

]

}

```
//map
function(doc) {
  emit(doc.user, 1);
}
```

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

id	key	value	reduced
1	"bob"	1	
2	"bob"	1	2
3	"john"	1	
4	"john"	1	3
5	"john"	1	
6	"zztop"	1	1

```
{
  "rows": [
    {"key": "bob", "value": 2},
    {"key": "john", "value": 3},
    {"key": "zztop", "value": 1}
  ]
}
```


last example:
complex keys

```
{"_id":1,"name":"fish.jpg","user":"bob","camera":"nikon",  
  "info":{"width":100,"height":200,"size":12345},"tags":["tuna","shark"]}  
{"_id":2,"name":"trees.jpg","user":"john","camera":"canon",  
  "info":{"width":30,"height":250,"size":32091},"tags":["oak"]}  
{"_id":3,"name":"snow.png","user":"john","camera":"canon",  
  "info":{"width":64,"height":64,"size":1253},"tags":["tahoe","powder"]}  
{"_id":4,"name":"hawaii.png","user":"john","camera":"nikon",  
  "info":{"width":128,"height":64,"size":92834},"tags":["maui","tuna"]}  
{"_id":5,"name":"hawaii.gif","user":"bob","camera":"canon",  
  "info":{"width":320,"height":128,"size":49287},"tags":["maui"]}  
{"_id":6,"name":"island.gif","user":"zztop","camera":"nikon",  
  "info":{"width":640,"height":480,"size":50398},"tags":["maui"]}
```

```
//map
function(doc) {
  emit([doc.user,doc.camera],1);
}
```

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

id	key	value	reduced
5	["bob", "canon"]	1	1
1	["bob", "nikon"]	1	1
2	["john", "canon"]	1	2
3	["john", "canon"]	1	
4	["john", "nikon"]	1	1
6	["zztop", "nikon"]	1	1

```
"rows": [
  {"key":["bob","canon"],"value":1},
  {"key":["bob","nikon"],"value":1},
  {"key":["john","canon"],"value":2},
  {"key":["john","nikon"],"value":1},
  {"key":["zztop","nikon"],"value":1}
]
```

```
//map
function(doc) {
  emit([doc.user, doc.camera], 1);
}
```

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

```
?startkey=["bob"]&endkey=["bob", {}]
```

```
{
  "rows": [
    {"key": ["bob", "canon"], "value": 1},
    {"key": ["bob", "nikon"], "value": 1},
  ]
}
```

views are saved

b+ trees




updated when
accessed

updated
incrementally

couchrest

INSTALL > `gem install couchrest`



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Will Leinweber

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Versions

0.37 March 30, 2010
0.36 March 30, 2010
0.35 February 27, 2010
0.34 January 14, 2010
0.33 November 22, 2008

[Show all versions \(14 total\)](#)

Runtime Dependencies

mime-types >= 1.15
rest-client >= 0.5

couchrest core

```
DB = CouchRest.database!("temps")
```

```
DB.save_doc {"_id" => "room1", "temps" => [34]}
```

```
#=> {"rev"=>"1-3b4f6c5218621d8876", "id"=>"room1", "ok"=>true}
```

```
room = DB.get "room1"
```

```
#=> {"temps"=>[34], "_rev"=>"1-3b4f6c5218621", "_id"=>"room1"}
```

```
room["temps"] << 35 << 25 << 33 << 25
```

```
room.save
```

```
#=> {"temps"=>[34,35,25,33,25], "_rev"=>"2-1d15c4a8a", "_id"=>"room1"}
```

```
DB.view("temps/temp", :key=>25)  
#=> {"total_rows"=>5, "rows"=>[  
    {"id"=>"room1", "value"=>{...}, "key"=>25}  
]}
```

Extended Document

```
class User < CouchRest::ExtendedDocument
  property :name
  property :email
  property :posts, :default => [], :accessible => true
  timestamps!
  view_by :name
  view_by :post_ids,
    :map => %Q("function(doc) {
      if (doc['couchrest-type']=='User' && doc.post_ids){...})
  validates_with_method :name, :valid_name?
  validates_presence_of :email
  before_save :update_posts
end
```

get couchdb

homebrew
couchdbx
build

links

couchdb.apache.org
books.couchdb.org
github.com/couchrest
bit.ly/jscouchdb

thanks

