

PiCaS



Outline

- ❑ Overview
- ❑ Server side
- ❑ Client side

PiCaS overview

- ❑ Pilot job system
- ❑ Token pool server
- ❑ Based on CouchDB
- ❑ Python client library

Server side

- ❑ Needed: a queue
- ❑ Flexible data structure
- ❑ Accessible

CouchDB

- ❑ Document database
- ❑ Dynamic data model
- ❑ Restful API

- ❑ GUI on VM: http://localhost:5984/_utils
- ❑ Website: <http://couchdb.apache.org/>
- ❑ Guide: <http://guide.couchdb.org/>

CouchDB documents

- ❑ **Key – Value pairs**

- ❑ **Database defined:**
 - `_id`: unique identifier, can be set when creating the document
 - `_rev`: revision number, used for detecting collisions

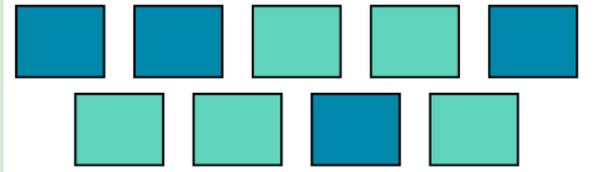
CouchDB views

- ❑ Extract, transform and combine data from documents
- ❑ Based on Map/Reduce
- ❑ Javascript or Python

CouchDB views (2)



```
map: function(doc) {  
  emit(doc.type, 1);  
}
```



```
reduce: function(key, values, rereduce) {  
  return sum(values);  
}
```



_id	"document_1"
_rev	"4_3d8f36e65"
type	"type_1"
data	"..."

_id	"document_2"
_rev	"2_36ea65daf"
type	type_2
data	"..."

...



key	"type_1"
value	1

key	"type_2"
value	1

...

cumulative

cumulative

cumulative



key	"type_1"
value	5

key	"type_2"
value	4

...

CouchDB design documents

- ❑ Containers for views
- ❑ Updates all views in one go