

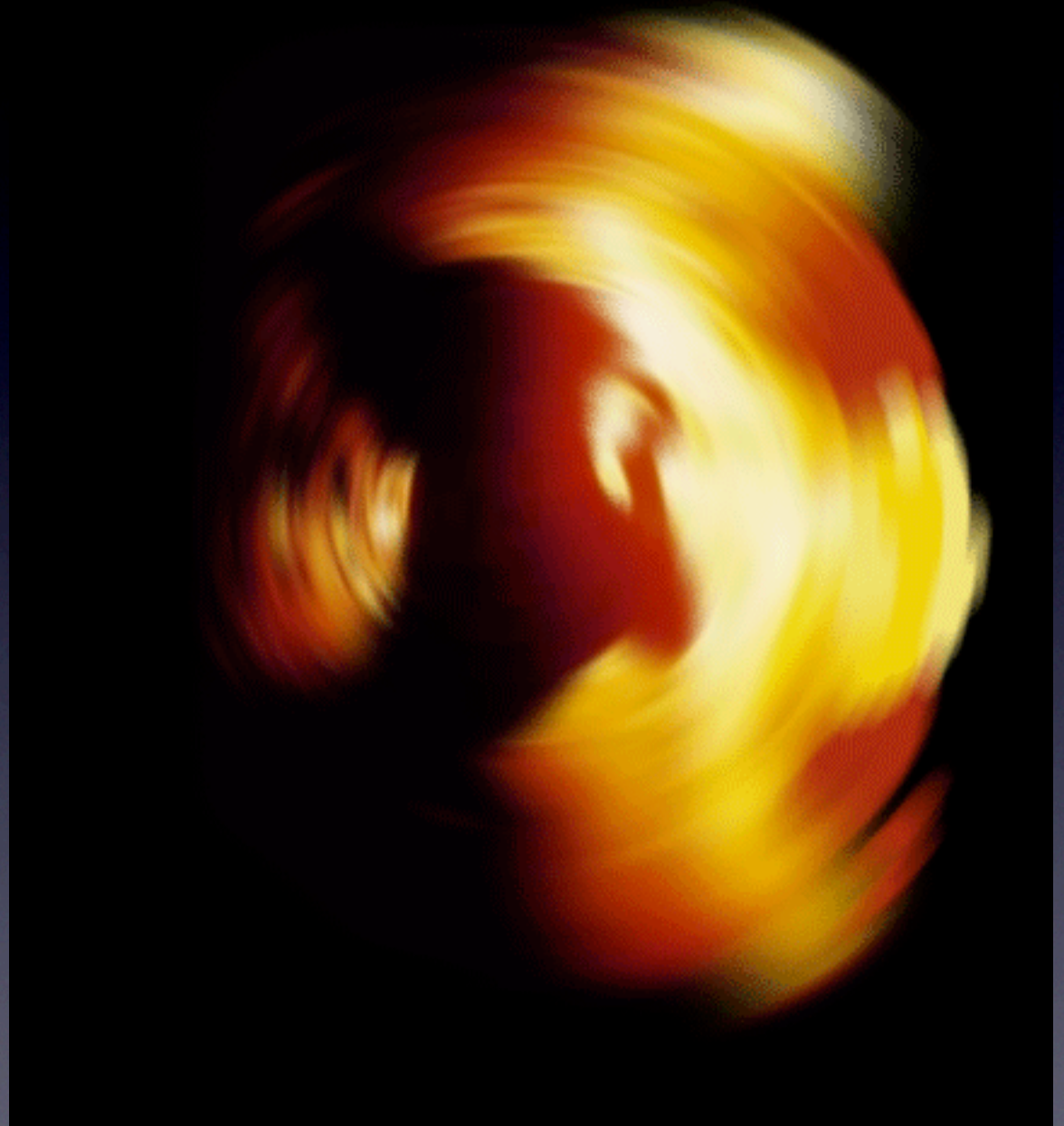
Google Gears

on fire

Dion Almaer

Ajaxian.com

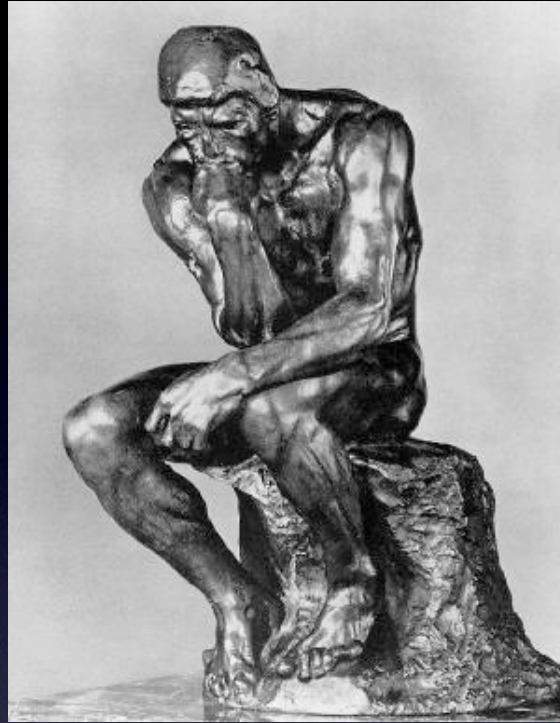
Google Developer Programs





What is Google Gears?

Offline Web via Open Web



What is the philosophy?

small, incremental, xhr-like

What are the pieces?



LocalServer

Cache and serve application resources (HTML, JavaScript, images, etc.) locally



Database

Store data locally in a fully-searchable relational database



WorkerPool

Make your web applications more responsive by performing resource-intensive operations asynchronously



Database

Embedded using SQLite
Contributed Full Text Search

```
db.open('database-demo');  
db.execute('create table if not exists Demo (Phrase varchar(255),  
Timestamp int)');  
db.execute('insert into Demo values (?, ?)', [phrase, currTime]);  
var rs = db.execute('select * from Demo order by Timestamp desc');
```



GearsDB

Abstract over the API

```
var bob = {id: 3, name: 'Bob', url: 'http://bob.com', description: 'whee'};
db.insertRow('person', bob);
db.insertRow('person', bob, 'name = ?', ['Bob']);

db.selectAll('select * from person', null, function(person) {
  document.getElementById('selectAll').innerHTML += ' ' + person.name;
});

var person = db.selectRow('person', 'id = 1');

// update
person.name = 'Harry';
db.updateRow('person', person);
person = db.selectRow('person', 'id = 1');

// force
person.name = 'Sally';
db.forceRow('person', person);
person = db.selectRow('person', 'id = 1');

db.deleteRow('person', bob);
```



GearShift

DB Migrations for Gears

```
Gearshift.rules[1] = {  
  // create the demo table  
  up: function() {  
    return this.e("CREATE TABLE demo_table (  
      id INTEGER PRIMARY KEY  
      AUTOINCREMENT,  
      name VARCHAR(30),  
      movie VARCHAR(30)  
   )").success;  
  },  
  down: function() {  
    return this.e("DROP TABLE demo_table").success;  
  }  
};
```



Alignment with AIR

Ext.data.SqlDB

“The APIs for AIR and Google Gears are nothing alike. In fact, AIR's SQLite database API is 100% asynchronous via events while Gears API is all synchronous with results coming immediately on execution.

So Ext.data.SqlDB was created to abstract both of these APIs into a single API to access both.”



The Hard Part

- From one DB
- To one DB per user
- Eek
- Wait, other apps handle this fine.



Local Server

A mini-web server that groks 200 and 304



ResourceStore

Manually Capturing

```
var pageFiles = [  
    location.pathname,  
    'gears_base.js',  
    '../scripts/gears_db.js',  
    'foo.html'  
];  
  
try {  
    localServer = google.gears.factory.create('beta.localserver', '1.0');  
} catch (e) {  
    alert('Could not create local server: ' + e.message);  
    return;  
}  
  
var store = localServer.openStore(this.storeName) ||  
            localServer.createStore(this.storeName);  
  
store.capture(pageFiles, function(url, success, captureId) {  
    console.log(url + ' capture ' + (success ? 'succeeded' : 'failed'));  
});
```



ManagedResourceStore

JSON Me

```
{
  // version of the manifest file format
  "betaManifestVersion": 1,

  // version of the set of resources described in this manifest file
  "version": "my_version_string",

  // optional
  // If the store specifies a requiredCookie, when a request would hit
  // an entry contained in the manifest except the requiredCookie is
  // not present, the local server responds with a redirect to this URL.
  "redirectUrl": "login.html",

  // URLs to be cached (URLs are given relative to the manifest URL)
  "entries": [
    { "url": "main.html", "src": "main_offline.html" },
    { "url": ".", "redirect": "main.html" },
    { "url": "main.js" }
    { "url": "formHandler.html", "ignoreQuery": true },
  ]
}
```



Gears Manifest Generator

Ruby Me

```
json = Google::Gears::LocalServer::Manifest.new do |m|
  m.version = 'MyNewVer'
  m.add_entry({ :url => 'main.html', :src => 'foo.html' })
  m.add_extra_info :to => 'main.html', :redirect => 'foo_redirect.html'
  m.find_entries :in => '.', :ignore =>
    Google::Gears::LocalServer::Manifest::LEADING_PERIOD
end
```



Worker Pool

JavaScript needs threads after all? Brendan!



Why?

How about Encryption

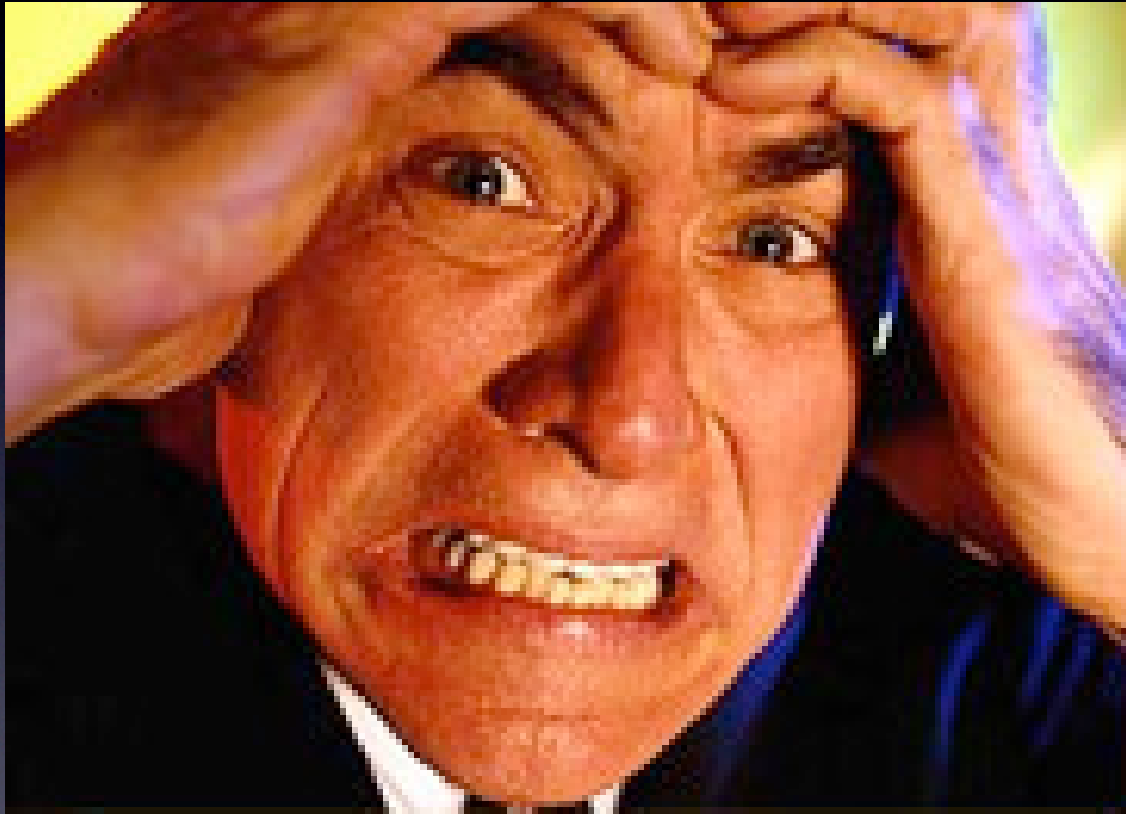
```
dojox.sql("INSERT INTO CUSTOMERS VALUES (?, ?,  
      ENCRYPT(?))", "Neuberg", "Brad",  
      "555-34-8962")
```

What didn't you see here?

Hint: Sync, sync, sync



Think about users



and don't make them think

Working with and without Gears

We aren't that arrogant!

```
content = hasGears() ? new GearsBaseContent()  
                    : new CookieBaseContent();
```

Two Versions? Really?

Only in the extreme

```
{  
  'url': 'main.html',  
  'src': 'main_offline.html'  
}
```

Debugging is a Pain

On the web? Duh.

- Add Helper Code:
 - To clear out the DB
 - Remove captured files
- Disable the cache
- Use Firebug / Lite





Questions, er, Question?

Remember that the question
and answer needs to take place
in 15 seconds

Maybe a YES or NO one?

Did reading this take up the 15 seconds?