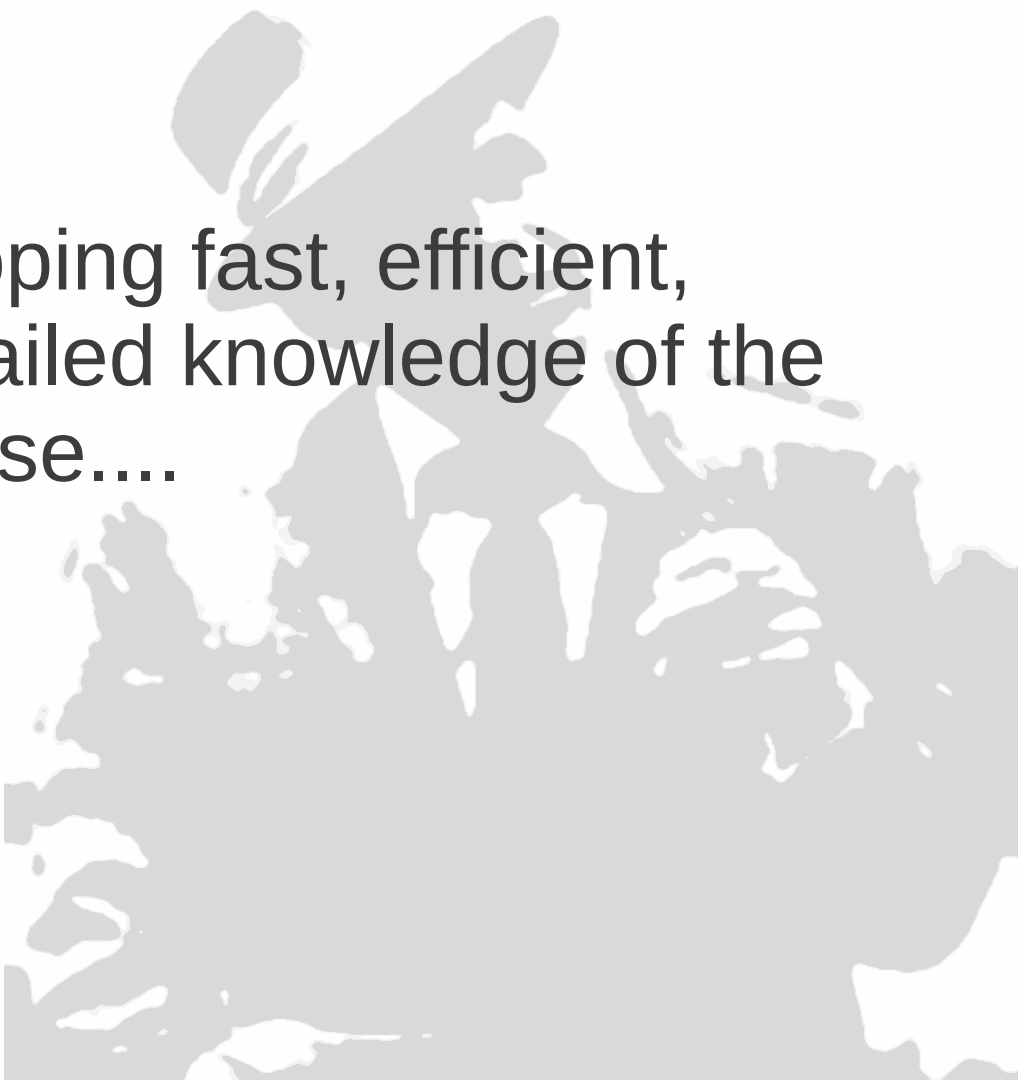




Building a Data Access Layer for Your Data Using Sinatra + Ruby + MySQL

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Percona Live London 2011



The dream of developing fast, efficient,
applications without detailed knowledge of the
database....

Way Back Machine

- Old school database design
 - Business logic goes into stored procedures
 - Developers do not touch the tables directly
 - Many applications can access the same procs, reusing code
 - Applications can be somewhat modular

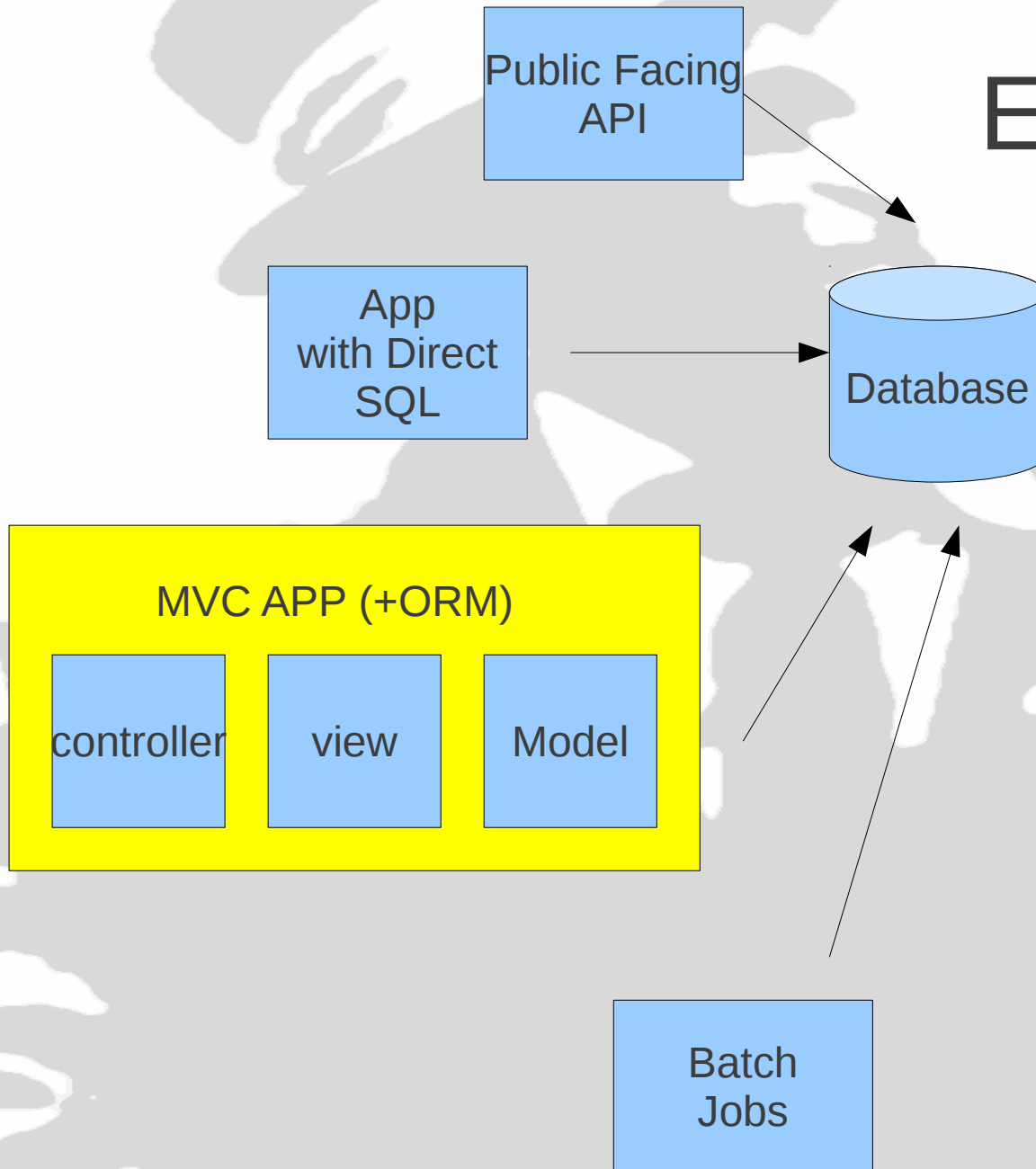
The rise of ORM's

- Object Relational Mapping tools are still very popular
 - They hide the complexity of the database
 - They make data interactions seem intuitive in code
 - They generate sql for you
- They have issues
 - Generated SQL is often less than optimal
 - Many times models are not shared across applications

Development Today

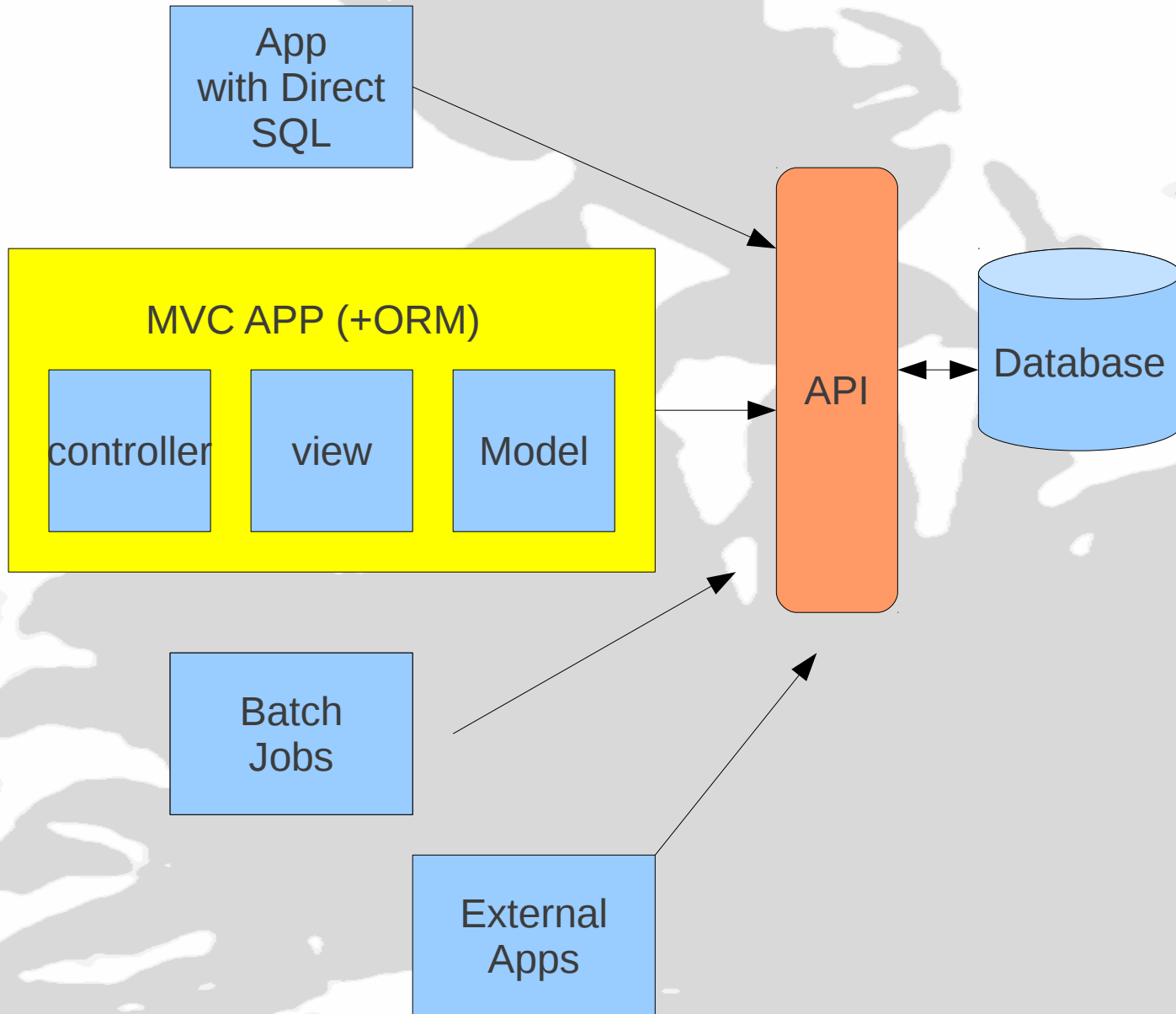
- Many people have the following already
 - Web Services
 - A web front-end/ui
 - Make heavy use of Javascript
 - Have lots of data to display
 - Have more than 1 application using the same database

Complex Environments



- Database changes cascade to multiple applications
- Business logic built for 1 application often is duplicated or ignored in another application

Modular design



What is Sinatra?

A really tiny web framework for building apps in Ruby.

Read all about it:

<http://www.sinatrarb.com/>
<http://sinatra-book.gittr.com/>

How To Get started

- Linux Machine
 - RVM (Ruby Version Manager)
<http://beginrescueend.com/>
 - Ruby installed (any version is ok, I prefer 1.9.2)
 - Your favorite database driver/connection library
 - Mysql gem, mysql2 gem, active record, sequel, etc.
 - Other gems depending on your needs:
 - Xmlsimple
 - Json
 - etc

Hello World

Api.rb

```
require 'rubygems'  
require 'sinatra'  
  
get '/' do  
  "Hello world, it's #{Time.now} at the server!"  
end
```

How do you run it?

```
>>ruby Api.rb -p 9000
```

Point your web browser to localhost:9000

Thats it!

Demo of Hello World



Returning MySQL Data

```
require 'rubygems'
require 'mysql2'
require 'sinatra'

@@mysqlclient = Mysql2::Client.new(:host => "localhost", :username => "root", :database => "information_schema")

get '/' do
  "Hello world, it's #{Time.now} at the server!"
end

get '/tables/' do
  res = Array.new
  result = @@mysqlclient.query("SELECT * FROM tables",:as => :array)
  result.each do | row |
    res.push(row)
  end
  return res.to_s
end
```

Demo: Getting MySQL Data Back



Can do the Same Thing With AR

```
require 'rubygems'
require 'mysql2'
require 'active_record'
require 'sinatra'

get '/' do
  "Hello world, it's #{Time.now} at the server!"
end


get '/tables/' do
  MyAPI.get_tables()
end

class MyAPI < ActiveRecord::Base
  class << self

    dbconfig = {
      :adapter => "mysql2",
      :host    => "localhost",
      :username => "root",
      :password => "",
      :database => "information_schema"
    }
    ActiveRecord::Base.establish_connection(dbconfig)
```

```
def get_tables()
  query='select * from tables';
  self.connection.select_all(query).to_s
end

end
end
```



Demo: Getting MySQL Data Back



Format the Data!

```
require 'rubygems'
require 'mysql2'
require 'active_record'
require 'sinatra'
require 'csv'
require 'sinatra/respond_to'
require 'json'
require 'xmlsimple'
```

```
Sinatra::Application.register Sinatra::RespondTo
```

```
get '/' do
  "Hello world, it's #{Time.now} at the server!"
end
```

```
get '/tables' do
  format_response MyAPI.get_tables()
end
```

```
def format_response (package)
  respond_to do |wants|
    wants.txt { package.to_s }
    wants.csv { package.to_csv }
    wants.xml { package.to_xml }
    wants.json { package.to_json }
  end
end
```

```
class MyAPI < ActiveRecord::Base
  class << self

    dbconfig = {
      :adapter => "mysql2",
      :host    => "localhost",
      :username => "root",
      :password => "",
      :database => "information_schema"
    }
    ActiveRecord::Base.establish_connection(dbconfig)

    def get_tables()
      query='select * from tables';
      self.connection.select_all(query)
    end

  end
end
```

Demo: Json/XML Formatting!



Filtering Data

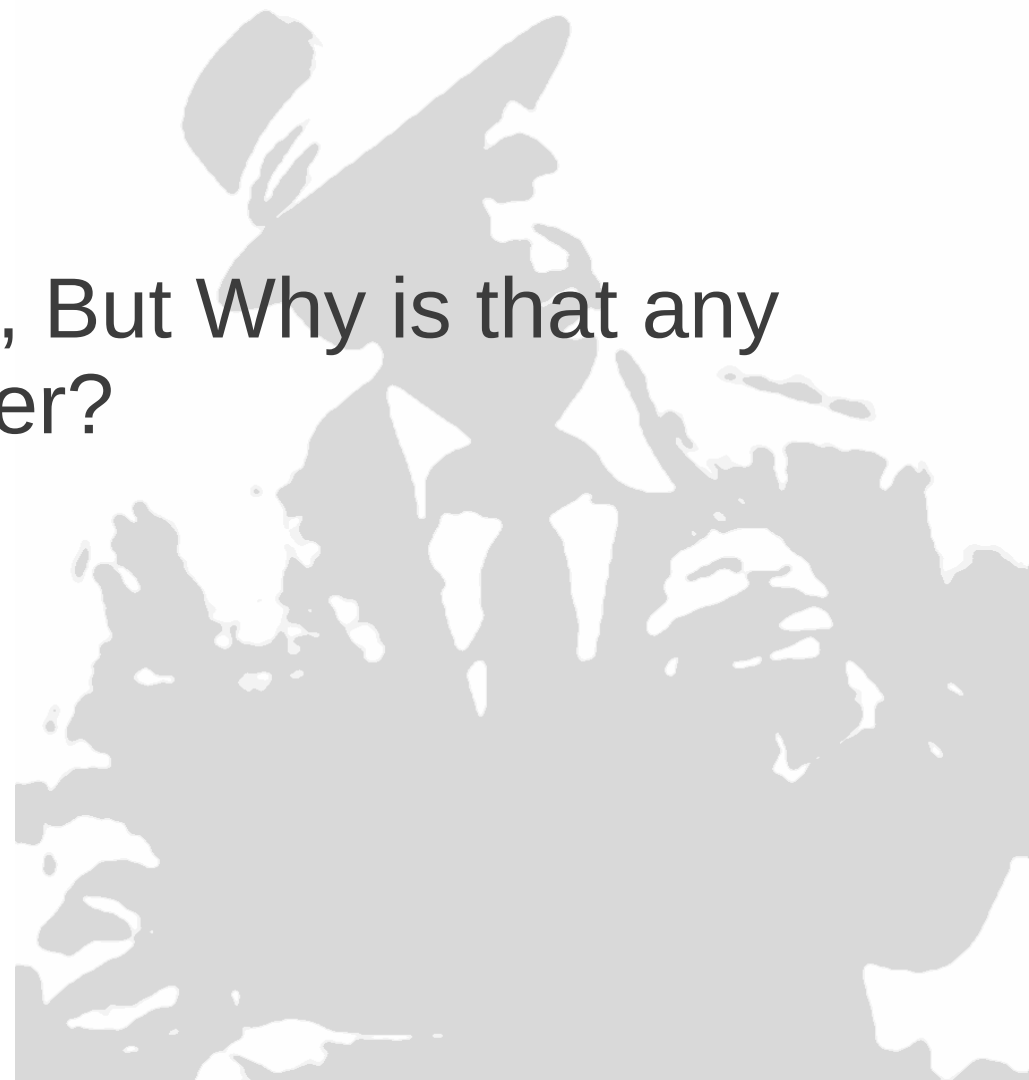
```
get '/tables/?:schema?/?:table?' do
  format_response MyAPI.get_tables(params)
end
```

```
def get_tables(params)
  where = "where 1=1"
  if ! params[:schema].nil?
    where = "#{where} and TABLE_SCHEMA = '#{params[:schema}]'"
  end
  if ! params[:table].nil?
    where = "#{where} and TABLE_NAME = '#{params[:table}]'"
  end
  query="select * from tables #{where}";
  if params[:no_header]
    self.connection.select_rows(query)
  else
    self.connection.select_all(query)
  end
end
```

Demo: Data Filtering!



Thats All Great and all, But Why is that any
Easier?

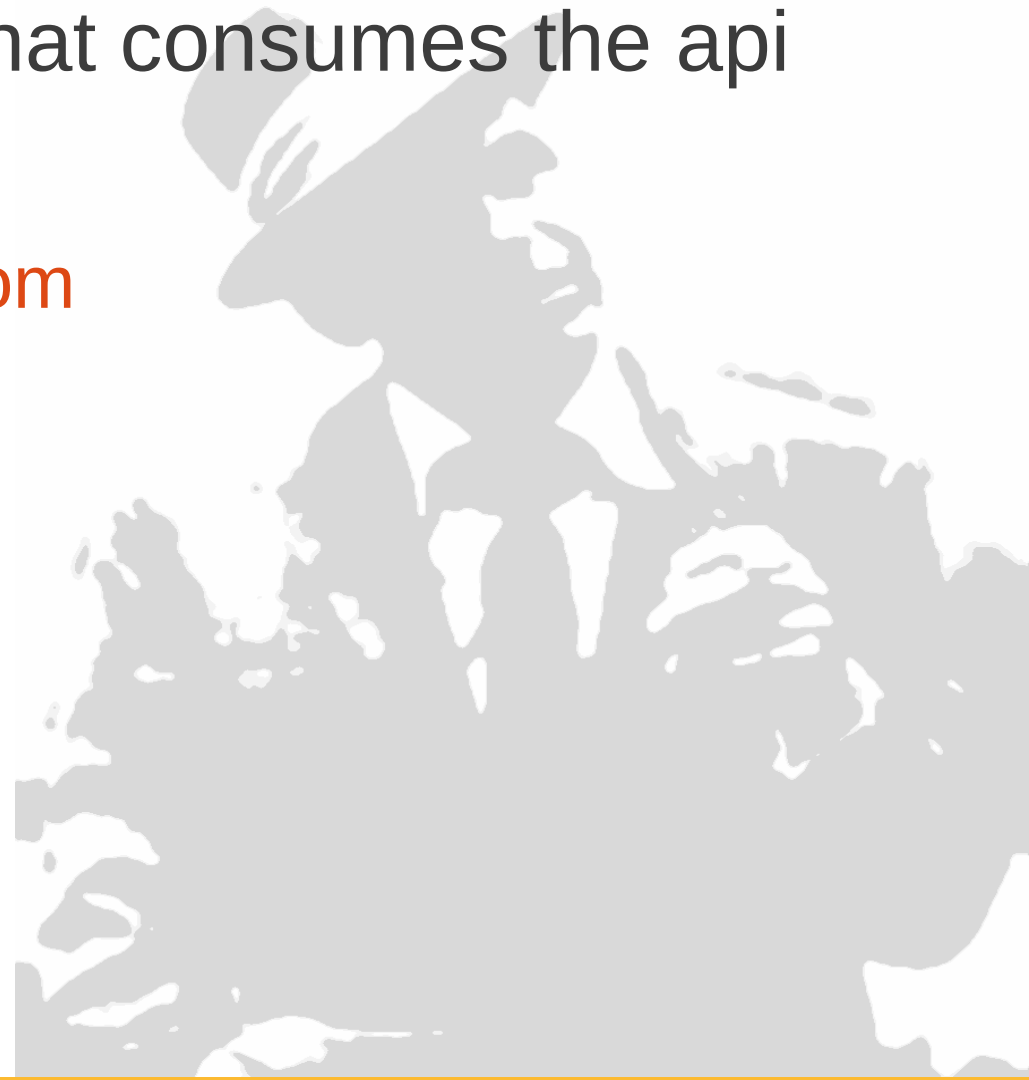


Consuming the API

- JSON can be consumed and used natively in many different programming languages
- You can build very feature rich Javascript only applications
- Many popular javascript graphing libraries can easily consume and graph data passed back from the API

Demo: Putting It Together

- Javascript application that consumes the api
 - <http://datatables.net/>
 - <http://www.highcharts.com>



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