Modern Web Development

In 2015

Modern Web Development

In 2015

Oliver N.

Software Engineer

Agenda

1. A brief history of web development
2. Web development trends
    - Architecture
    - Client
    - Server
3. Where to place your bet in 2015?

once upon a time...

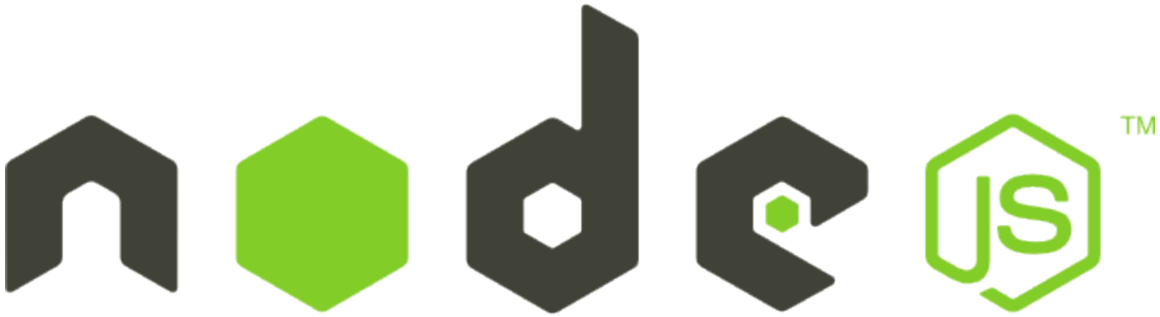
```
<?php
        echo “Hey, a web server is talking to you !”;
        echo “How many {$item.name} do you want to buy?”
?>
<form>
        <input name=“your-name” />
        <input name=“quantity” />
</form>
```

Then…

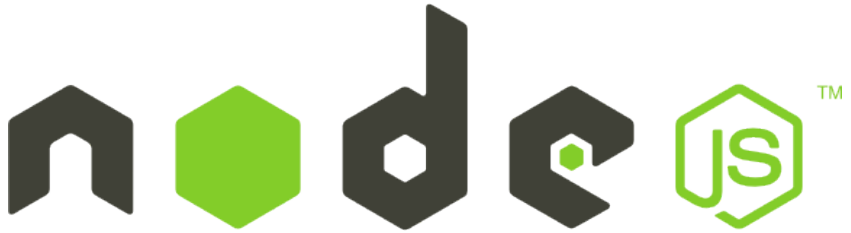
Then…

Then…

Then…



Then...



Modern Web Development

In 2015

	2000	2005	2010	2015
Architecture	Load Balancing Replication	Memcached Sharding	NoSQL Map/Reduce	MicroService Cloud Storage
Server	PHP ASP.NET J2EE	PHP ASP.NET Ruby on Rails Python	NodeJs Ruby on Rails Python	NodeJs Golang
Client	HTML AJAX	HTML AJAX	Single Page	Isomorphic Offline Web App

Today web application

1. Blog, News
2. Social Network: Facebook, Pinterest, Koding
3. Collaborating: Google Docs, Asana
4. Personal: Evernote, Sunrise calendar
5. Services: Parse, Firebase

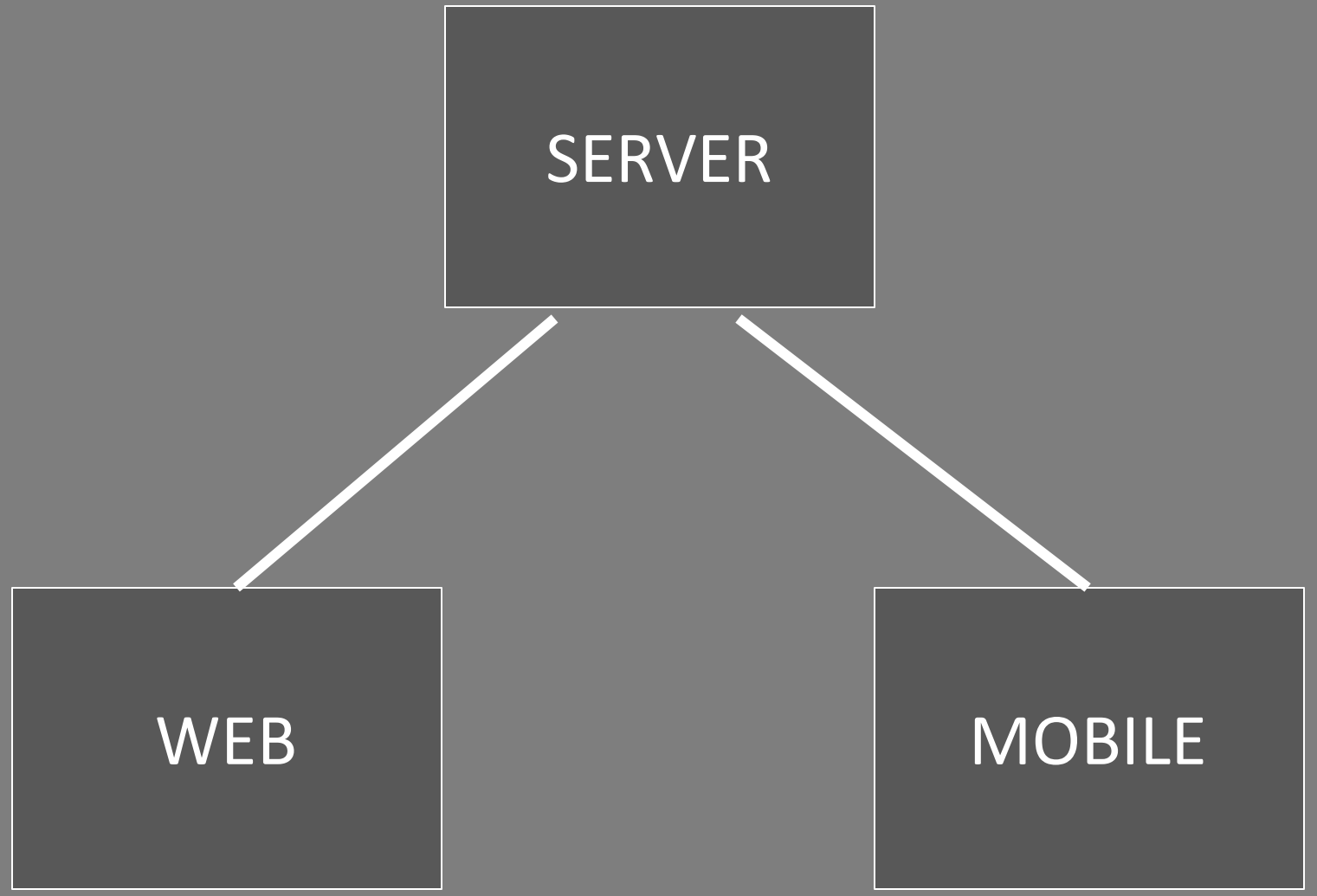
Building a blog

1. Database
2. Server code
3. HTML & CSS
4. Enjoy !

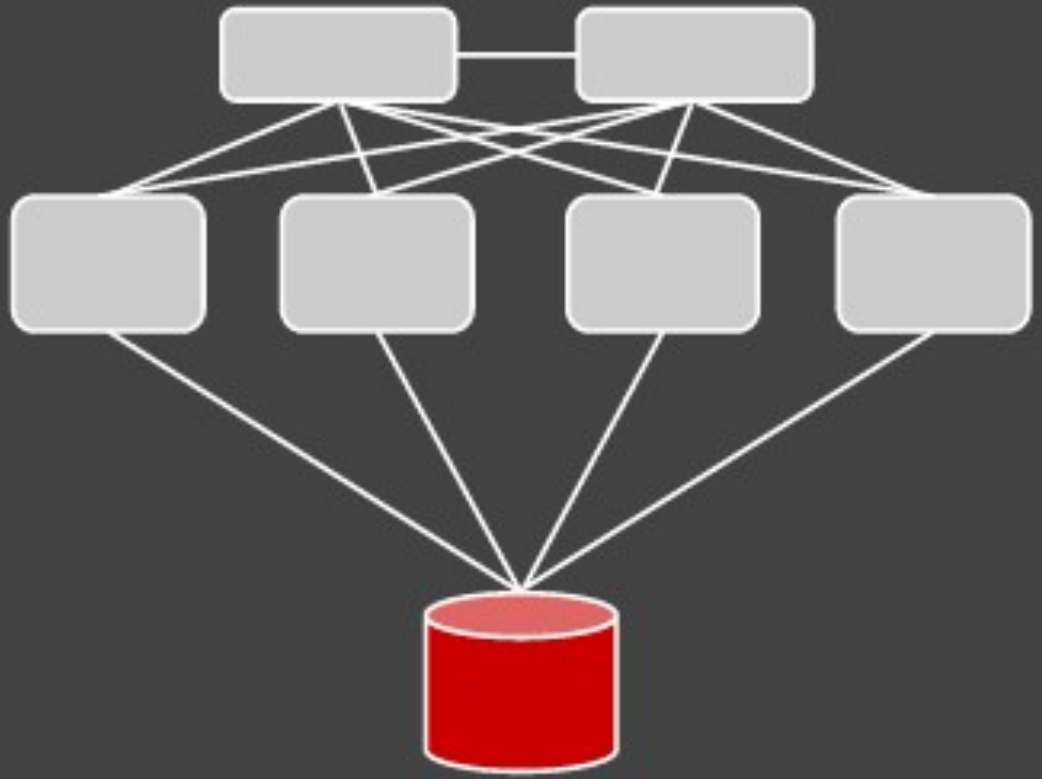
Building a news service

1. Load balancing
2. Ads networks
3. Micro Service
4. Log manager
5. Monitoring
6. Tracking
7. Comment / chat system
8. Data processing
9. Static assets
10. Video streaming

Building a collaborating service?

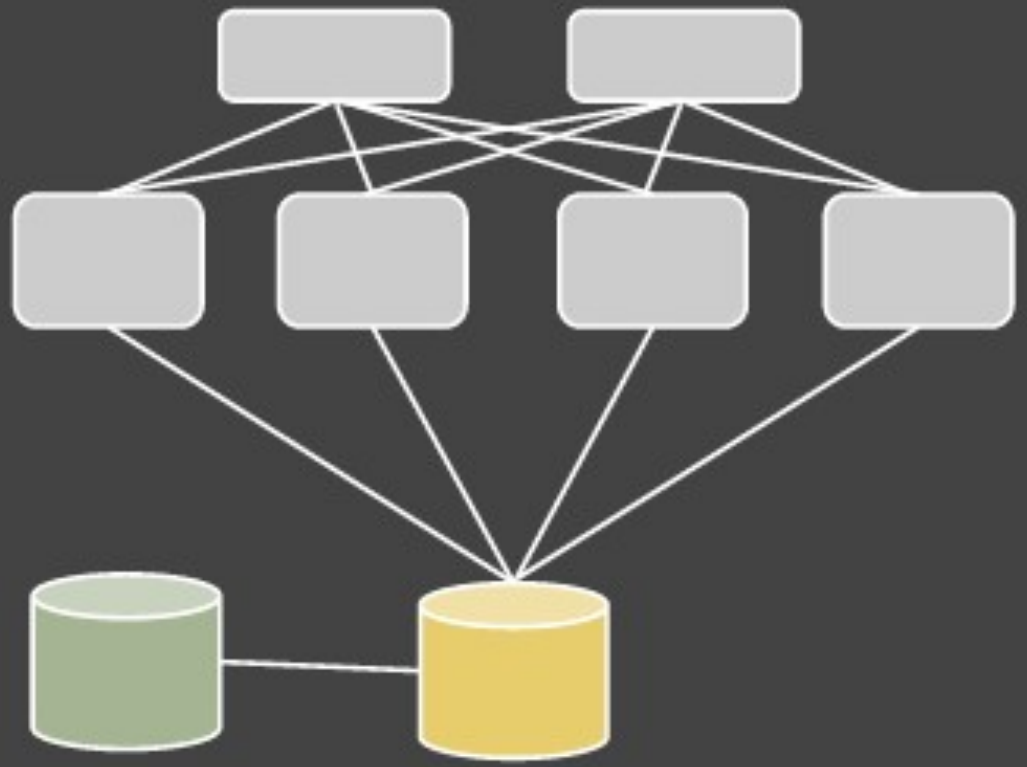

SERVER
WEB
MOBILE

2000: Load Balancing Solves Everything!



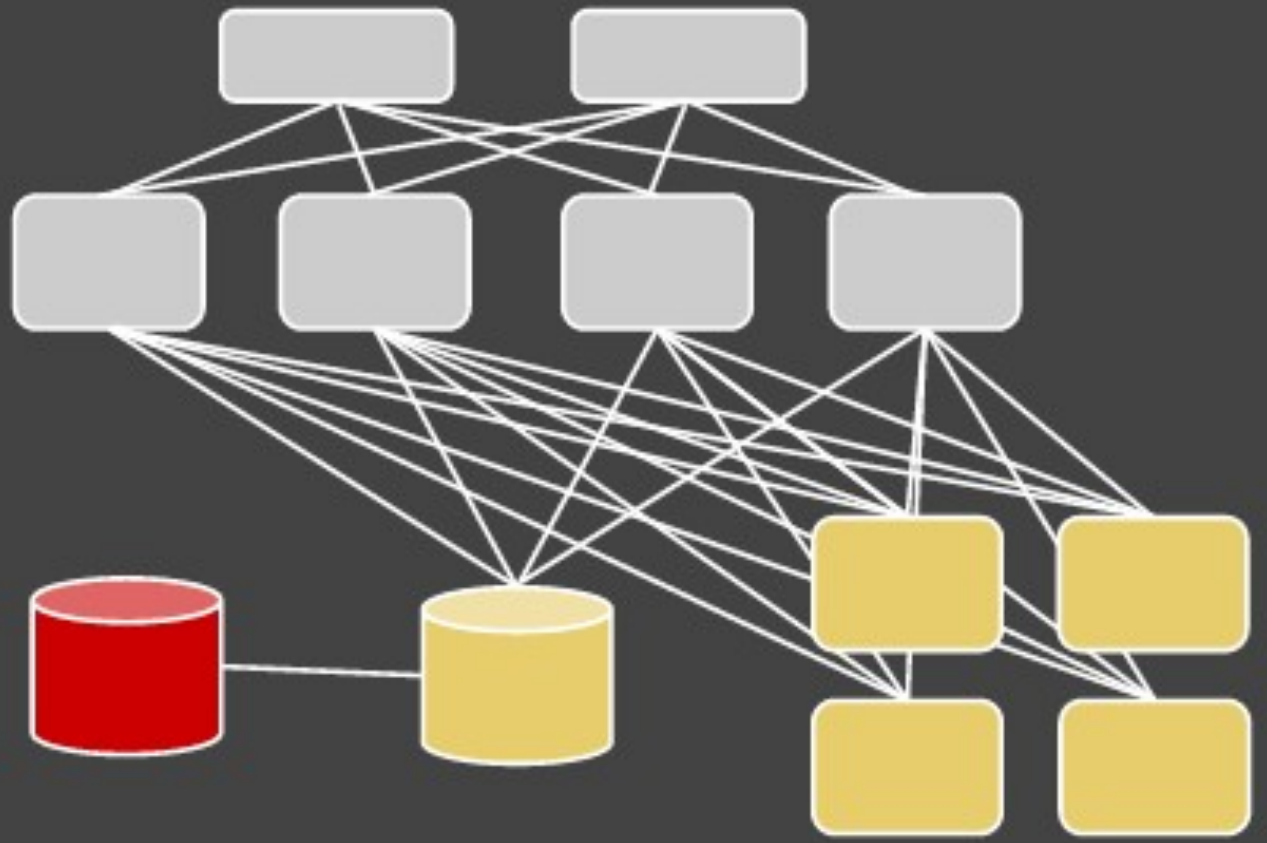
http://carlos.bueno.org/2014/11/cache.html

2002: Replication Solves Everything!



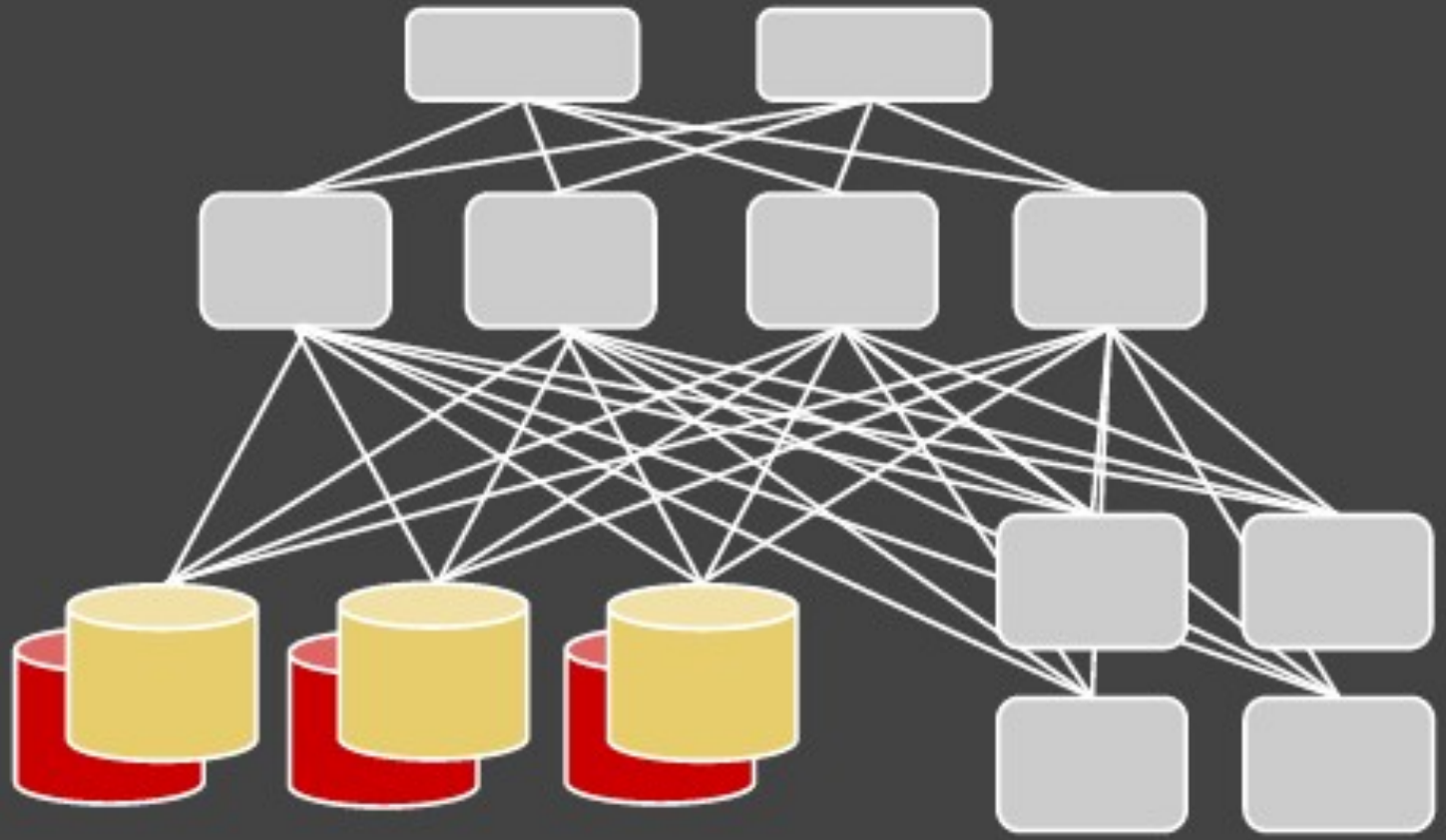
http://carlos.bueno.org/2014/11/cache.html

2004: Memcached Solves Everything!



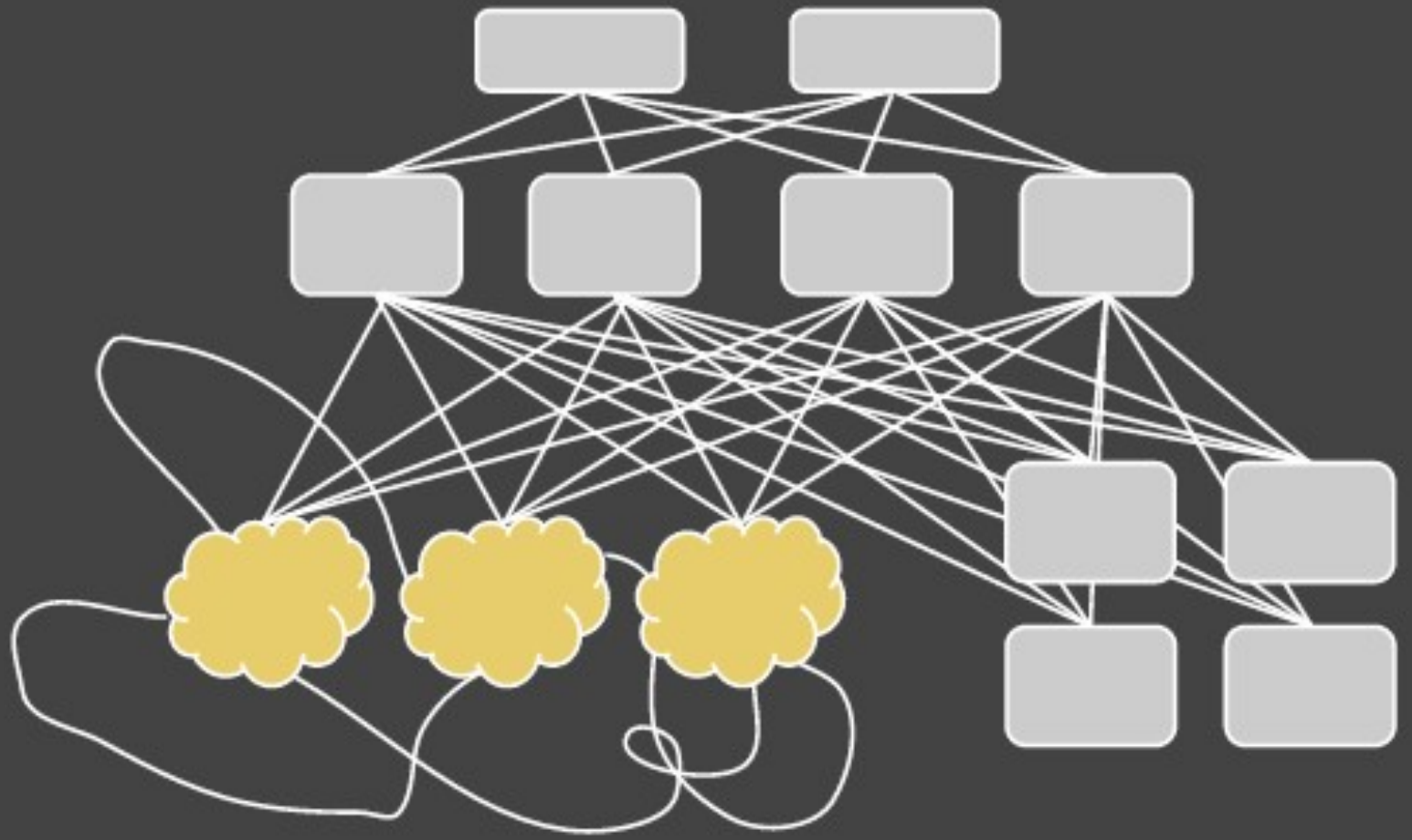
http://carlos.bueno.org/2014/11/cache.html

2006: Sharding Solves Everything!

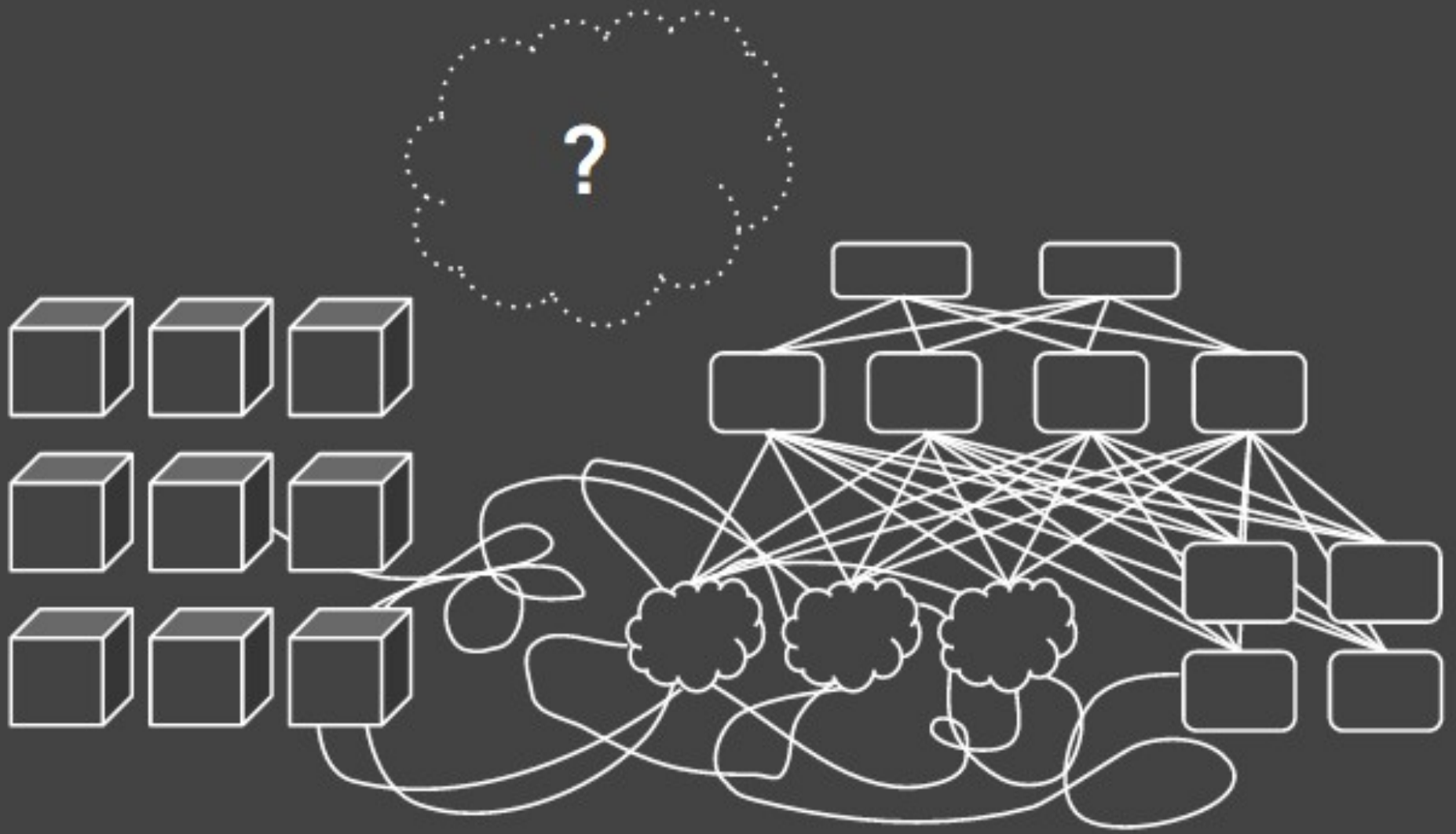


http://carlos.bueno.org/2014/11/cache.html

2008: NoSQL Solves Everything!



http://carlos.bueno.org/2014/11/cache.html



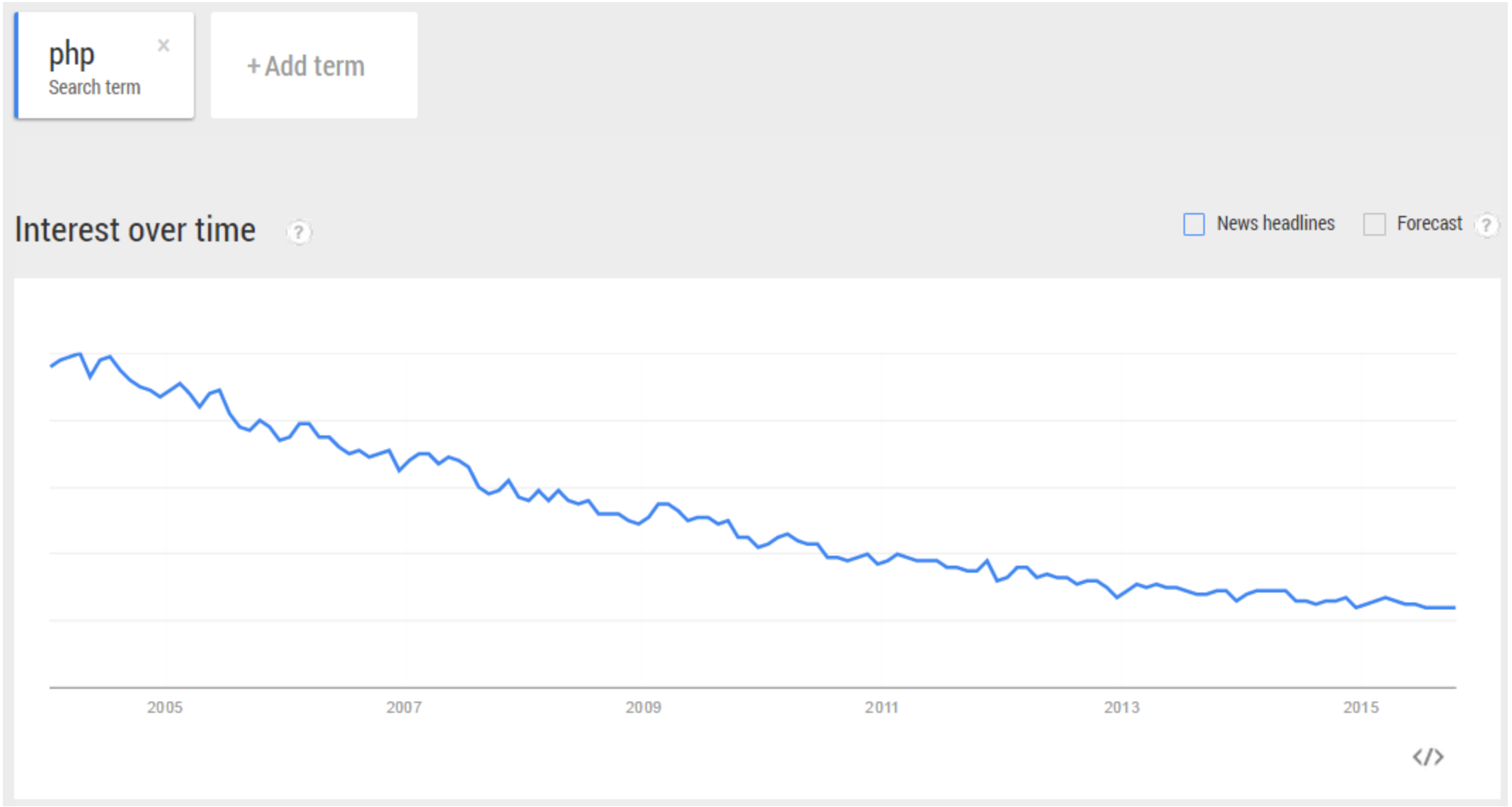
http://carlos.bueno.org/2014/11/cache.html

Server development trends

In 2015

Server development in 2015

1. Trends
    - API
    - Real-time
2. NodeJs
3. Golang


php
Search term
+ Add term
Interest over time
News headlines
Forecast
2005
2007
2009
2011
2013
2015

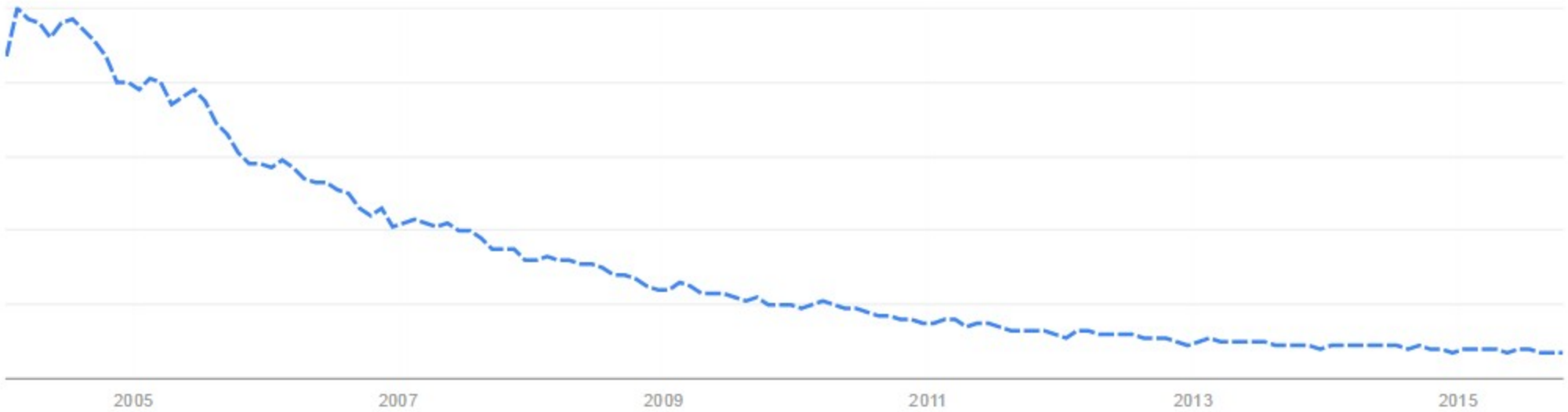
Java Platform, Enterprise Edition
Computer software

+ Add term

Beta: Measuring search interest in *topics* is a beta feature which quickly provides accurate measurements of overall search interest. To measure search interest for a specific *query*, select the "search term" option.

Interest over time

News headlines Forecast

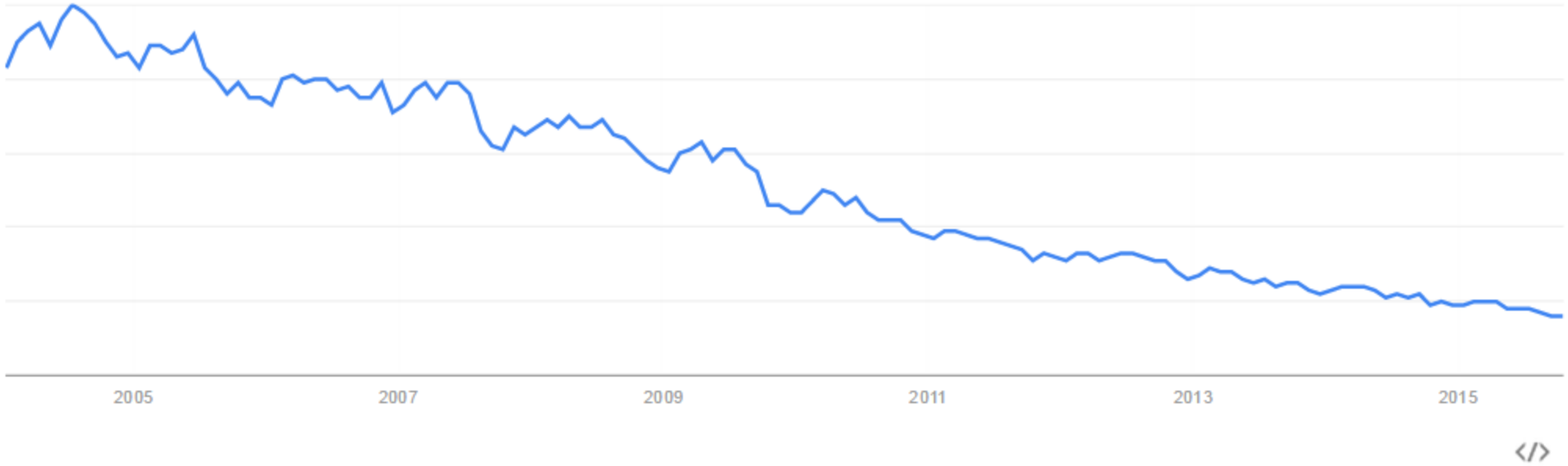


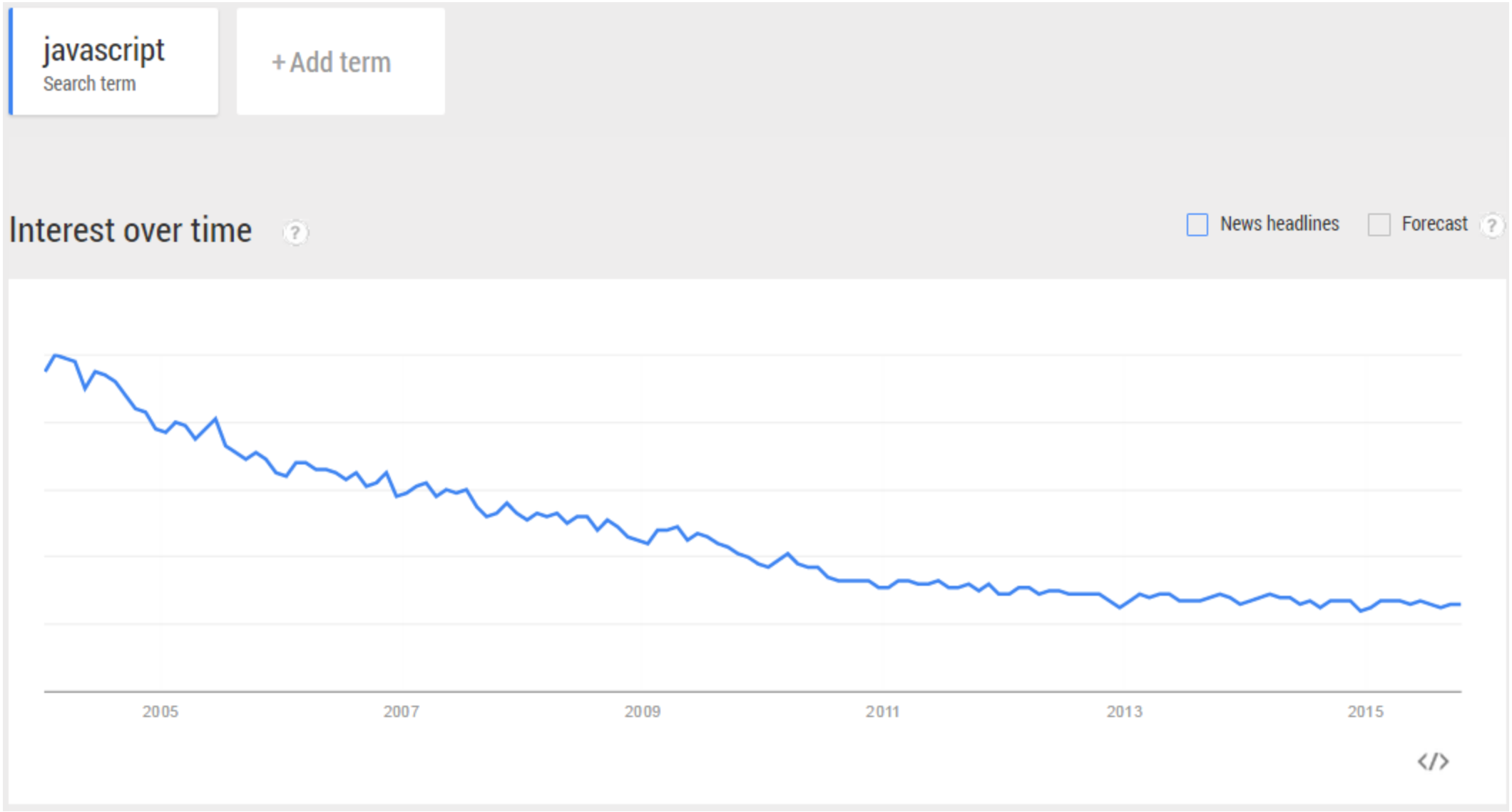
asp.net
Search term

+ Add term

Interest over time

News headlines | Forecast




javascript
Search term
+ Add term
Interest over time
News headlines
Forecast
2005
2007
2009
2011
2013
2015

ruby on rails
Search term

+ Add term

Interest over time

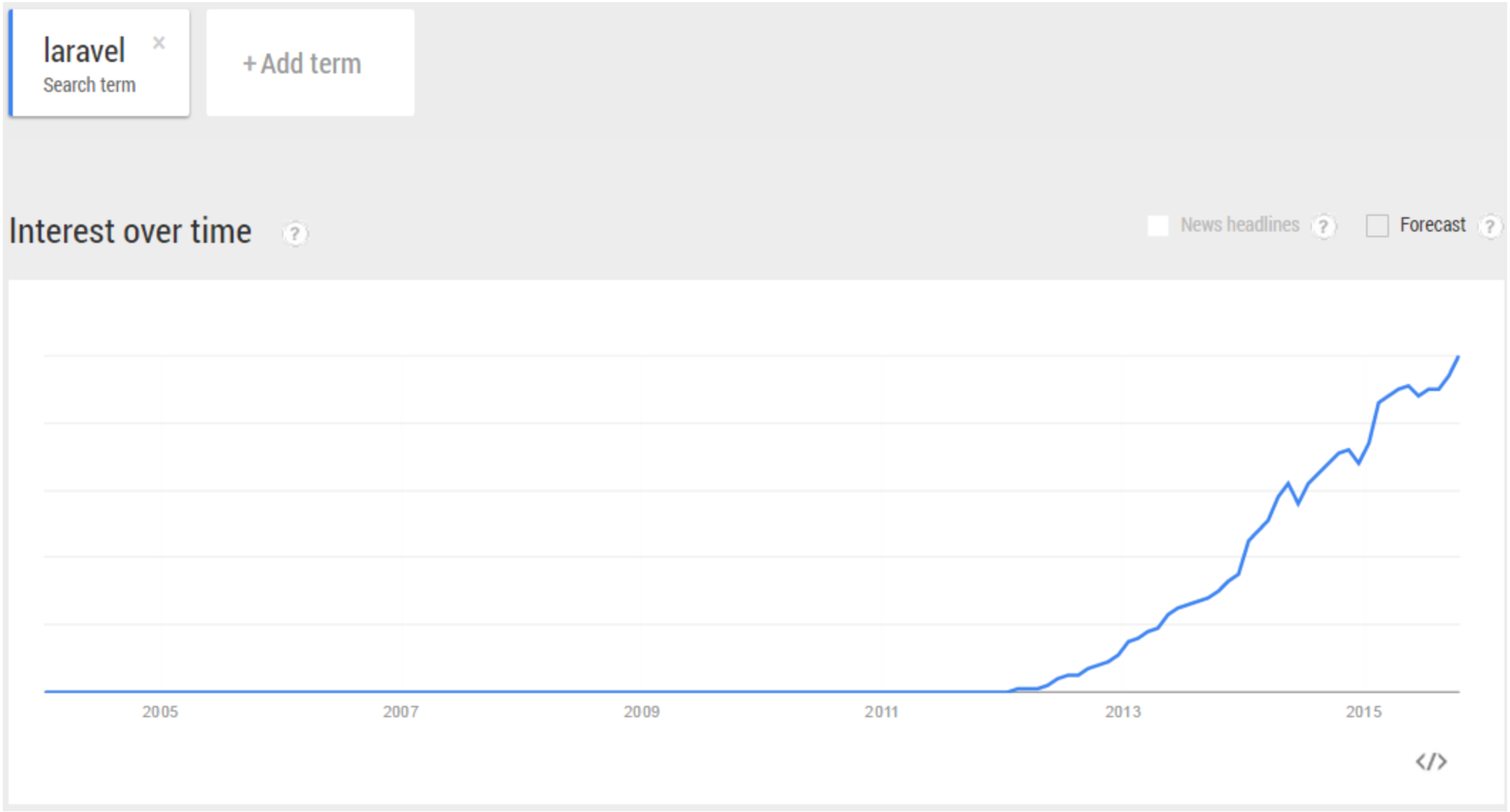
News headlines Forecast

wordpress
Search term

+ Add term

Interest over time

News headlines Forecast


laravel
Search term
+ Add term
Interest over time
News headlines
Forecast
2005
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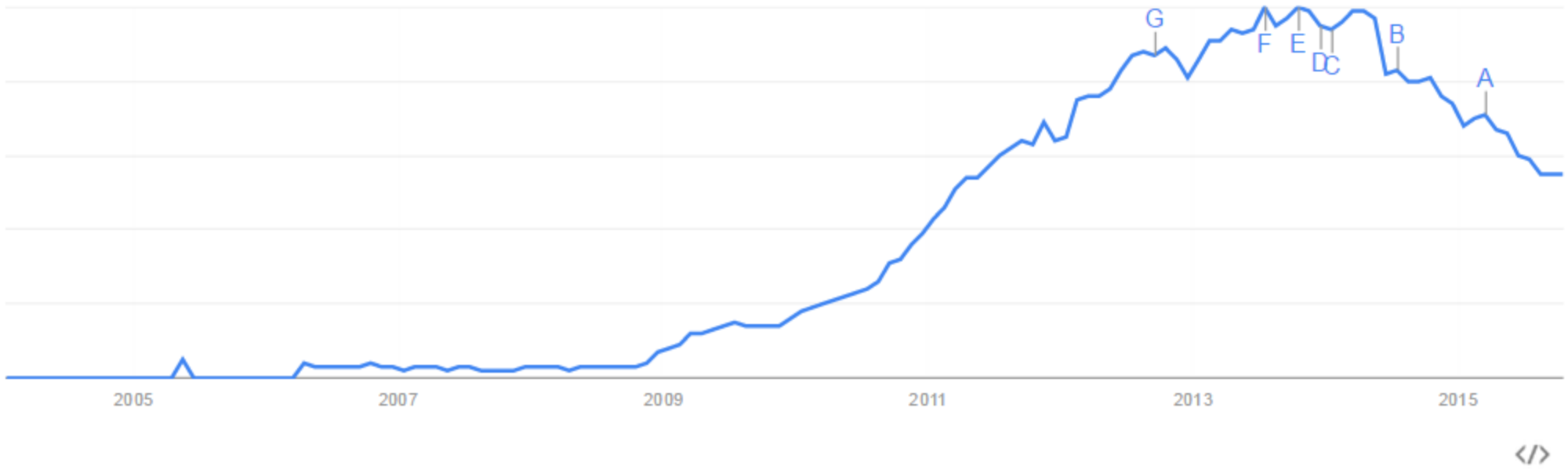
2015

yii
Search term

+ Add term

Interest over time

News headlines Forecast



zend
Search term

+ Add term

Interest over time

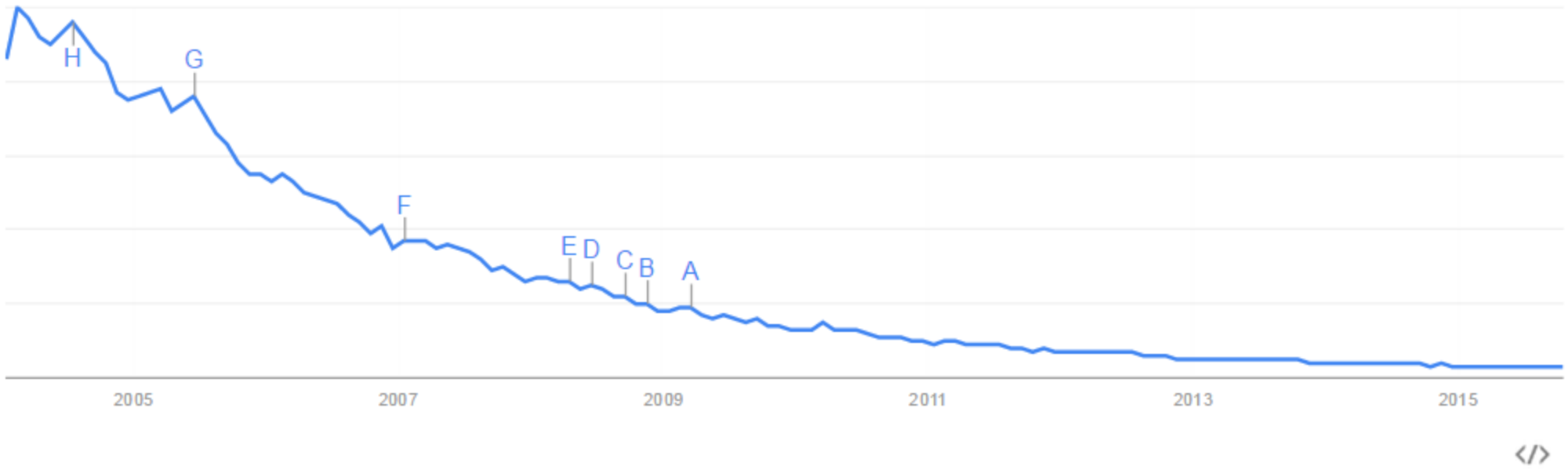
News headlines Forecast

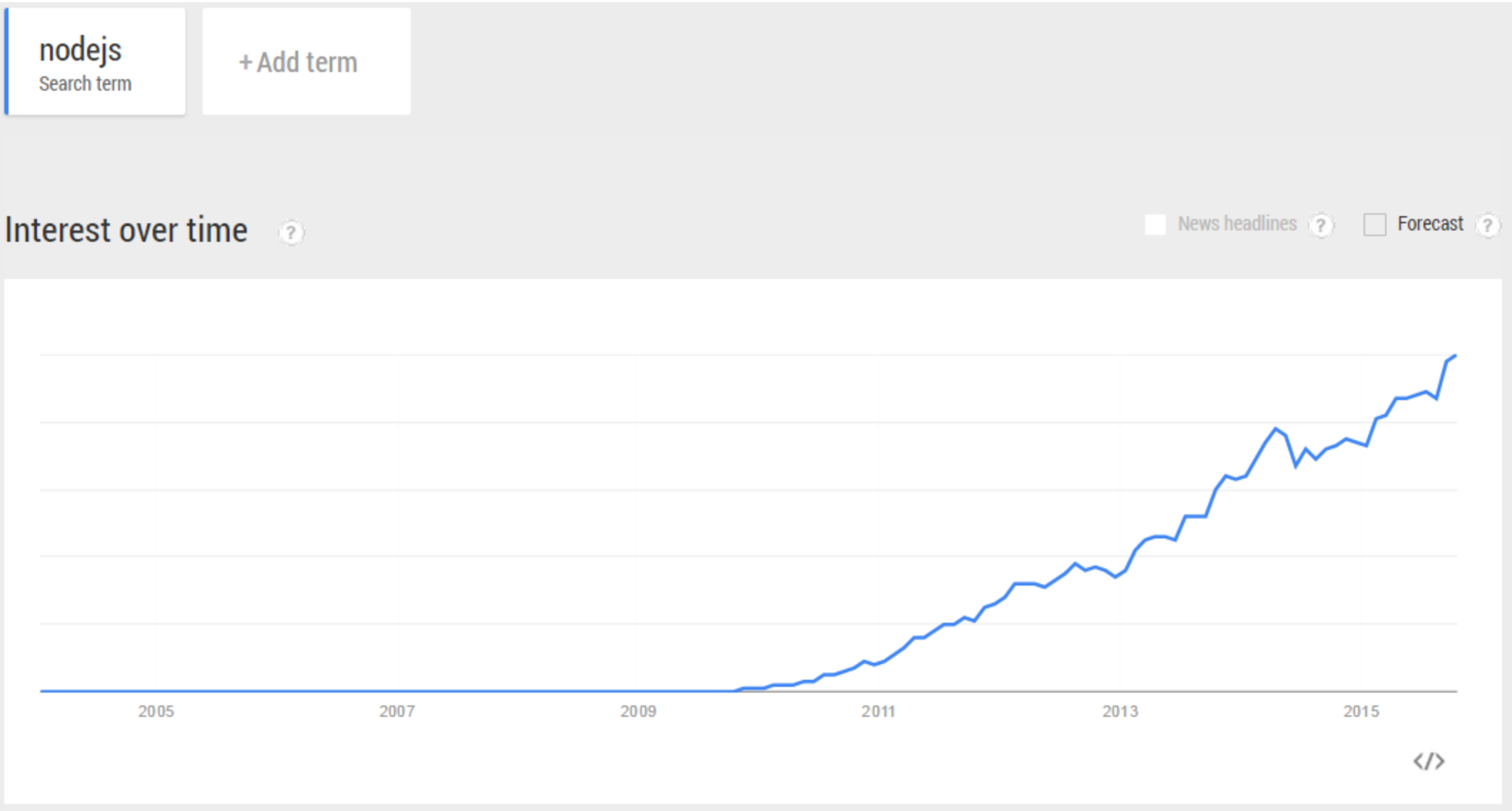
J2EE
Search term

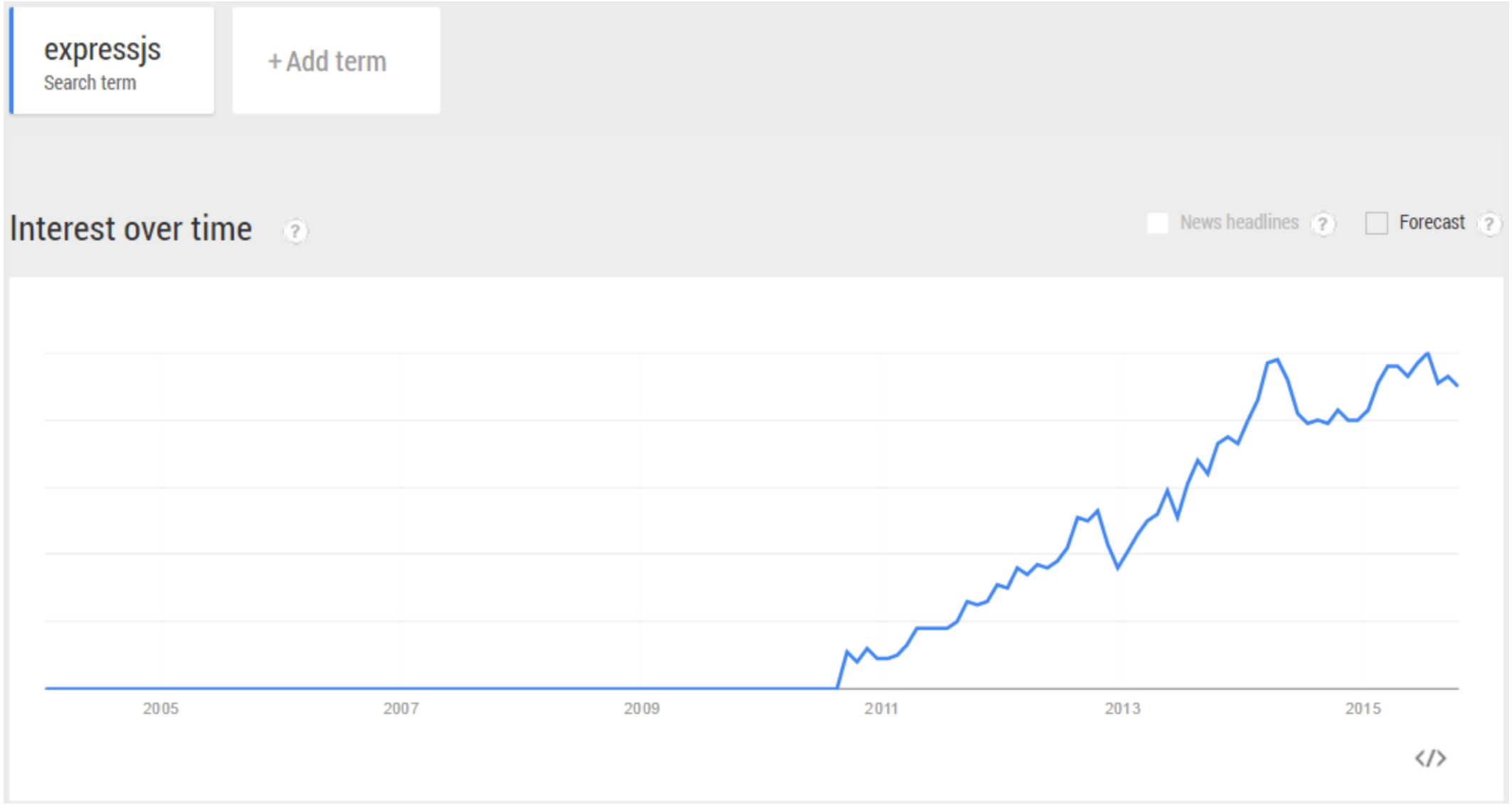
+ Add term

Interest over time

News headlines Forecast




nodejs
Search term
+ Add term
Interest over time
News headlines
Forecast
2005
2007
2009
2011
2013
2015


expressjs
Search term
+ Add term
Interest over time
News headlines
Forecast
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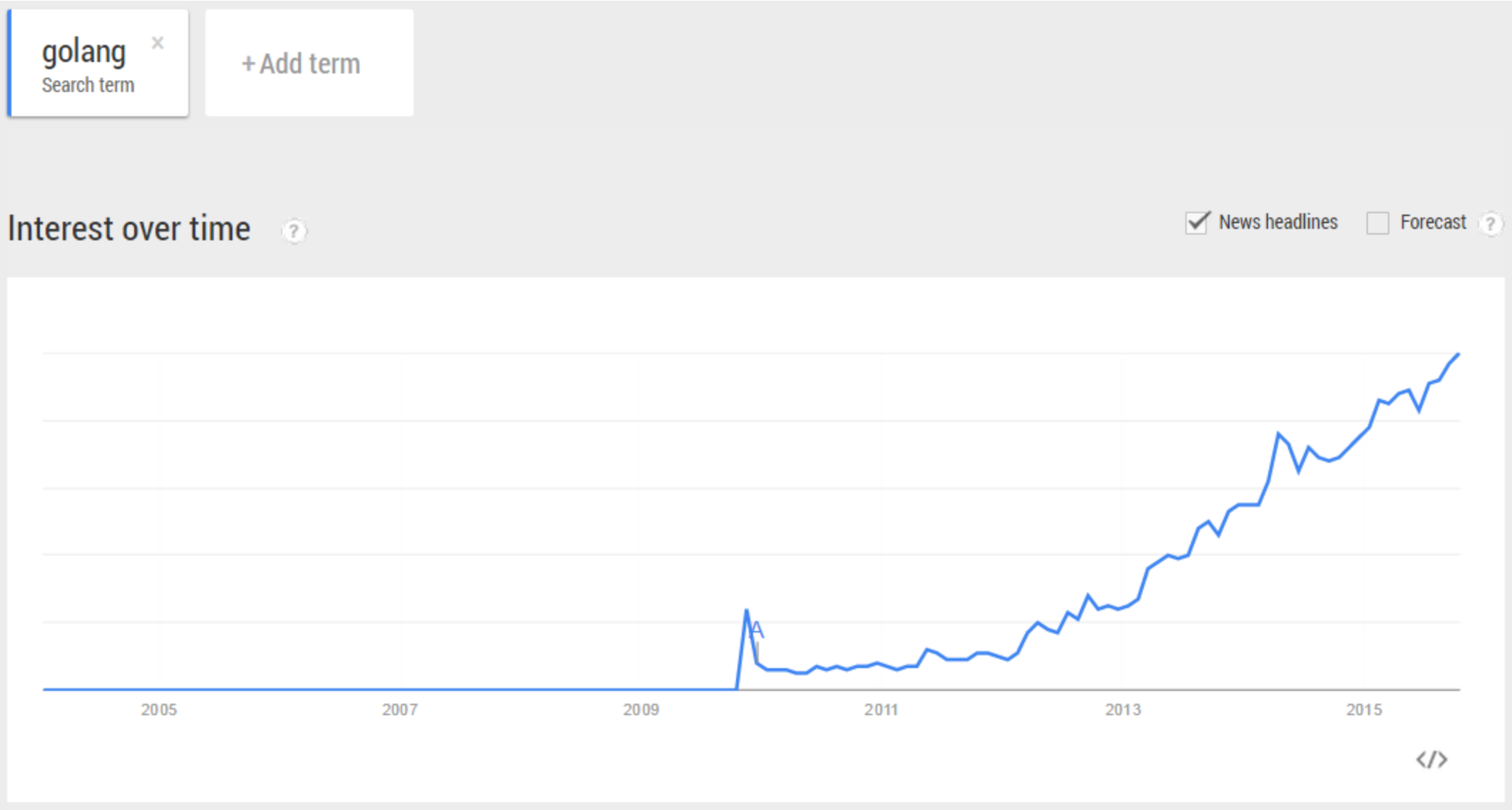
2013
2015


golang
Search term
+ Add term
Interest over time
News headlines
Forecast
2005
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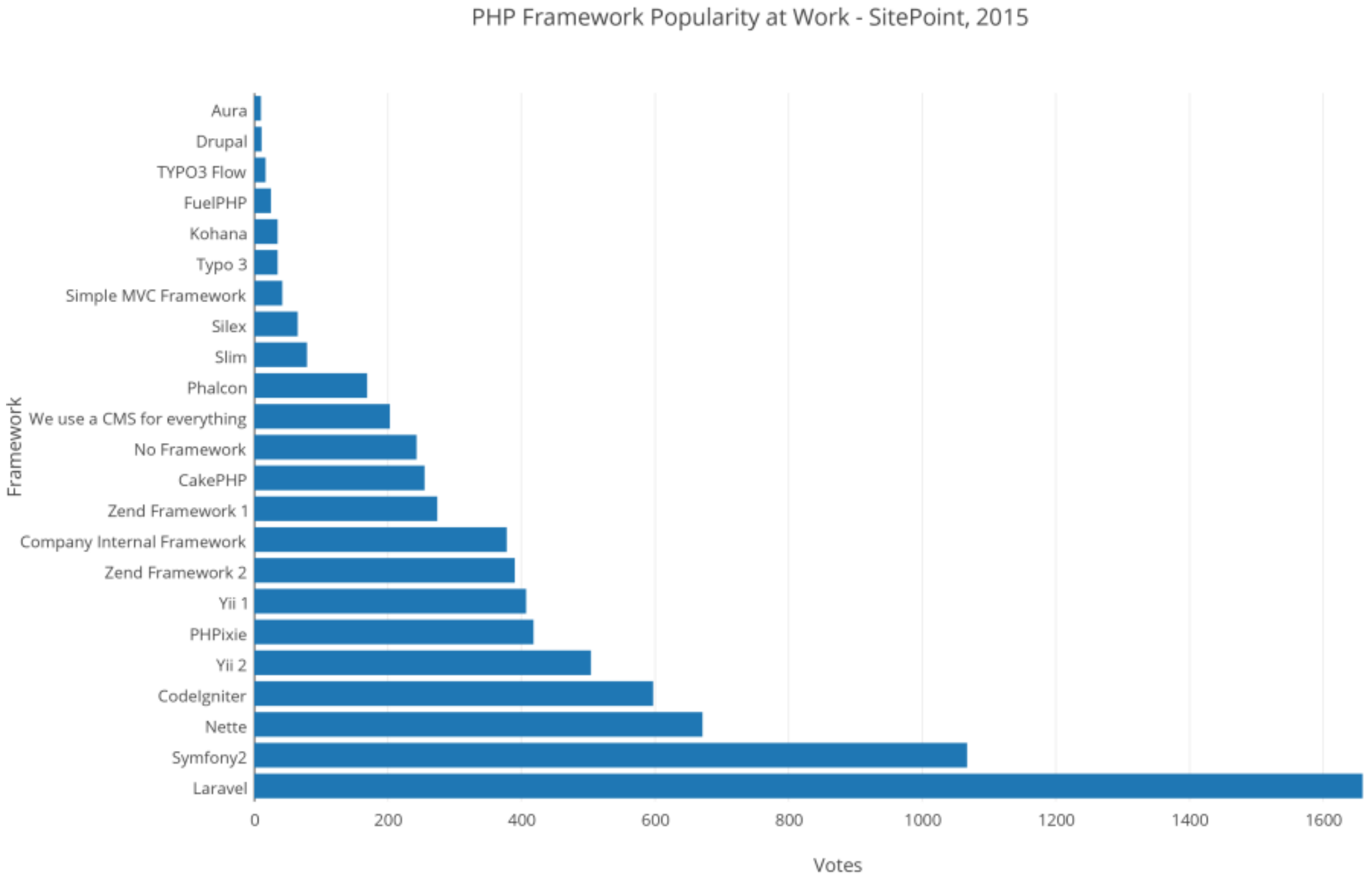
2015


PHP Framework Popularity at Work - SitePoint, 2015
Framework
Aura
Drupal
TYPO3 Flow
FuelPHP
Kohana
Typo 3
Simple MVC Framework
Silex
Slim
Phalcon
We use a CMS for everything
No Framework
CakePHP
Zend Framework 1
Company Internal Framework
Zend Framework 2
Yii 1
PHPixie
Yii 2
CodeIgniter
Nette
Symfony2
Laravel
0
200
400
600
800
1000
1200
1400
1600
Votes

	Found	Starting stack	Trends
Twitter	2006	Ruby on Rails	Write new services in Golang https://blog.twitter.com/2015/handling-five-billion-sessions-a-day-in-real-time
Dropbox	2008	Python	Migrate performance-critical backends to Golang https://blogs.dropbox.com/tech/2014/07/open-sourcing-our-go-libraries/
GitLab	2011	Ruby on Rails	Ruby on Rails Partially use Golang https://gitlab.com/gitlab-org/gitlab-git-http-server
Parse	2011	Ruby on Rails	Golang http://blog.parse.com/learn/how-we-moved-our-api-from-ruby-to-go-and-saved-our-sanity/
Koding	2011	NodeJs	Golang https://www.quora.com/Why-did-Koding-switch-from-Node-js-to-Go

Why Golang?

1. Single binary deployment
2. Minimal language
3. Easy concurrency
4. Full development environment
5. Multi-arch build
6. Low-level interface

Client development trends

In 2015

Client development in 2015

1. JavaScript
    - EcmaScript 2015
    - TypeScript, Flow
2. Offline applications
3. Isomorphic applications
4. Mobile web

EcmaScript 1025

```
const sum = (list) =>
  !list.length
  ? 0
  : (([head, tail]) =>
      head + sum(tail))
    (list);
console.log(sum([1,2,3,4]);
```

TypeScript

```
class Greeter<T> {
    greeting: T;
    constructor(message: T) {
        this.greeting = message;
    }
    greet() {
        return this.greeting;
    }
}

var greeter = new Greeter<string>("Hello, world");
```

Flow

```
// @flow
function sum(a: int, b: int): int {
  return a + b;
}
```

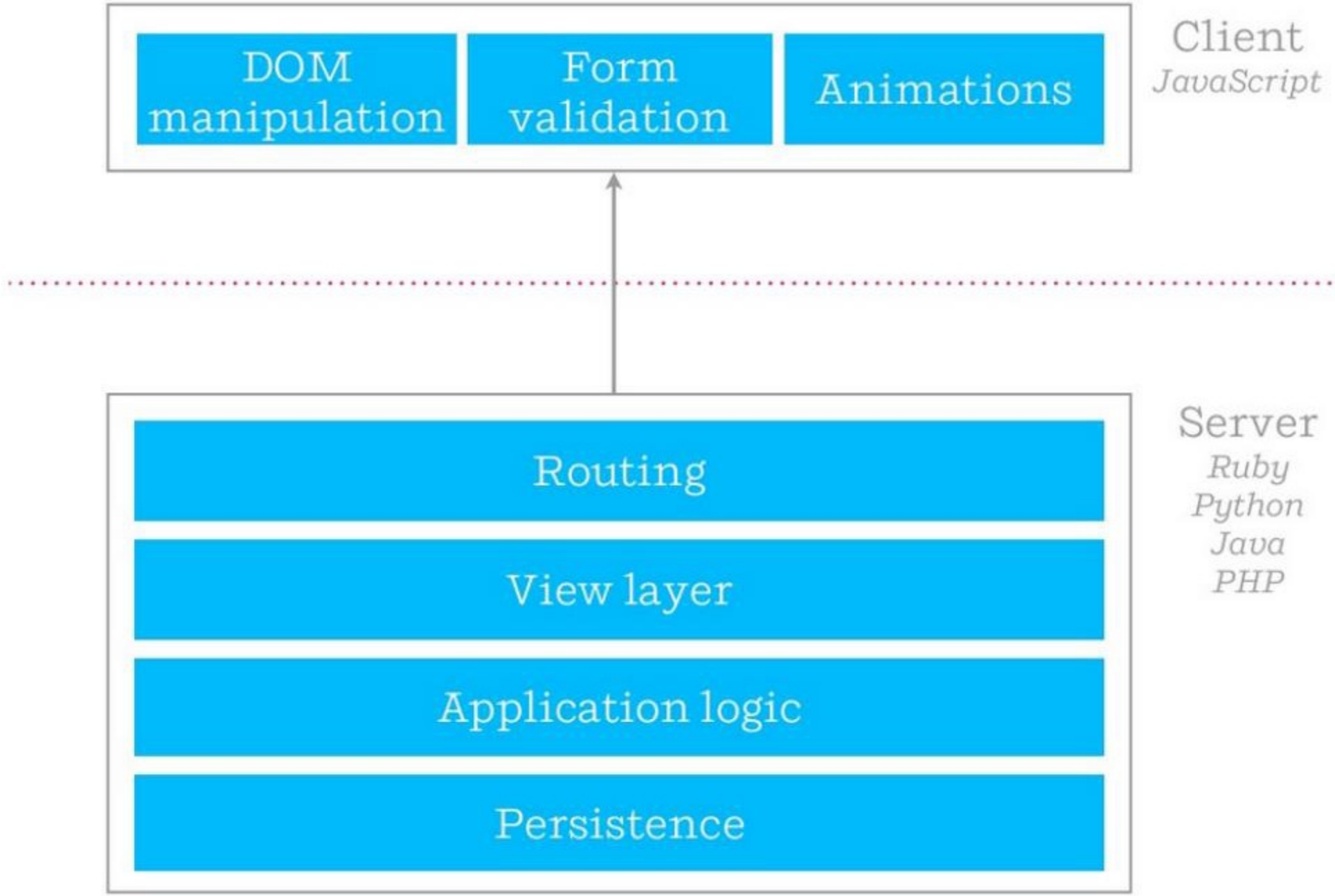
Tools: Webpack & babel

1. Translate EcmaScript2015, Flow code to JavaScript
2. Organize client-side JavaScript in module
3. Live reload development

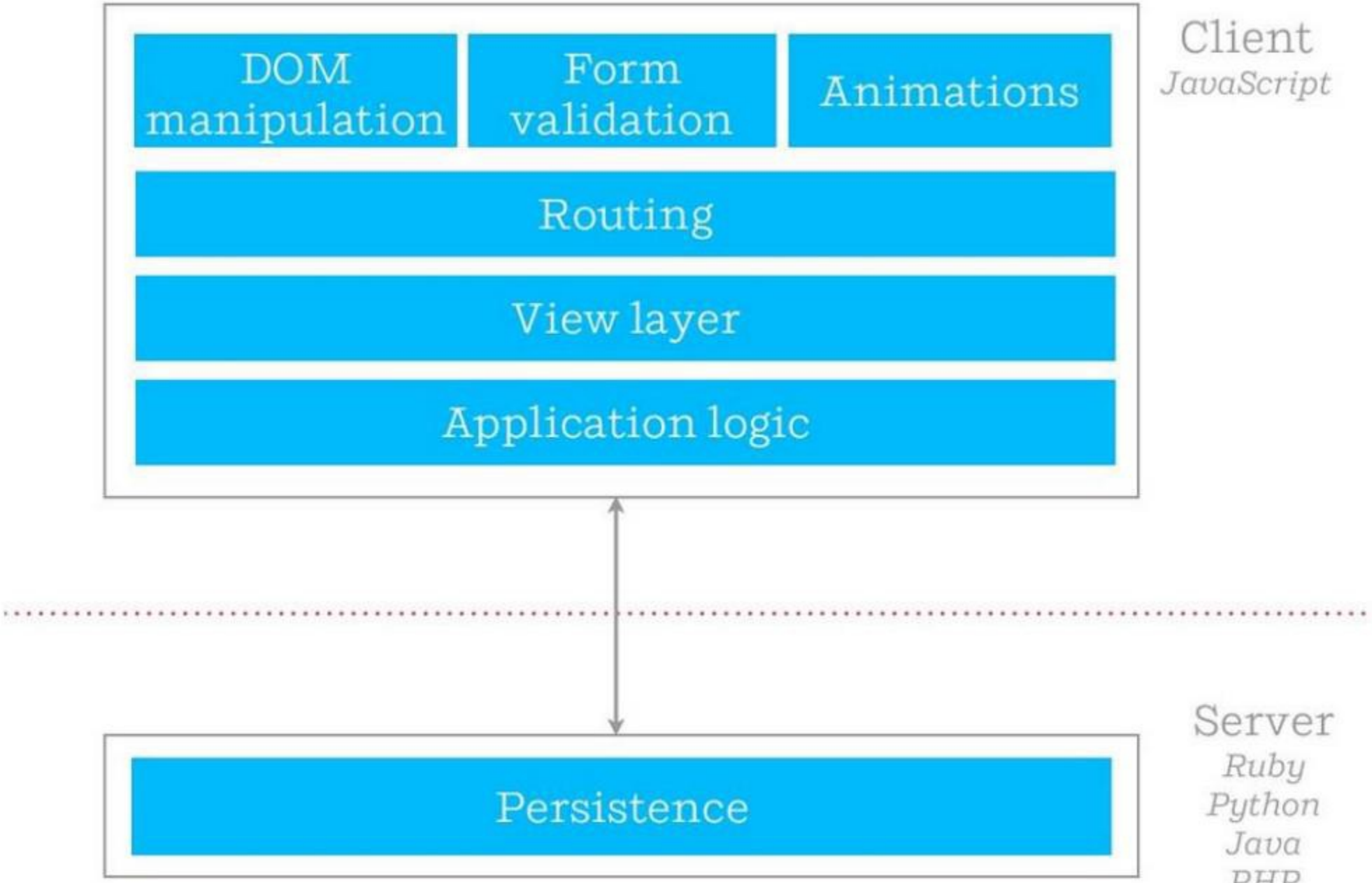
import { GitHub, Facebook } **from** "./module/api"

Isomorphic (Universal) JavaScript

1. Isomorphic JavaScript is the pattern of running JavaScript code on both server & client.
2. Take the best of both world
    - Optimize load time
    - Interactive, optimize bandwidth
    - SEO, screen reader



* http://www.slideshare.net/spikebrehm/jsconf-us-2014-building-isomorphic-apps



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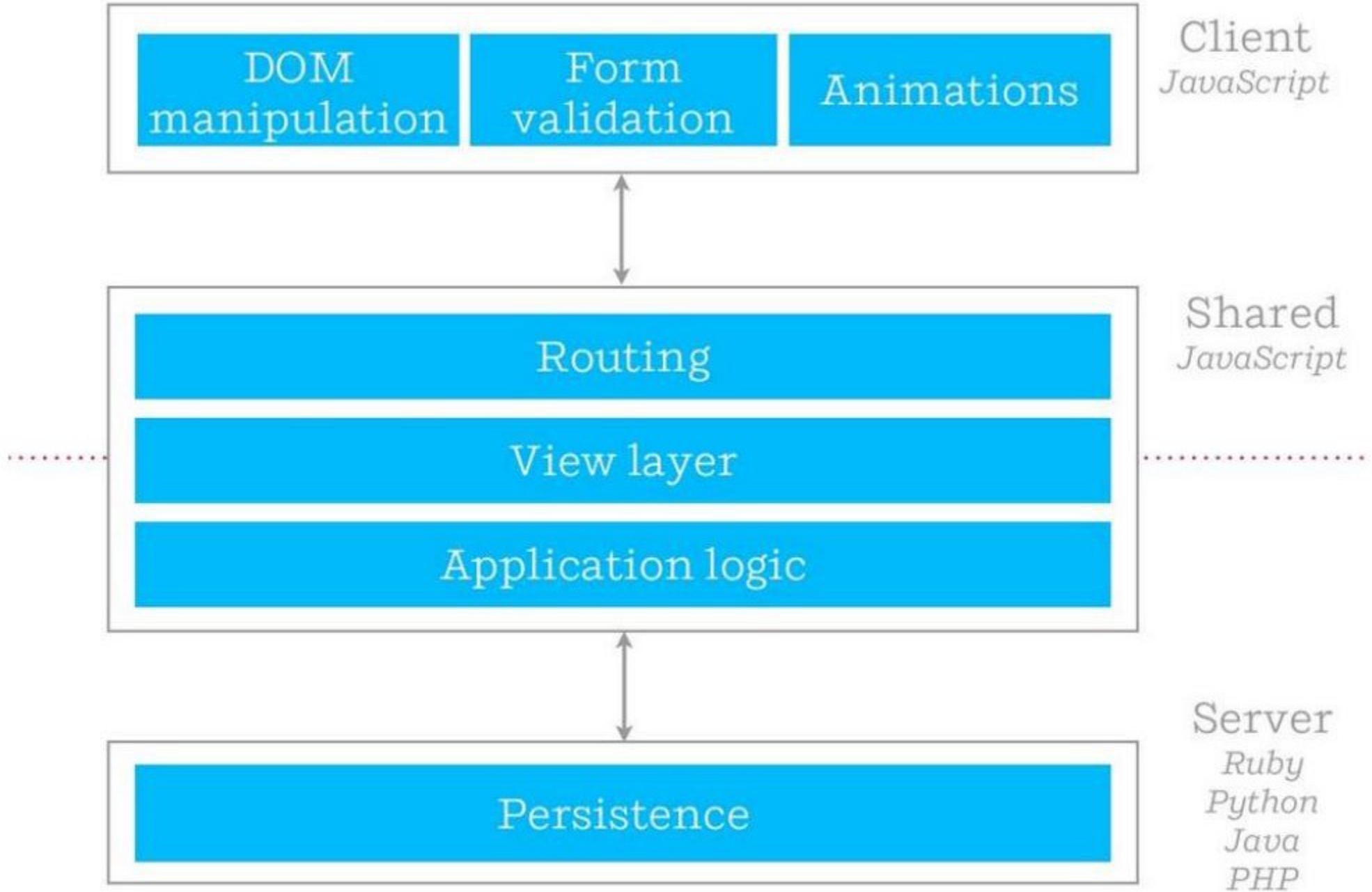
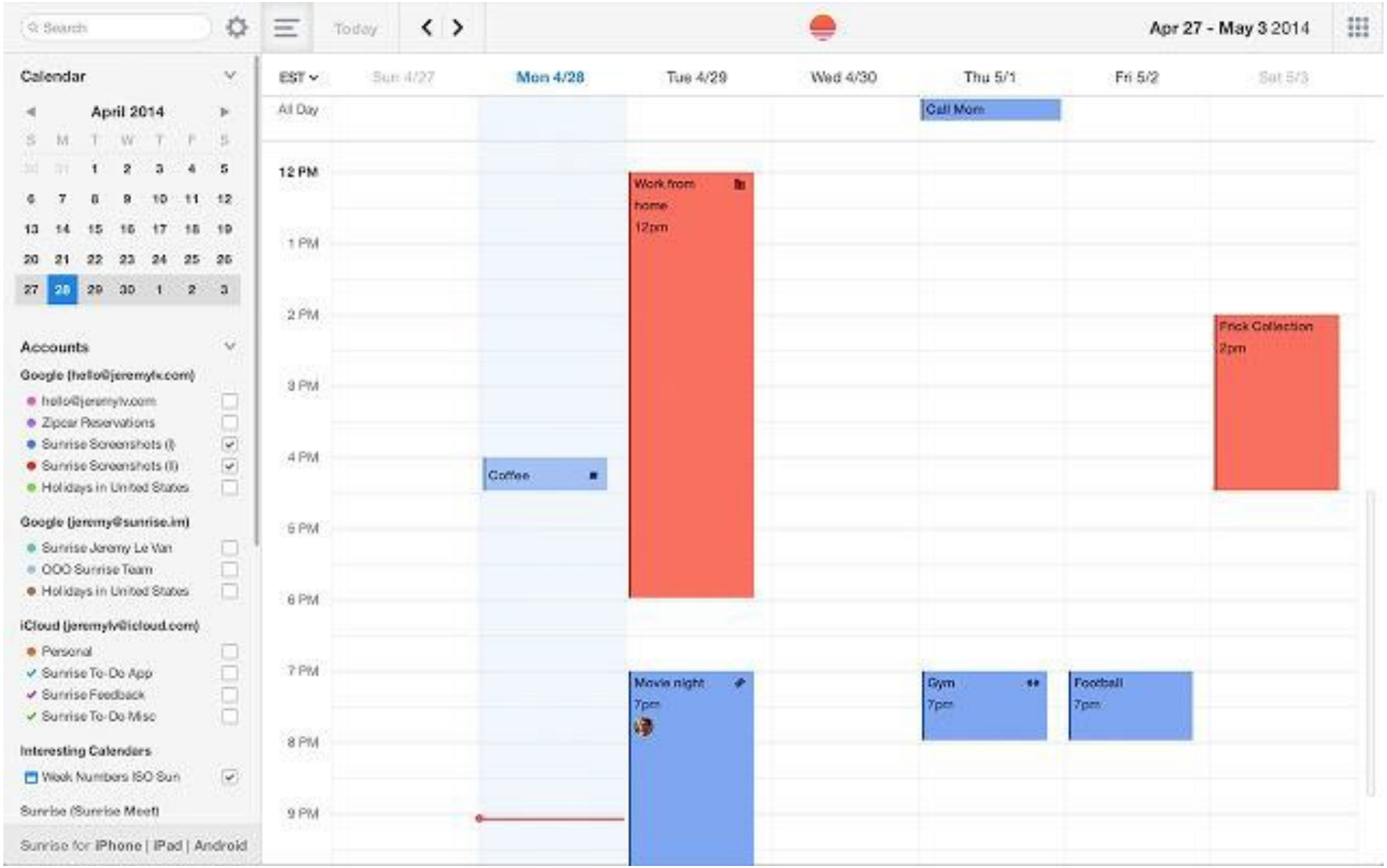
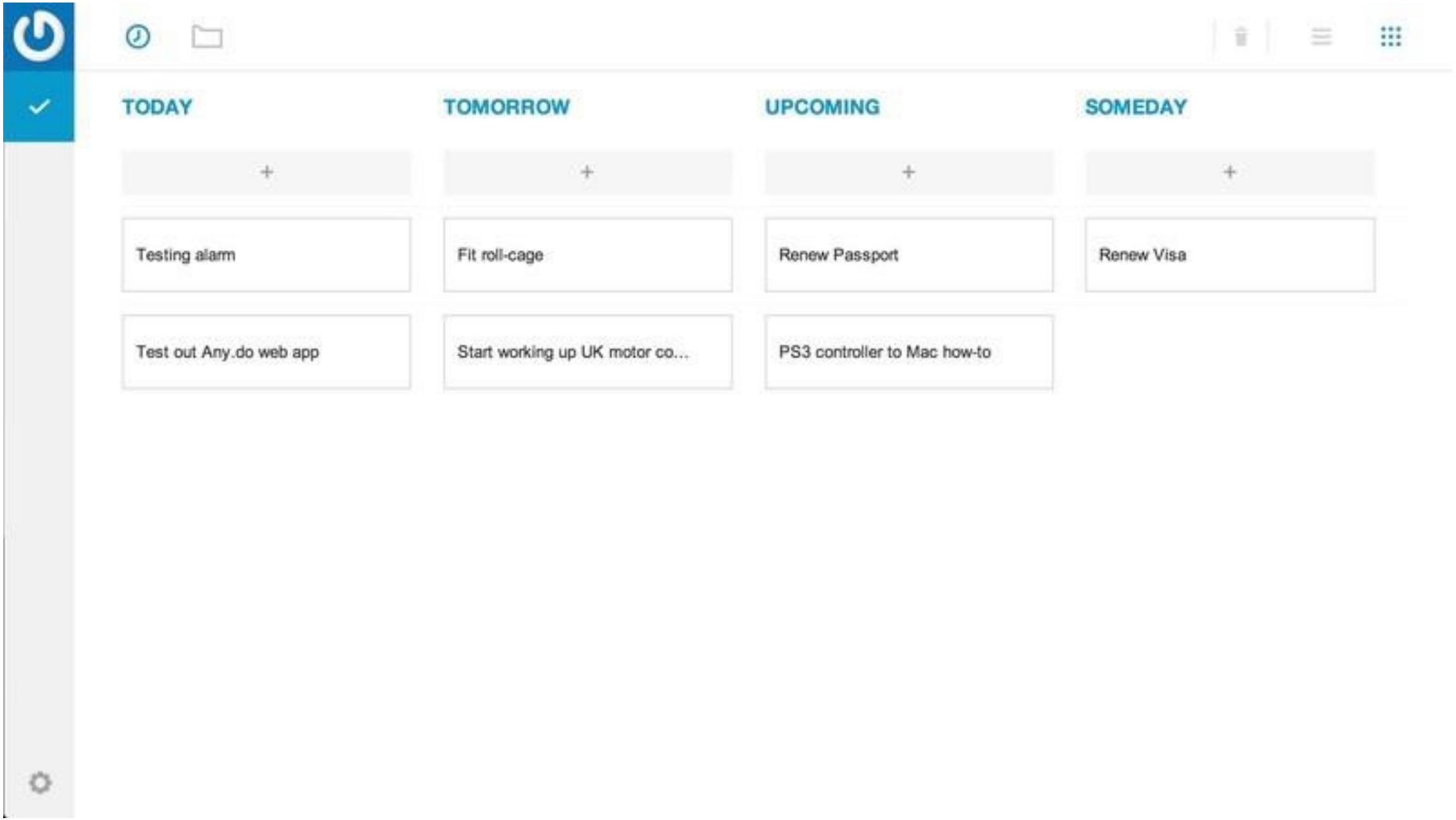


* http://www.slideshare.net/spikebrehm/jsconf-us-2014-building-isomorphic-apps

Offline Web Applications

1. Write your web apps as desktop apps
2. Be able to run offline
3. Communicate with server via REST API or web socket
4. How: HTML5 Offline API


Search
Today
Apr 27 - May 3 2014
Calendar
April 2014
S M T W T F S
30 31 1 2 3 4 5
6 7 8 9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30 1 2 3
Accounts
Google (hello@jeremylv.com)
hello@jeremylv.com
Zipcar Reservations
Sunrise Screenshots (i)
Sunrise Screenshots (ii)
Holidays in United States
Google (jeremy@sunrise.im)
Sunrise Jeremy Le Van
OOO Sunrise Team
Holidays in United States
iCloud (jeremylv@icloud.com)
Personal
Sunrise To-Do App
Sunrise Feedback
Sunrise To-Do Misc
Interesting Calendars
Week Numbers ISO Sun
Sunrise (Sunrise Meet)
Sunrise for iPhone | iPad | Android
EST
Sun 4/27
Mon 4/28
Tue 4/29
Wed 4/30
Thu 5/1
Fri 5/2
Sat 5/3
All Day
Call Mom
12 PM
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
Work from home 12pm
Pick Collection 2pm
Coffee
Movie night 7pm
Gym 7pm
Football 7pm


TODAY
TOMORROW
UPCOMING
SOMEDAY
Testing alarm
Fit roll-cage
Renew Passport
Renew Visa
Test out Any.do web app
Start working up UK motor co...
PS3 controller to Mac how-to

Mobile web

1. Almost every user has a smartphone
2. Customize for small-screen experience
3. Touch, notifications
4. Be able to run offline

Client development in 2015

1. JavaScript
    - EcmaScript 2015
    - TypeScript, Flow
2. Offline applications
3. Isomorphic applications
4. Mobile web

Where to place your bet

In 2015

Where to place your bet in 2015?

PHP

Ruby on Rails

NodeJs

Golang

Java EE

ASP.NET

Micro service

Cloud storage

JavaScript

Isomorphic App (Universal)

Offline Web App

TypeScript, Flow

Where to place your bet in 2015?

PHP

Ruby on Rails

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Golang

Java EE

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JavaScript

Isomorphic App (Universal)

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Modern Web Development

In 2015