

Grokking HTTP

Ben Ramsey

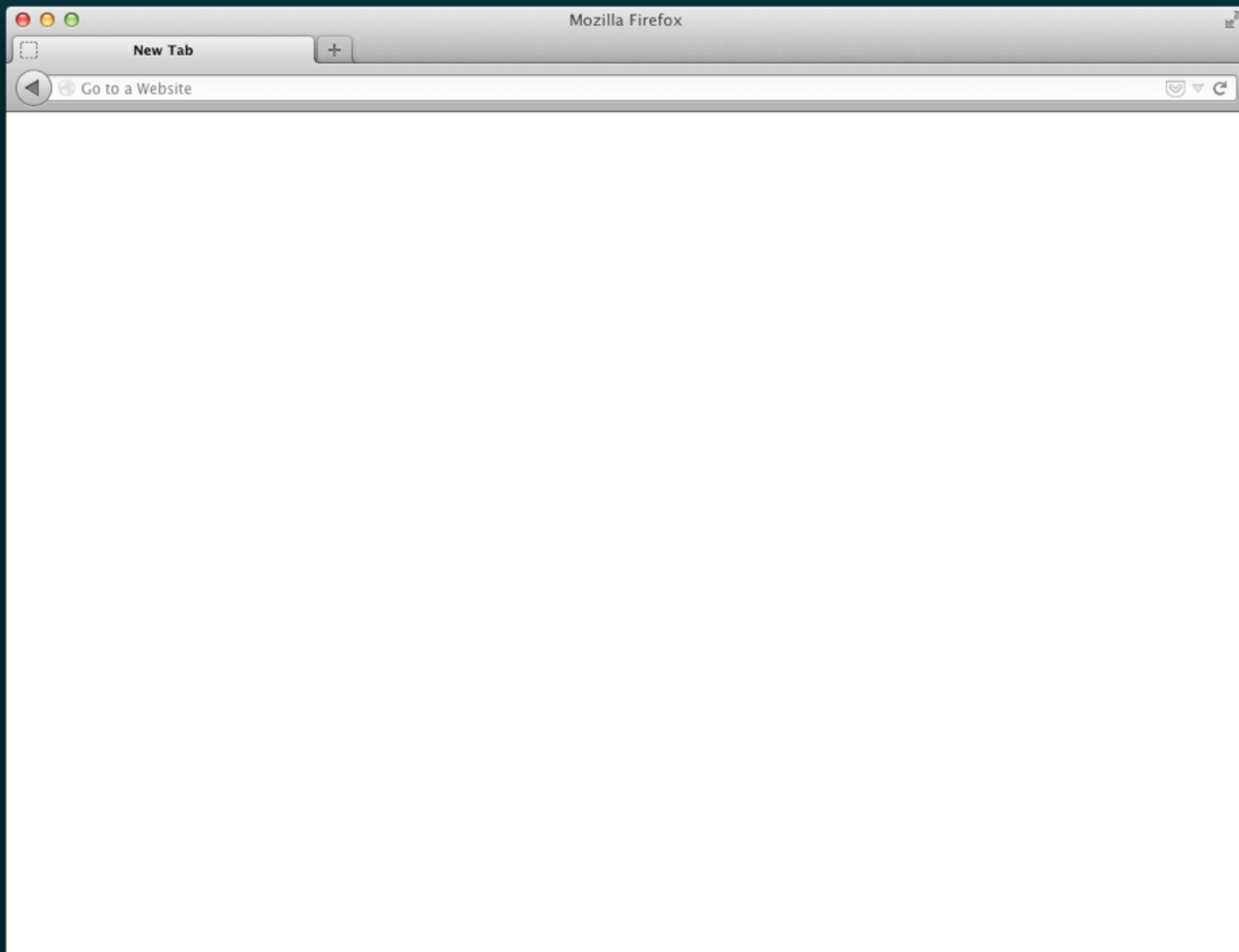
- The Basics
- My favorite HTTP tools
- Overview of the protocol
- Advanced topics
- The future of HTTP

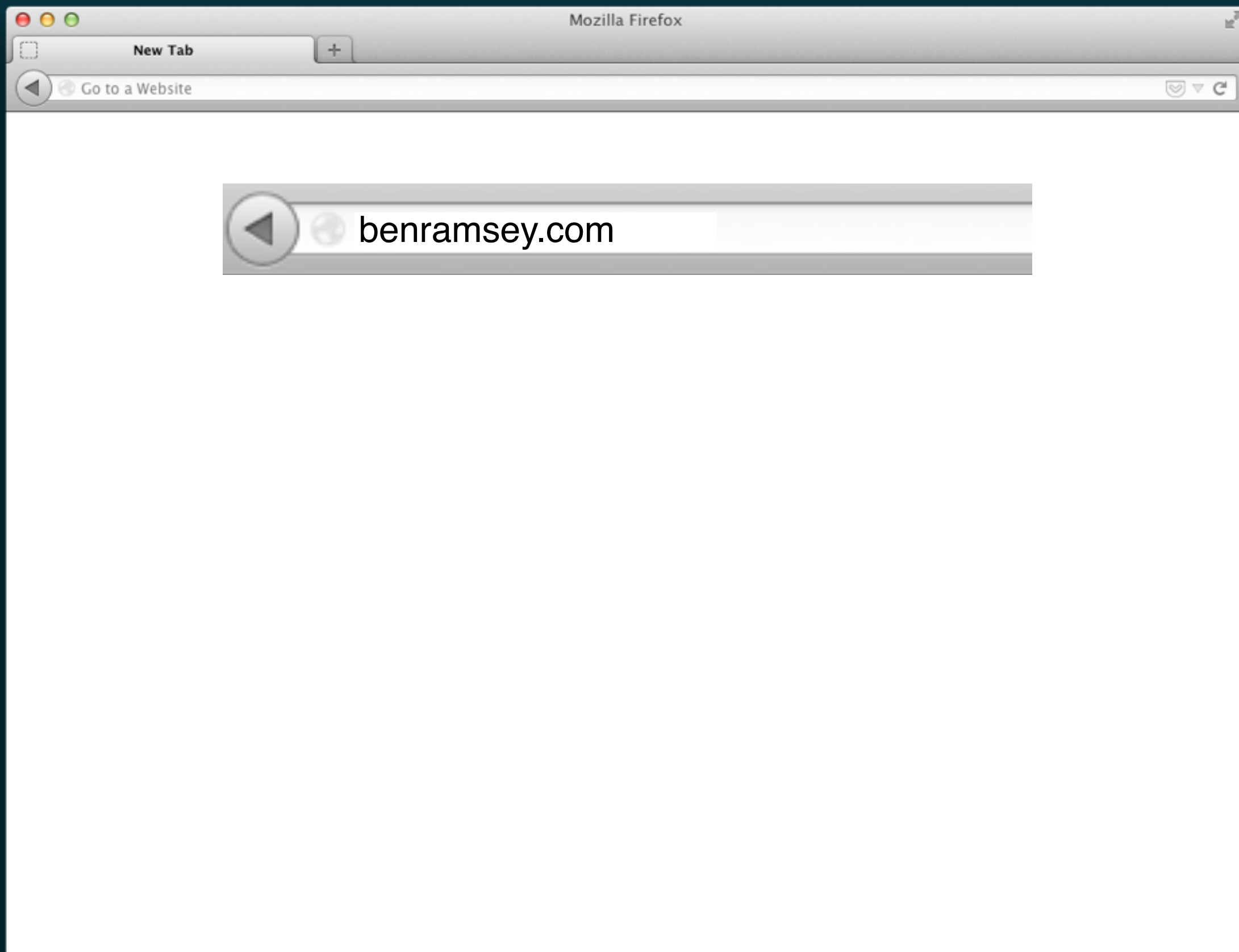
grok • /'grɒk/

To grok is to intimately and completely share the same reality or line of thinking with another physical or conceptual entity. Author Robert A. Heinlein coined the term in his best-selling 1961 book *Stranger in a Strange Land*. In Heinlein's view, *grokking* is the intermingling of intelligence that necessarily affects both the observer and the observed.

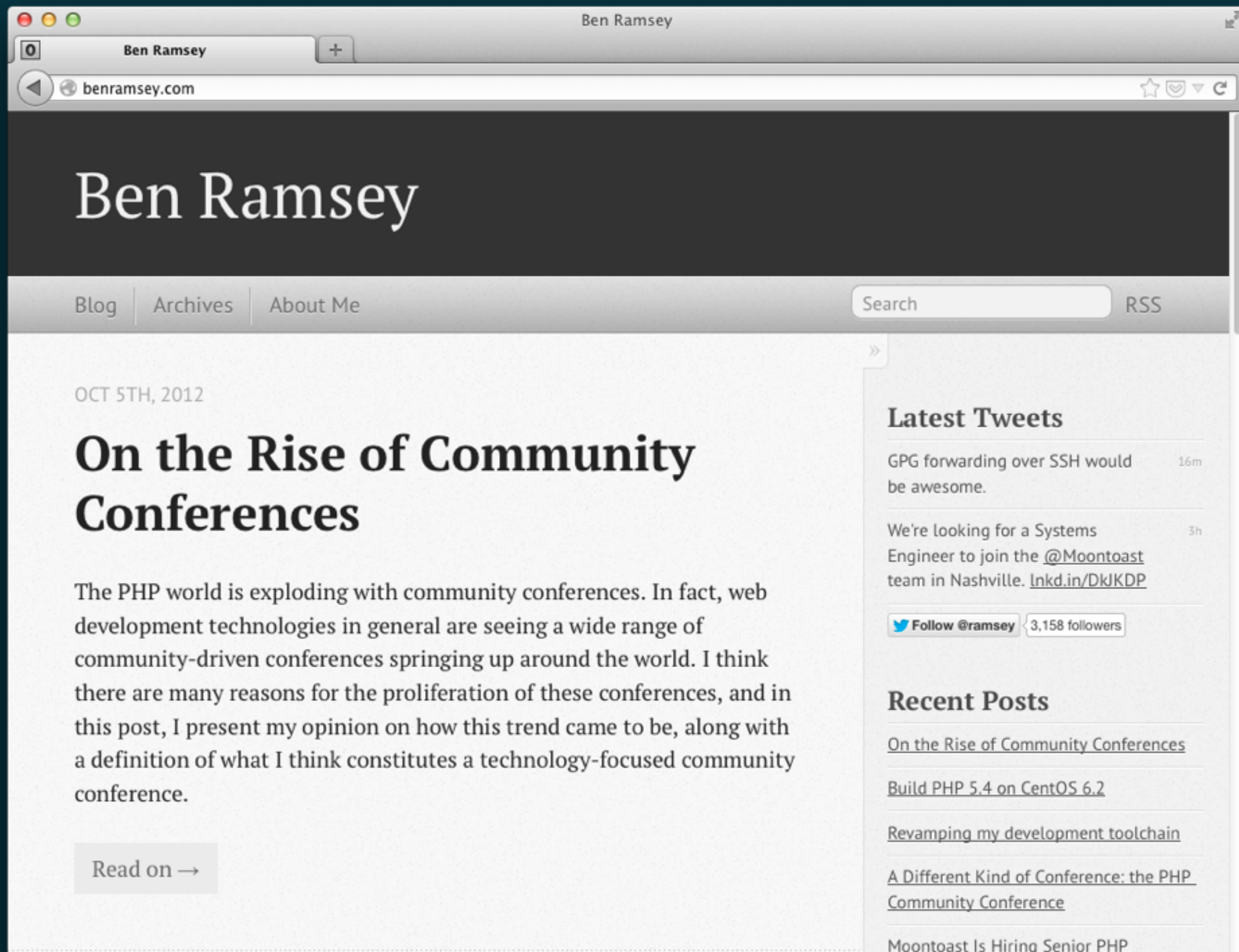
–from Wikipedia, <http://en.wikipedia.org/wiki/Grok>

The Basics





GET / HTTP/1.1
Host: benramsey.com
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac
OS X 10.7; rv:15.0) Gecko/20100101
Firefox/15.0.1
Accept: text/html,application/xhtml+xml,
application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-us,en;q=0.5
Accept-Encoding: gzip, deflate
Cookie: ...
Pragma: no-cache
Cache-Control: no-cache



Ben Ramsey

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OCT 5TH, 2012

On the Rise of Community Conferences

The PHP world is exploding with community conferences. In fact, web development technologies in general are seeing a wide range of community-driven conferences springing up around the world. I think there are many reasons for the proliferation of these conferences, and in this post, I present my opinion on how this trend came to be, along with a definition of what I think constitutes a technology-focused community conference.

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We're looking for a Systems Engineer to join the [@Moontoast](#) team in Nashville. [lnkd.in/DkJKDP](#) 3h

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HTTP/1.1 200 OK

Date: Tue, 09 Oct 2012 21:38:43 GMT

Server: Apache

Last-Modified: Fri, 05 Oct 2012 10:18:18 GMT

Accept-Ranges: bytes

Vary: Accept-Encoding

Content-Encoding: gzip

Content-Length: 4155

Content-Type: text/html

<!DOCTYPE html>

<!--[if IEMobile 7]><html class="no-js iem7"><![endif]-->

<!--[if lt IE 9]><html class="no-js lte-ie8"><![endif]-->

<!--[if (gt IE 8)|(gt IEMobile 7)|!(IEMobile)|!(IE)]><!--

><html class="no-js" lang="en"><!--<![endif]-->

<head>

<meta charset="utf-8">

<title>Ben Ramsey</title>

<meta name="author" content="Ben Ramsey">

...

Moontoast

Moontoast

www.moontoast.com/#/contact

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Moontoast activates your social audience and gives you the tools to drive lead generation, new customer acquisition, and revenue through our social marketing, social commerce and patent-pending social analytics products.

Please complete the form below to schedule a demo. All customer service inquiries should contact us here.

<

First Name	Last Name
Title	Email
Phone	Zip Code
Company	Website

 SOCIAL ACTIVATION ENGINE SOCIAL ANALYTICS ABOUT THE TOAST STORY TELLING [SHARE THIS](#)

```
<form action="https://www.salesforce.com/servlet/  
servlet.WebToLead?encoding=UTF-8" method="POST">
```

...

```
</form>
```

POST /servlet/servlet.WebToLead?encoding=UTF-8 HTTP/1.1
Host: www.salesforce.com
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.7;
rv:15.0) Gecko/20100101 Firefox/15.0.1
Accept: text/html,application/xhtml+xml,
application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-us,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
Referer: http://www.moontoast.com/contact
Content-Type: application/x-www-form-urlencoded
Content-Length: 1030

oid=00DA00000000Hd0u&Campaign_ID=701F000000007c5z&retURL=http
%3A%2F%2F%2Fct.salesforce.com%2Fsfga%3Fq%3DCampaign_ID
%253D701F000000007c5z%2526first_name%253DBen%2526last_name
%253DRamsey%2526title%253DSoftware%252520Architect%2526email
%253Dben%252540moontoast.com%2526phone
%253D404-444-0414%2526phone%253D37215%2526company
%253DMoontoast%2526URL%253Dhttp%25253A%25252F
%25252Fwww.moontoast.com%25252F%2526%26t%3D1338562523212%26r
%3D%26l%3Dhttps%253A%252F%252Ftoasted.stage.moontoast.com
%252Festore%252Ftoasted%26oid%3D00DA00000000Hd0u%26ts

HTTP/1.1 200 OK

Server:

Cache-Control: private

Content-Type: text/html; charset=UTF-8

Transfer-Encoding: chunked

Date: Tue, 09 Oct 2012 22:09:10 GMT

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

<html>

<head>

<meta HTTP-EQUIV="PRAGMA" CONTENT="NO-CACHE">

*<meta http-equiv="Refresh" content="0; URL=http://
lct.salesforce.com/sfga?q=Campaign_ID%3D701F000000007c5z
%26first_name%3DBen%26last_name%3DRamsey%26title%3DSoftware
%2520Architect%26email%3Dben%2540moont toast.com%26phone
%3D404-444-0414%26phone%3D37215%26company%3DMoont toast%26URL
%3Dhttp%253A%252F%252Fwww.moont toast.com%252F
%26&t=1338562523212&r=&l=https%3A%2F
%2Ftoasted.stage.moont toast.com%2Festore
%2Ftoasted&oid=00DA00000000Hd0u&ts=1349814572825&l
s=http%3A%2F%2Fwww.moont toast.com%2Fcompany*

GET /sfga?q=Campaign_ID%3D701F00000007c5z%26first_name%3DBen%26last_name%3DRamsey%26title%3DSoftware%2520Architect%26email%3Dben%2540moont toast.com%26phone%3D404-444-0414%26phone%3D37215%26company%3DMoont toast%26URL%3Dhttp%253A%252F%252Fwww.moont toast.com%252F%26&t=1338562523212&r=&l=https%3A%2F%2Ftoasted.stage.moont toast.com%2Festore%2Ftoasted&oid=00DA00000000Hd0u&ts=1349814572825&ls=http%3A%2F%2Fwww.moont toast.com%2Fcompany%2Fjobs&rs=&url=http%3A%2F%2Fwww.moont toast.com%2Fcontact&customForm=false&retURL=http%3A%2F%2Fwww.moont toast.com%2Fcontact%2Fthank-you HTTP/1.1

Host: lct.salesforce.com

User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.7; rv:15.0) Gecko/20100101 Firefox/15.0.1

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8

Accept-Language: en-us,en;q=0.5

Accept-Encoding: gzip, deflate

Cookie: ...

HTTP/1.1 302 Found

Server: Resin/3.1.6

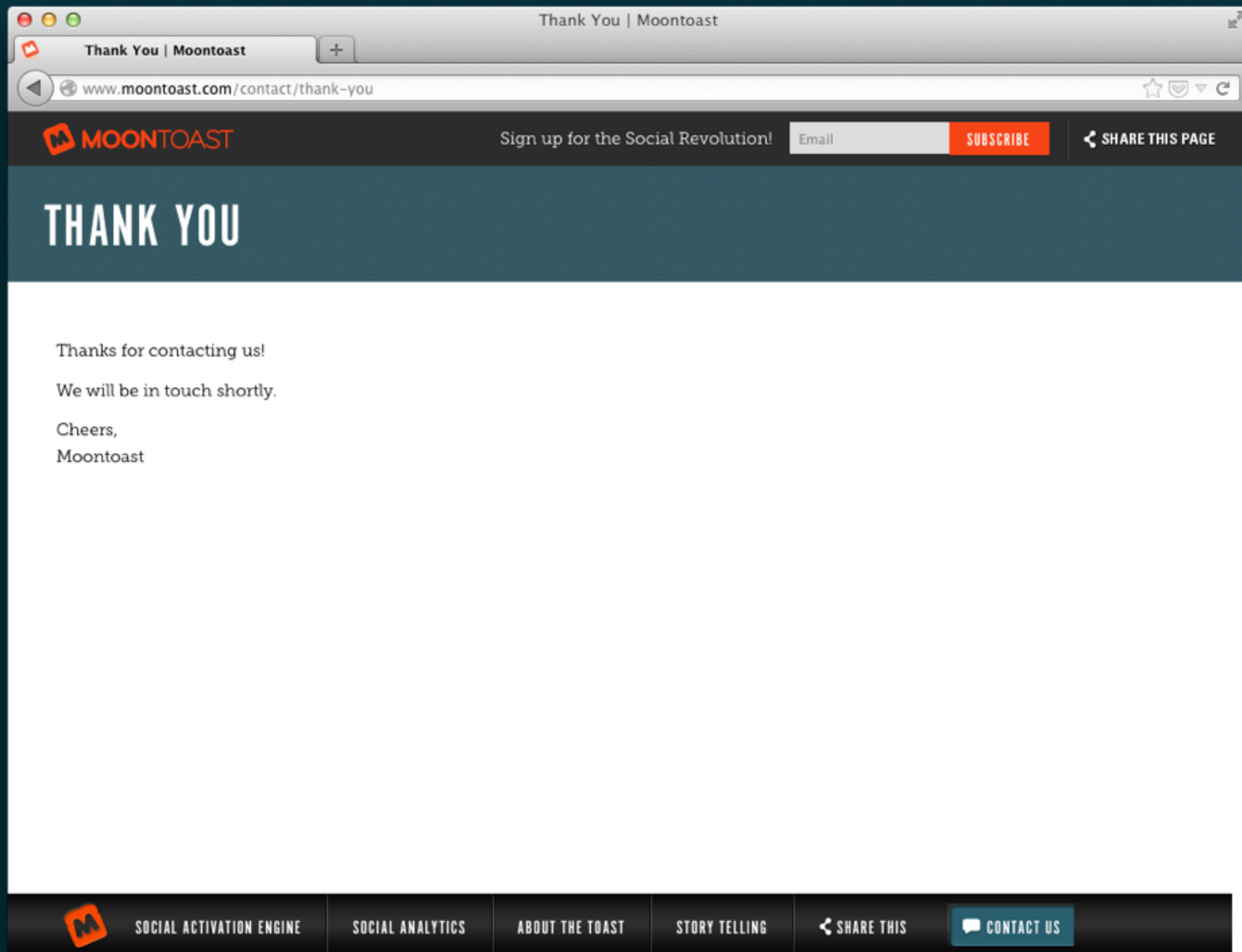
Location: <http://www.moontoast.com/contact/thank-you>

Content-Type: text/html

Content-Length: 80

Date: Tue, 09 Oct 2012 22:09:10 GMT

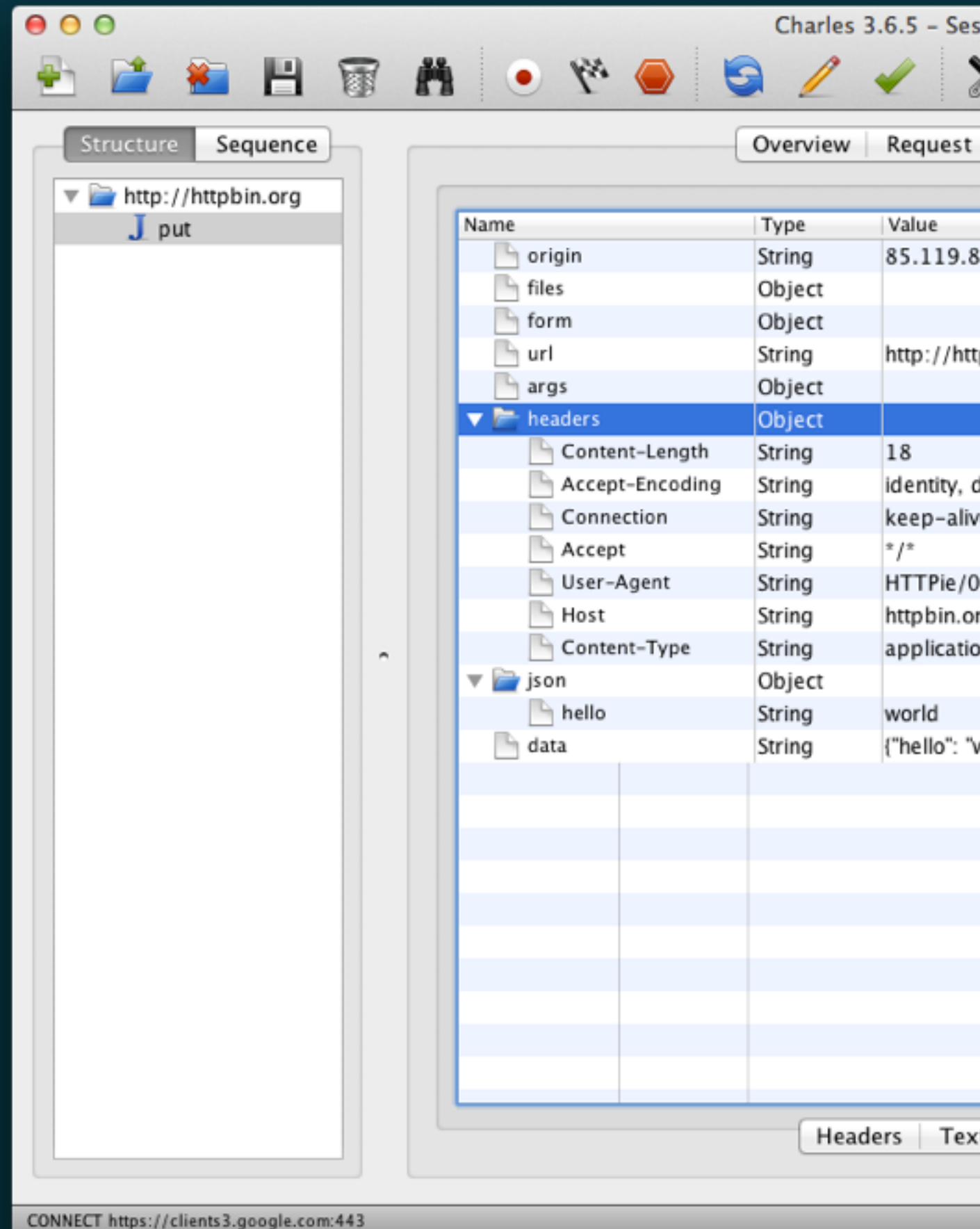
The URL has moved here



My Favorite Tools

Charles

- I cannot recommend this enough!
- charlesproxy.com
- Perfect for debugging Ajax and Flash remoting (AMF) requests
- Well worth the \$50 license fee



HTTPIe

- Ditch cURL. Use HTTPIe.
- httpie.org
- Perfect for testing and debugging APIs
- Free; requires Python

```
1. zsh
ramsey on earendil in ~
$ http -v PUT httpbin.org/put hello=world
PUT /put HTTP/1.1
Host: httpbin.org
Content-Type: application/json; charset=utf-8
Accept-Encoding: identity, deflate, compress, gzip
Accept: application/json
User-Agent: HTTPIe/0.2.0

{
  "hello": "world"
}

HTTP/1.1 200 OK
Content-Type: application/json
Date: Mon, 30 Jul 2012 00:38:07 GMT
Server: unicorn/0.13.4
Content-Length: 472
Connection: keep-alive

{
  "args": {},
  "data": "{\"hello\": \"world\"}",
  "files": {},
  "form": {},
  "headers": {
    "Accept": "application/json",
    "Accept-Encoding": "identity, deflate, compress, gzip",
    "Connection": "keep-alive",
    "Content-Length": "18",
    "Content-Type": "application/json; charset=utf-8",
    "Host": "httpbin.org",
    "User-Agent": "HTTPIe/0.2.0"
  },
  "json": {
    "hello": "world"
  },
  "origin": "85.119.83.153",
  "url": "http://httpbin.org/put"
}
```

Protocol Overview

RFC 2616

Methods

- GET
- POST
- PUT
- DELETE
- HEAD
- OPTIONS
- TRACE
- CONNECT

Safe Methods

- GET & HEAD should not take action other than retrieval
- These are considered safe
- This allows user agents to represent POST, PUT, & DELETE in a special way

Idempotence

- Side effects of $N > 0$ identical requests is the same as for a single request
- GET, HEAD, PUT, and DELETE share this property
- OPTIONS and TRACE are inherently idempotent

GET

GET /books/9790482c HTTP/1.1

Host: example.com

Accept-Encoding: identity, deflate, compress, gzip

Accept: application/hal+json

User-Agent: HTTPie/0.2.0

GET /books/9790482c HTTP/1.1

Host: example.com

Accept-Encoding: identity, deflate, compress, gzip

Accept: application/hal+json

User-Agent: HTTPie/0.2.0

GET /books/9790482c HTTP/1.1

Host: example.com

Accept-Encoding: identity, deflate, compress, gzip

Accept: application/hal+json

User-Agent: HTTPie/0.2.0

HTTP/1.1 200 OK

Date: Sun, 29 Jul 2012 22:46:43 GMT

Server: Apache/2.2.22 (Ubuntu)

X-Powered-By: PHP/5.3.10-1ubuntu3.2

ETag: "9790482c-1"

Last-Modified: Sun, 15 Jul 2012 16:34:23 GMT

Content-Length: 254

Content-Type: application/hal+json

```
{
  "_links": {
    "self": {
      "href": "http://example.com/books/9790482c"
    }
  },
  "author": "Luke Welling, Laura Thomson",
  "id": "9790482c",
  "isbn10": "0672329166",
  "isbn13": "9780672329166",
  "publisher": "Pearson Education",
  "title": "PHP and MySQL Web Development",
  "year": 2008
}
```

HTTP/1.1 200 OK

Date: Sun, 29 Jul 2012 22:46:43 GMT

Server: Apache/2.2.22 (Ubuntu)

X-Powered-By: PHP/5.3.10-1ubuntu3.2

ETag: "9790482c-1"

Last-Modified: Sun, 15 Jul 2012 16:34:23 GMT

Content-Length: 254

Content-Type: application/hal+json

```
{
  "_links": {
    "self": {
      "href": "http://example.com/books/9790482c"
    }
  },
  "author": "Luke Welling, Laura Thomson",
  "id": "9790482c",
  "isbn10": "0672329166",
  "isbn13": "9780672329166",
  "publisher": "Pearson Education",
  "title": "PHP and MySQL Web Development",
  "year": 2008
}
```

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  "id": "9790482c",
  "isbn10": "0672329166",
  "isbn13": "9780672329166",
  "publisher": "Pearson Education",
  "title": "PHP and MySQL Web Development",
  "year": 2008
}
```


HTTP/1.1 200 OK

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Content-Length: 254

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      "href": "http://example.com/books/9790482c"
    }
  },
  "author": "Luke Welling, Laura Thomson",
  "id": "9790482c",
  "isbn10": "0672329166",
  "isbn13": "9780672329166",
  "publisher": "Pearson Education",
  "title": "PHP and MySQL Web Development",
  "year": 2008
}
```


POST

```
POST /books HTTP/1.1
Host: example.com
Content-Type: application/hal+json
Accept-Encoding: identity, deflate, compress, gzip
Accept: application/hal+json
User-Agent: HTTPie/0.2.0
```

```
{
  "author": "Stoyan Stefanov",
  "isbn10": "1449320198",
  "isbn13": "9781449320195",
  "publisher": "O'Reilly Media",
  "title": "JavaScript for PHP Developers",
  "year": 2012
}
```

HTTP/1.1 201 Created

Date: Sun, 29 Jul 2012 23:26:49 GMT

Server: Apache/2.2.22 (Ubuntu)

X-Powered-By: PHP/5.3.10-1ubuntu3.2

Location: <http://example.com/books/decd0562>

ETag: "decd0562-1"

Last-Modified: Sun, 29 Jul 2012 23:26:49 GMT

Content-Length: 239

Content-Type: application/hal+json

```
{
  "_links": {
    "self": {
      "href": "http://example.com/books/decd0562"
    }
  },
  "author": "Stoyan Stefanov",
  "id": "decd0562",
  "isbn10": "1449320198",
  "isbn13": "9781449320195",
  "publisher": "O'Reilly Media",
  "title": "JavaScript for PHP Developers",
  "year": 2012
}
```

HTTP/1.1 201 Created

Date: Sun, 29 Jul 2012 23:26:49 GMT

Server: Apache/2.2.22 (Ubuntu)

X-Powered-By: PHP/5.3.10-1ubuntu3.2

Location: <http://example.com/books/decd0562>

ETag: "decd0562-1"

Last-Modified: Sun, 29 Jul 2012 23:26:49 GMT

Content-Length: 239

Content-Type: application/hal+json

```
{
  "_links": {
    "self": {
      "href": "http://example.com/books/decd0562"
    }
  },
  "author": "Stoyan Stefanov",
  "id": "decd0562",
  "isbn10": "1449320198",
  "isbn13": "9781449320195",
  "publisher": "O'Reilly Media",
  "title": "JavaScript for PHP Developers",
  "year": 2012
}
```

HTTP/1.1 201 Created

Date: Sun, 29 Jul 2012 23:26:49 GMT

Server: Apache/2.2.22 (Ubuntu)

X-Powered-By: PHP/5.3.10-1ubuntu3.2

Location: <http://example.com/books/decd0562>

ETag: "decd0562-1"

Last-Modified: Sun, 29 Jul 2012 23:26:49 GMT

Content-Length: 239

Content-Type: application/hal+json

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  "_links": {
    "self": {
      "href": "http://example.com/books/decd0562"
    }
  },
  "author": "Stoyan Stefanov",
  "id": "decd0562",
  "isbn10": "1449320198",
  "isbn13": "9781449320195",
  "publisher": "O'Reilly Media",
  "title": "JavaScript for PHP Developers",
  "year": 2012
}
```

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ETag: "decd0562-1"

Last-Modified: Sun, 29 Jul 2012 23:26:49 GMT

Content-Length: 239

Content-Type: application/hal+json

```
{
  "_links": {
    "self": {
      "href": "http://example.com/books/decd0562"
    }
  },
  "author": "Stoyan Stefanov",
  "id": "decd0562",
  "isbn10": "1449320198",
  "isbn13": "9781449320195",
  "publisher": "O'Reilly Media",
  "title": "JavaScript for PHP Developers",
  "year": 2012
}
```

PUT

PUT /books/decd0562 HTTP/1.1

Accept-Encoding: identity, deflate, compress, gzip

Accept: application/hal+json

User-Agent: HTTPie/0.2.0

Host: example.com

If-Match: "decd0562-1"

Content-Type: application/hal+json

```
{
  "_links": {
    "self": {
      "href": "http://example.com/books/decd0562"
    }
  },
  "author": "Stoyan Stefanov",
  "id": "decd0562",
  "isbn10": "1449320198",
  "isbn13": "9781449320195",
  "pubDate": "September 22, 2012",
  "publisher": "O'Reilly Media",
  "title": "JavaScript for PHP Developers",
  "year": 2012
}
```


PUT /books/decd0562 HTTP/1.1

Accept-Encoding: identity, deflate, compress, gzip

Accept: application/hal+json

User-Agent: HTTPie/0.2.0

Host: example.com

If-Match: "decd0562-1"

Content-Type: application/hal+json

```
{
  "_links": {
    "self": {
      "href": "http://example.com/books/decd0562"
    }
  },
  "author": "Stoyan Stefanov",
  "id": "decd0562",
  "isbn10": "1449320198",
  "isbn13": "9781449320195",
  "pubDate": "September 22, 2012",
  "publisher": "O'Reilly Media",
  "title": "JavaScript for PHP Developers",
  "year": 2012
}
```

PUT /books/decd0562 HTTP/1.1

Accept-Encoding: identity, deflate, compress, gzip

Accept: application/hal+json

User-Agent: HTTPie/0.2.0

Host: example.com

If-Match: "decd0562-1"

Content-Type: application/hal+json

```
{
  "_links": {
    "self": {
      "href": "http://example.com/books/decd0562"
    }
  },
  "author": "Stoyan Stefanov",
  "id": "decd0562",
  "isbn10": "1449320198",
  "isbn13": "9781449320195",
  "pubDate": "September 22, 2012",
  "publisher": "O'Reilly Media",
  "title": "JavaScript for PHP Developers",
  "year": 2012
}
```

HTTP/1.1 200 OK

Date: Sun, 29 Jul 2012 23:47:59 GMT

Server: Apache/2.2.22 (Ubuntu)

X-Powered-By: PHP/5.3.10-1ubuntu3.2

ETag: "decd0562-2"

Last-Modified: Sun, 29 Jul 2012 23:47:59 GMT

Content-Length: 270

Content-Type: application/hal+json

```
{
  "_links": {
    "self": {
      "href": "http://example.com/books/decd0562"
    }
  },
  "author": "Stoyan Stefanov",
  "id": "decd0562",
  "isbn10": "1449320198",
  "isbn13": "9781449320195",
  "pubDate": "September 22, 2012",
  "publisher": "O'Reilly Media",
  "title": "JavaScript for PHP Developers",
  "year": 2012
}
```

HTTP/1.1 200 OK

Date: Sun, 29 Jul 2012 23:47:59 GMT

Server: Apache/2.2.22 (Ubuntu)

X-Powered-By: PHP/5.3.10-1ubuntu3.2

ETag: "decd0562-2"

Last-Modified: Sun, 29 Jul 2012 23:47:59 GMT

Content-Length: 270

Content-Type: application/hal+json

```
{
  "_links": {
    "self": {
      "href": "http://example.com/books/decd0562"
    }
  },
  "author": "Stoyan Stefanov",
  "id": "decd0562",
  "isbn10": "1449320198",
  "isbn13": "9781449320195",
  "pubDate": "September 22, 2012",
  "publisher": "O'Reilly Media",
  "title": "JavaScript for PHP Developers",
  "year": 2012
}
```

HTTP/1.1 200 OK

Date: Sun, 29 Jul 2012 23:47:59 GMT

Server: Apache/2.2.22 (Ubuntu)

X-Powered-By: PHP/5.3.10-1ubuntu3.2

ETag: "decd0562-2"

Last-Modified: Sun, 29 Jul 2012 23:47:59 GMT

Content-Length: 270

Content-Type: application/hal+json

```
{
  "_links": {
    "self": {
      "href": "http://example.com/books/decd0562"
    }
  },
  "author": "Stoyan Stefanov",
  "id": "decd0562",
  "isbn10": "1449320198",
  "isbn13": "9781449320195",
  "pubDate": "September 22, 2012",
  "publisher": "O'Reilly Media",
  "title": "JavaScript for PHP Developers",
  "year": 2012
}
```

DELETE

```
DELETE /books/decd0562 HTTP/1.1
Accept-Encoding: identity, deflate, compress, gzip
Accept: application/hal+json
User-Agent: HTTPie/0.2.0
Host: example.com
If-Match: "decd0562-2"
```


HTTP/1.1 204 No Content

Date: Mon, 30 Jul 2012 00:01:44 GMT

Server: Apache/2.2.22 (Ubuntu)

X-Powered-By: PHP/5.3.10-1ubuntu3.2

Content-Length: 0

Content-Type: application/hal+json

HTTP/1.1 204 No Content

Date: Mon, 30 Jul 2012 00:01:44 GMT

Server: Apache/2.2.22 (Ubuntu)

X-Powered-By: PHP/5.3.10-1ubuntu3.2

Content-Length: 0

Content-Type: application/hal+json

Status Codes

- Informational (1xx)
- Successful (2xx)
- Redirection (3xx)
- Client error (4xx)
- Server error (5xx)

Advanced Topics

- Content Negotiation
- Conditional Requests

Content Negotiation

- Also called “conneg”
- “the process of selecting the best representation for a given response when there are multiple representations available”
- Two kinds:
 - server-driven
 - agent-driven

Server-driven Negotiation


```
GET /books/9790482c HTTP/1.1
Accept-Charset: utf-8
Host: example.com
Accept-Language: en-us, en-gb;q=0.8, en;q=0.7
Accept-Encoding: gzip
Accept: application/hal+json
User-Agent: HTTPie/0.2.0
```

GET /books/9790482c HTTP/1.1

Accept-Charset: utf-8

Host: example.com

Accept-Language: en-us, en-gb;q=0.8, en;q=0.7

Accept-Encoding: gzip

Accept: application/hal+json

User-Agent: HTTPie/0.2.0

GET /books/9790482c HTTP/1.1

Accept-Charset: utf-8

Host: example.com

Accept-Language: en-us, en-gb;q=0.8, en;q=0.7

Accept-Encoding: gzip

Accept: application/hal+json

User-Agent: HTTPie/0.2.0

GET /books/9790482c HTTP/1.1

Accept-Charset: utf-8

Host: example.com

Accept-Language: en-us, en-gb;q=0.8, en;q=0.7

Accept-Encoding: gzip

Accept: application/hal+json

User-Agent: HTTPie/0.2.0

```
GET /books/9790482c HTTP/1.1
Accept-Charset: utf-8
Host: example.com
Accept-Language: en-us, en-gb;q=0.8, en;q=0.7
Accept-Encoding: gzip
Accept: application/hal+json
User-Agent: HTTPie/0.2.0
```

HTTP/1.1 200 OK

Date: Mon, 30 Jul 2012 02:42:26 GMT

Server: Apache/2.2.22 (Ubuntu)

X-Powered-By: PHP/5.3.10-1ubuntu3.2

Content-Language: en-us

ETag: "9790482c-1"

Vary: Accept,Accept-Charset,Accept-Language,Accept-Encoding

Content-Encoding: gzip

Content-Length: 213

Content-Type: application/hal+json; charset=utf-8

{

...

}

HTTP/1.1 200 OK

Date: Mon, 30 Jul 2012 02:42:26 GMT

Server: Apache/2.2.22 (Ubuntu)

X-Powered-By: PHP/5.3.10-1ubuntu3.2

Content-Language: en-us

ETag: "9790482c-1"

Vary: Accept,Accept-Charset,Accept-Language,Accept-Encoding

Content-Encoding: gzip

Content-Length: 213

Content-Type: application/hal+json; charset=utf-8

{

...

}

HTTP/1.1 200 OK

Date: Mon, 30 Jul 2012 02:42:26 GMT

Server: Apache/2.2.22 (Ubuntu)

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Content-Language: en-us

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Vary: Accept,Accept-Charset,Accept-Language,Accept-Encoding

Content-Encoding: gzip

Content-Length: 213

Content-Type: application/hal+json; charset=utf-8

{

...

}

HTTP/1.1 200 OK

Date: Mon, 30 Jul 2012 02:42:26 GMT

Server: Apache/2.2.22 (Ubuntu)

X-Powered-By: PHP/5.3.10-1ubuntu3.2

Content-Language: en-us

ETag: "9790482c-1"

Vary: Accept,Accept-Charset,Accept-Language,Accept-Encoding

Content-Encoding: gzip

Content-Length: 213

Content-Type: application/hal+json; charset=utf-8

{

...

}

HTTP/1.1 200 OK

Date: Mon, 30 Jul 2012 02:42:26 GMT

Server: Apache/2.2.22 (Ubuntu)

X-Powered-By: PHP/5.3.10-1ubuntu3.2

Content-Language: en-us

ETag: "9790482c-1"

Vary: Accept,Accept-Charset,Accept-Language,Accept-Encoding

Content-Encoding: gzip

Content-Length: 213

Content-Type: application/hal+json; charset=utf-8

{

...

}

Agent-driven Negotiation

GET /books/9790482c HTTP/1.1

Host: example.com

User-Agent: HTTPie/0.2.0

HTTP/1.1 300 Multiple Choices

Date: Mon, 30 Jul 2012 02:57:42 GMT

Server: Apache/2.2.22 (Ubuntu)

X-Powered-By: PHP/5.3.10-1ubuntu3.2

Content-Length: 444

Content-Type: application/hal+json

```
{
  "_links": {
    "alternate": [
      {
        "href": "http://example.com/books/9790482c.en-us.html",
        "hreflang": "en-us",
        "type": "text/html; charset=utf-8"
      },
      {
        "href": "http://example.com/books/9790482c.en-us.json",
        "hreflang": "en-us",
        "type": "application/hal+json; charset=utf-8"
      },
      {
        "href": "http://example.com/books/9790482c.en-us.xml",
        "hreflang": "en-us",
        "type": "application/hal+xml; charset=utf-8"
      }
    ],
    "self": {
      "href": "http://example.com/books/9790482c"
    }
  }
}
```

Conditional Requests

Request Headers

- If-Modified-Since
- If-Unmodified-Since
- If-Match
- If-None-Match
- If-Range

GET /books/9790482c HTTP/1.1

Host: example.com

Accept-Encoding: identity, deflate, compress, gzip

Accept: application/hal+json

User-Agent: HTTPie/0.2.0

If-Modified-Since: Sun, 15 Jul 2012 16:34:23 GMT

HTTP/1.1 304 Not Modified

Date: Mon, 30 Jul 2012 03:39:51 GMT

Server: Apache/2.2.22 (Ubuntu)

Vary: Accept-Encoding

GET /books/9790482c HTTP/1.1

Host: example.com

Accept-Encoding: identity, deflate, compress, gzip

Accept: application/hal+json

User-Agent: HTTPie/0.2.0

If-Modified-Since: Sun, 15 Jul 2012 16:34:23 GMT

HTTP/1.1 304 Not Modified

Date: Mon, 30 Jul 2012 03:39:51 GMT

Server: Apache/2.2.22 (Ubuntu)

Vary: Accept-Encoding

The Future of HTTP

- HTTP Bis IETF Working Group
<http://tools.ietf.org/wg/httpbis/>
- RFCs and specifications that extend HTTP:
 - [WebDAV](#) and related extensions
 - [RFC 5789](#) (PATCH Method)
 - [RFC 6266](#) (Use of Content-Disposition)
 - [RFC 6585](#) (Additional Status Codes)
 - [Method Registrations](#)
 - [Authentication Scheme Registrations](#)
 - [Permanent Message Header Fields](#)

There's too much in
HTTP to fully grok it
in one presentation.

More Resources

- RFC 2616 (HTTP)
- Mark Nottingham: mnot.net
- Mark's Caching Tutorial
- RFC 2295 (Transparent Content Negotiation in HTTP)
- RFC 2296 (HTTP Remote Variant Selection Algorithm)

Thank you.

- Read my blog: benramsey.com
- Follow me on Twitter: [@ramsey](https://twitter.com/ramsey)

Grokking HTTP

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