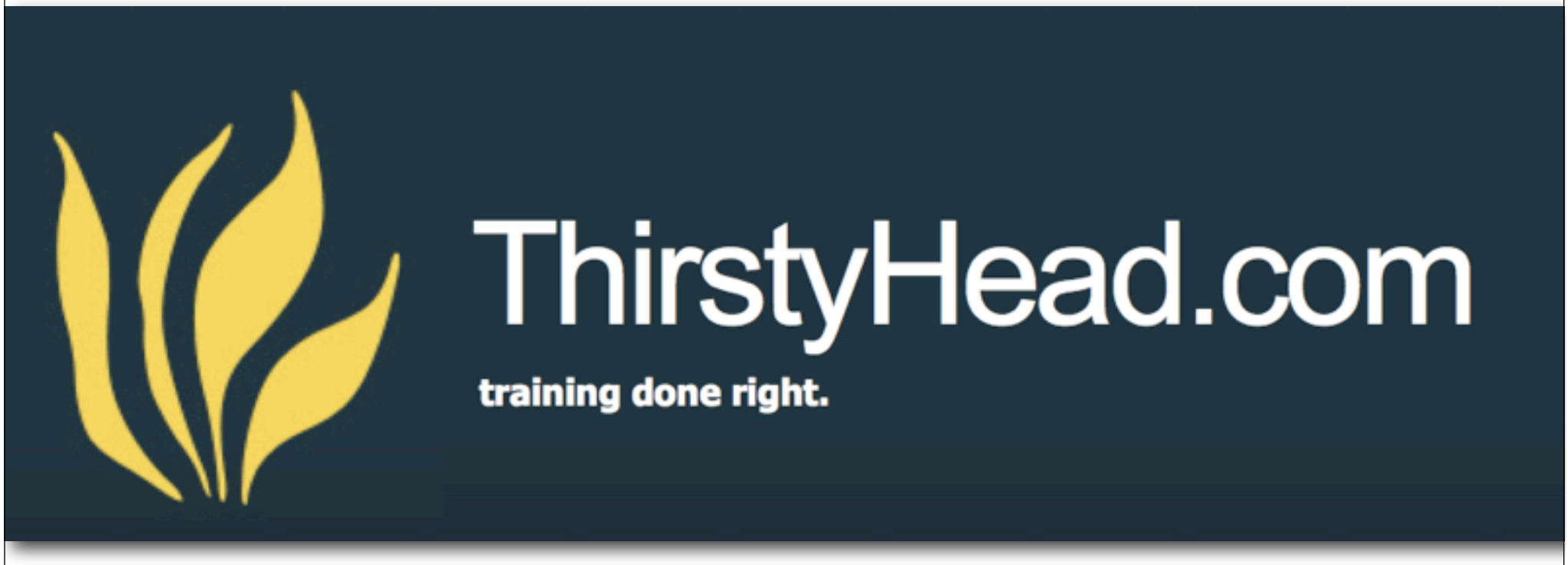
Resource-Oriented Architecture (ROA) and REST

Scott Davis


ThirstyHead.com
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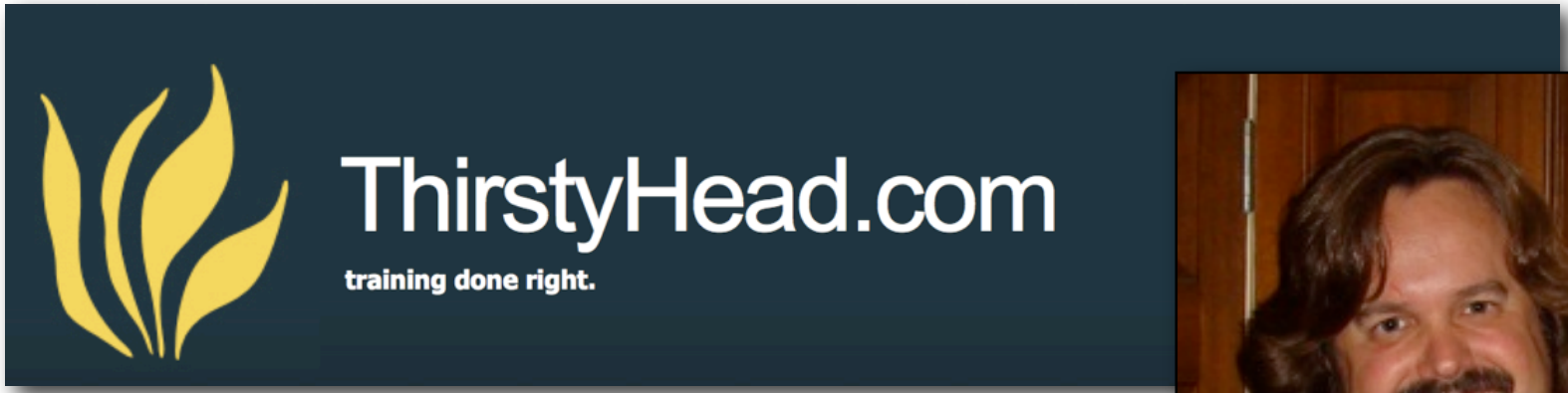


Scott Davis

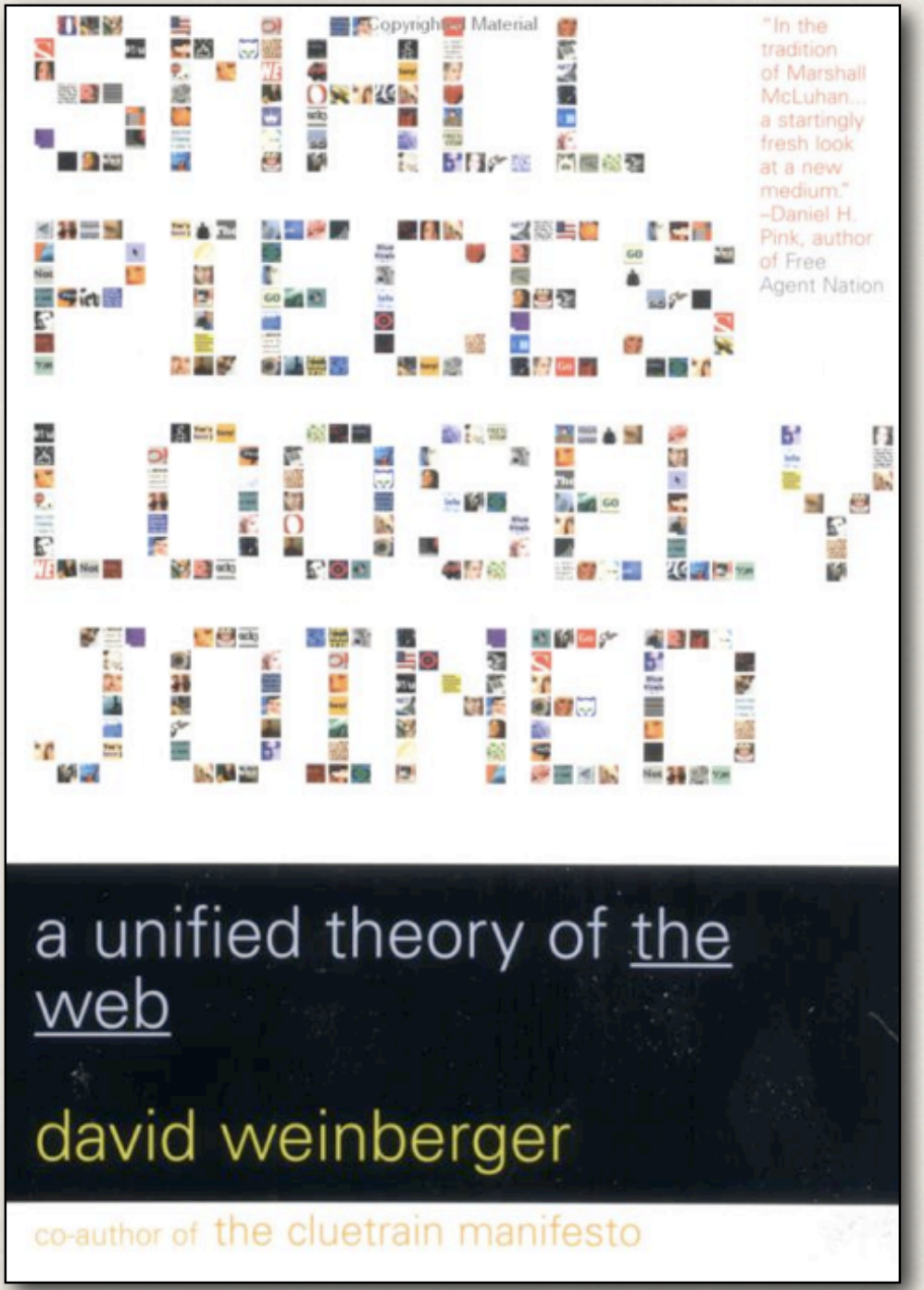
IBM

developerWorks > Java technology

Mastering Grails

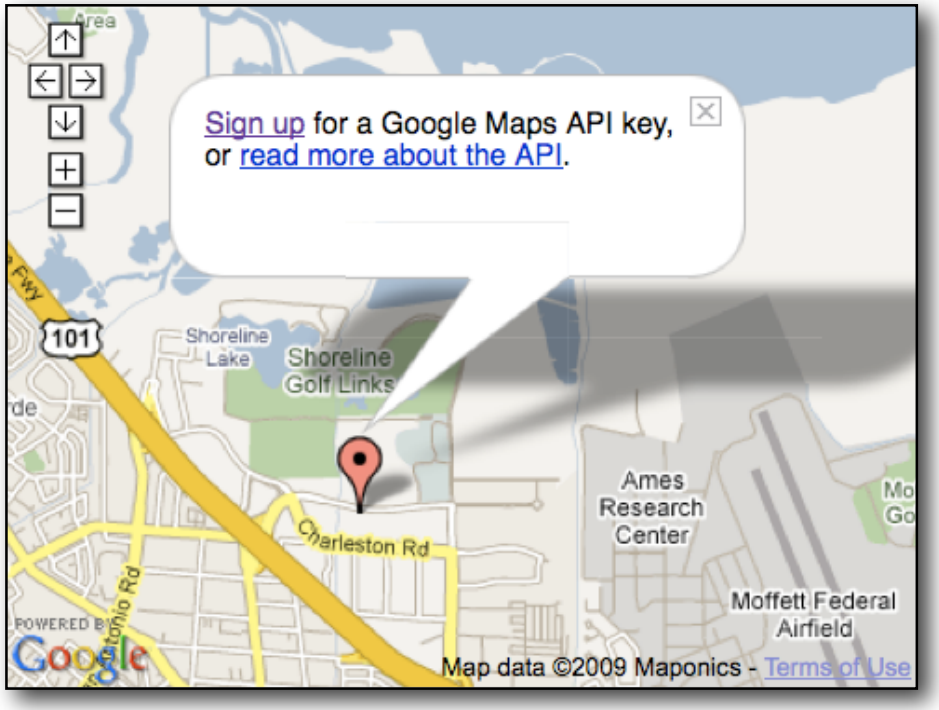
Practically Groovy

Web Services


Copyrighted Material
"In the tradition of Marshall McLuhan... a startingly fresh look at a new medium."
–Daniel H. Pink, author of Free Agent Nation
a unified theory of the web
david weinberger
co-author of the cluetrain manifesto

PayPal

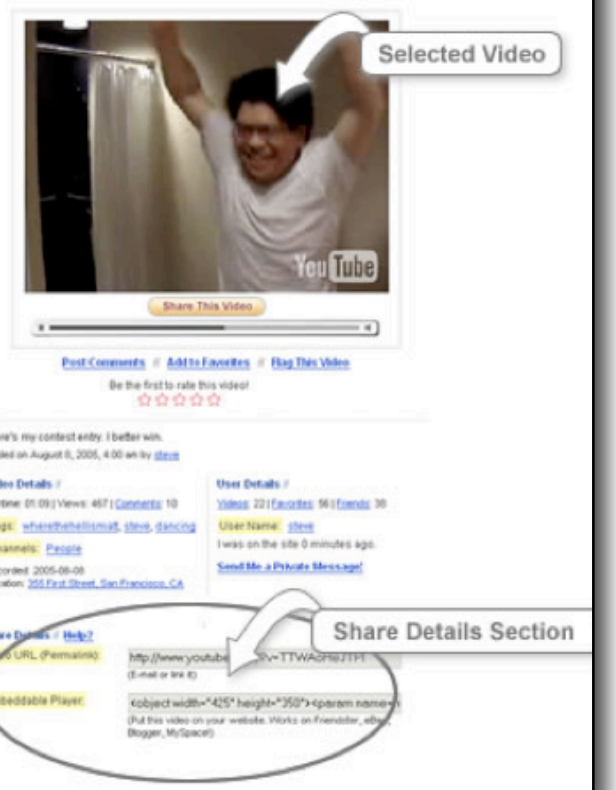
Google



YouTube Broadcast Yourself™ Worldwide | English

How to link to a single YouTube video

Go to the video that you want to share, and look for the **share details** section



Web *Services*


PROCTER & GAMBLE
LENOX
SOAP.
ESTABLISHED 1837
TRADE MARK
FACTORIES IVORYDALE, O.
KANSAS CITY
NEW YORK
CINCINNATI

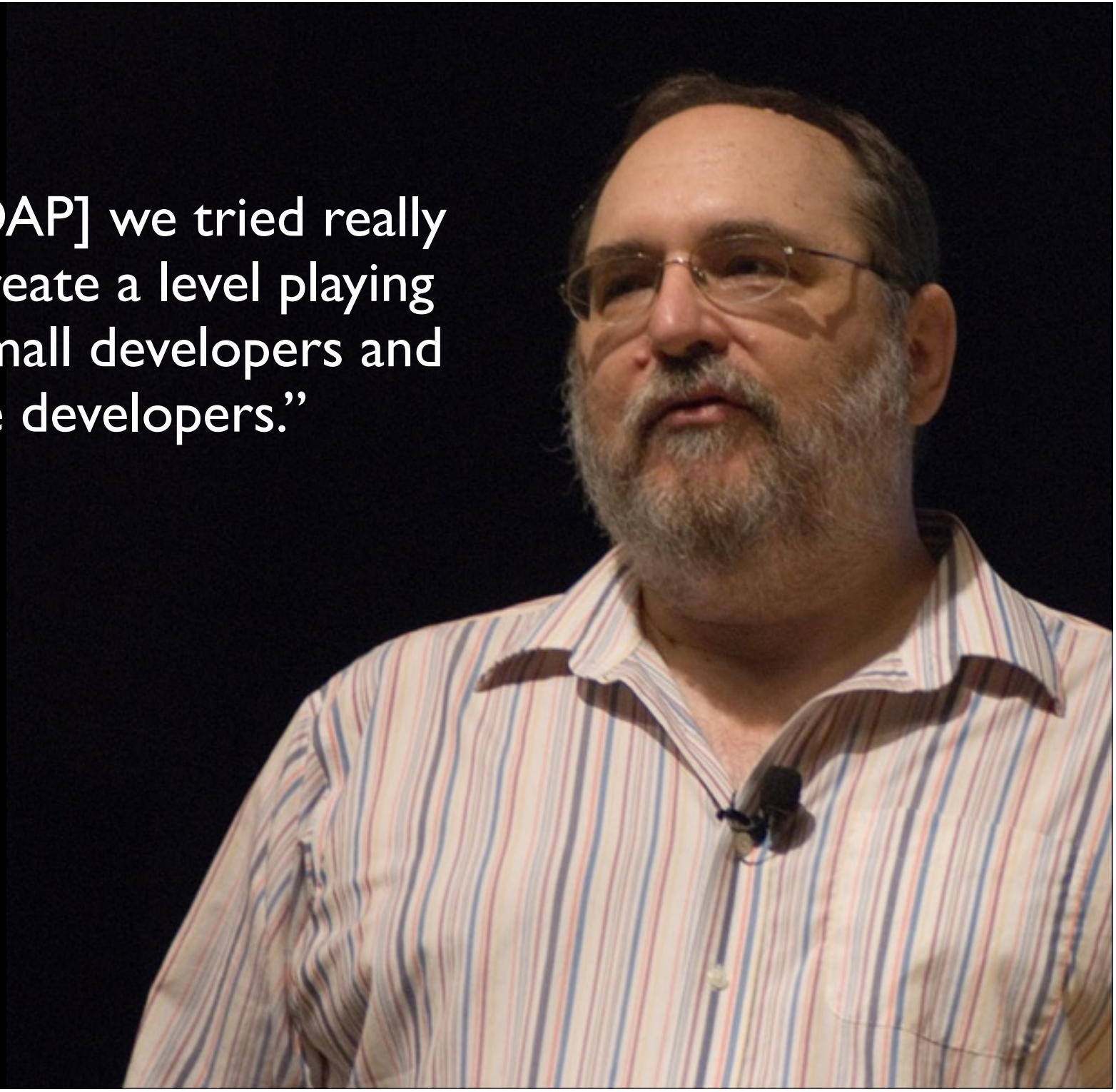
Dave Winer,
co-creator of XML-RPC, SOAP, and RSS:

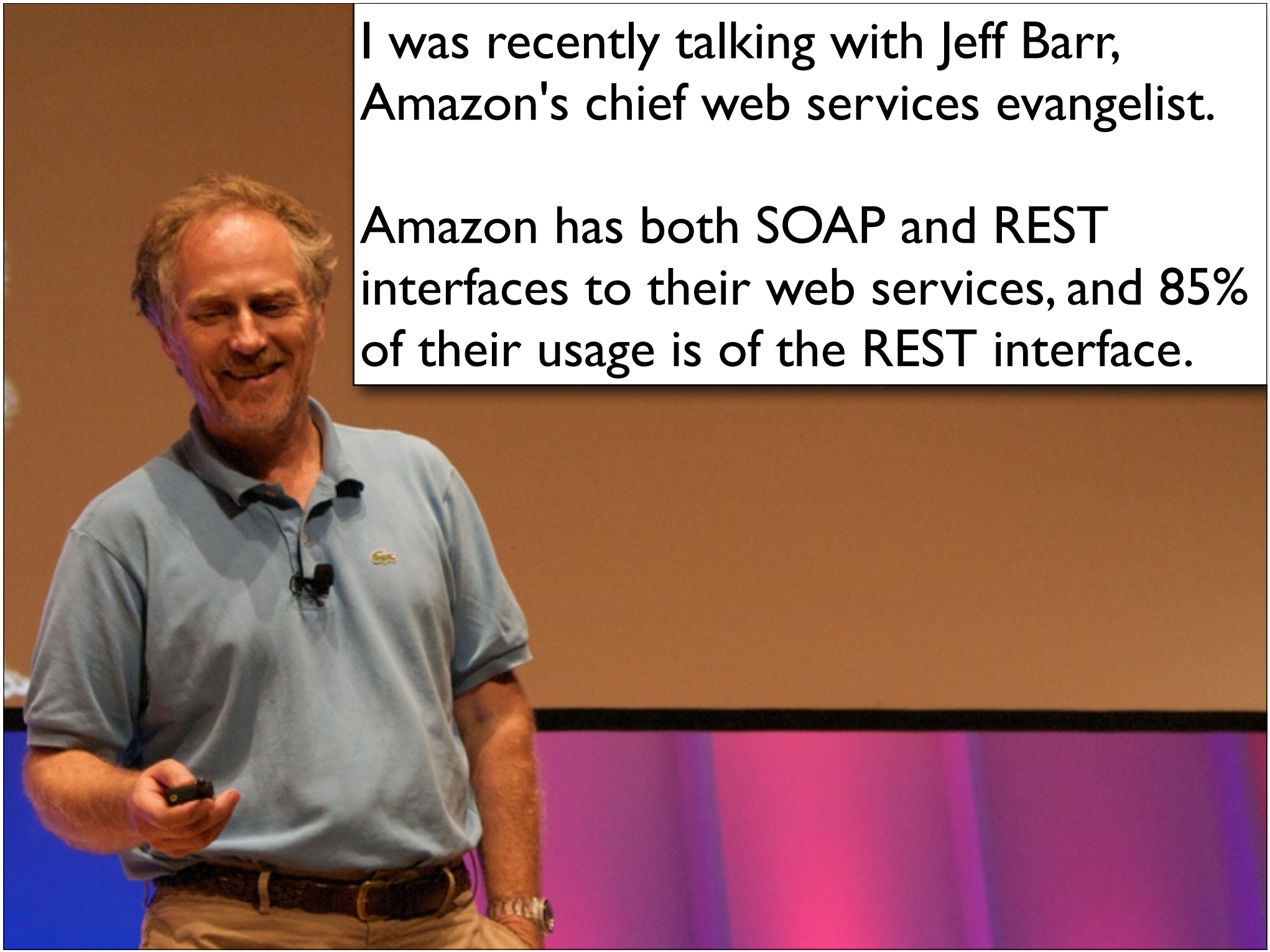
I love SOAP.
SOAP was the lawyer of the family. It was the one that had the potential to bring everyone together.

But you'd have to say at this point that SOAP is a failure.
How long are we supposed to wait for the magic of SOAP to happen?

9

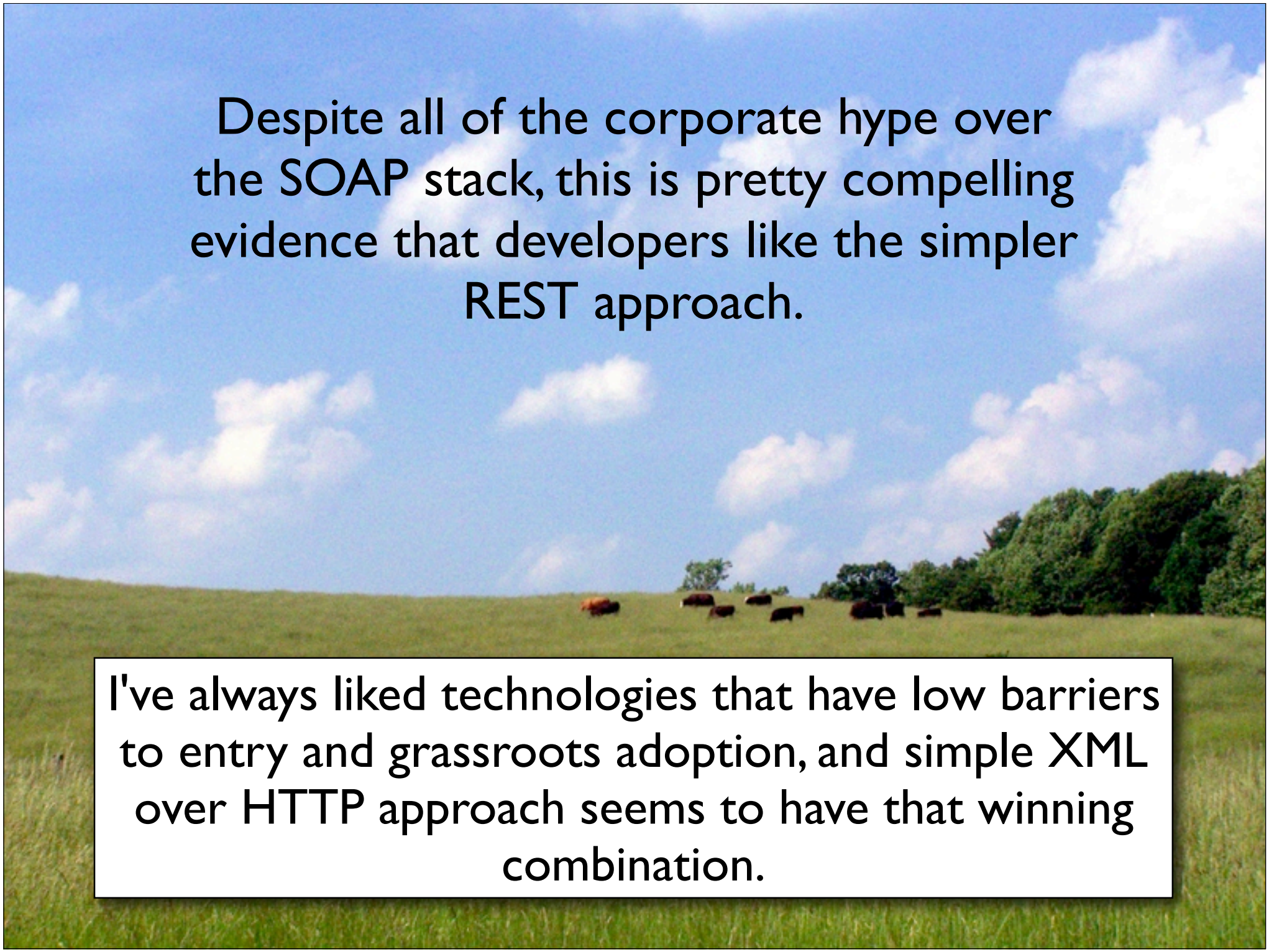
"[With SOAP] we tried really hard to create a level playing field for small developers and large developers."





I was recently talking with Jeff Barr, Amazon's chief web services evangelist.

Amazon has both SOAP and REST interfaces to their web services, and 85% of their usage is of the REST interface.


Despite all of the corporate hype over the SOAP stack, this is pretty compelling evidence that developers like the simpler REST approach.
I've always liked technologies that have low barriers to entry and grassroots adoption, and simple XML over HTTP approach seems to have that winning combination.

SOAP

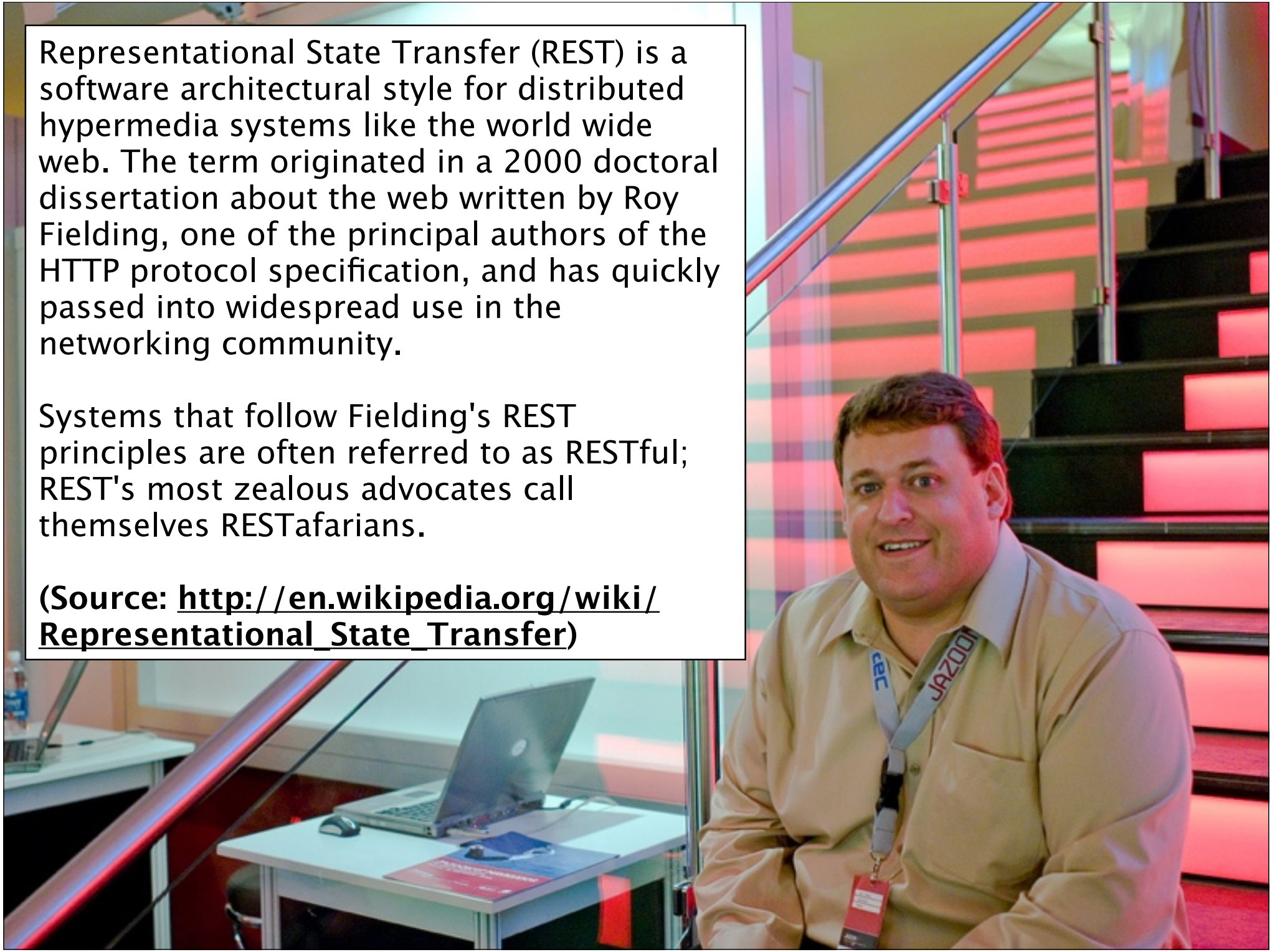
A specification

REST

A set of architectural principles

REST is...

REpresentational State Transfer



Representational State Transfer (REST) is a software architectural style for distributed hypermedia systems like the world wide web. The term originated in a 2000 doctoral dissertation about the web written by Roy Fielding, one of the principal authors of the HTTP protocol specification, and has quickly passed into widespread use in the networking community.

Systems that follow Fielding's REST principles are often referred to as RESTful; REST's most zealous advocates call themselves RESTafarians.

(Source: http://en.wikipedia.org/wiki/Representational_State_Transfer)

Service-Oriented Architecture

(RPC, verb-oriented)

Resource-Oriented Architecture

(noun-oriented)

REST versus RPC [edit]

A REST web application requires a different design approach than an RPC application. In RPC, the emphasis is on the diversity of protocol operations, or *verbs*; for example, an RPC application might define operations such as the following:

```
getUser()
addUser()
removeUser()
updateUser()
getLocation()
addLocation()
removeLocation()
updateLocation()
listUsers()
listLocations()
findLocation()
findUser()
```

With REST, on the other hand, the emphasis is on the diversity of resources, or *nouns*; for example, a REST application might define the following two resource types

```
User {}
Location {}
```

Each resource would have its own location, such as `http://www.example.org/locations/us/ny/new_york_city`. Clients work with those resources through the standard HTTP operations, such as GET to download a copy of the resource, PUT to upload a changed copy, or DELETE to remove all representations of that resource. Note how each object has its own URL and can easily be cached, copied, and bookmarked. POST is generally used for actions with side-effects, such as placing a purchase order, or adding some data to a collection.

SOAP

A SOA implementation

???

A ROA implementation

Syndication


Think Geek
stuff for smart masses
GILDAN
ULTRA COTTON
I'm blogging this.
GILDAN
i'm tweeting this

Three things draw you in:

chronology *(newest first)*

syndication
(it comes to you)

permalink *(pass it on)*


YouTube
Broadcast Yourself ™
Worldwide | English
(0) sdavis9999 | Account | QuickList (0) | Help | Sign Out
Home
Videos
Channels
Community
Search
Upload
Anakin rescues Yoda
0:43 / 1:03
Rate:
1,451 ratings
Views: 1,764,055
Share
Favorite
Playlists
Flag
Send Video
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Count Dooku has captured Yoda, and Anakin has been sent by the Jedi Council to free Yoda and destroy Dooku.
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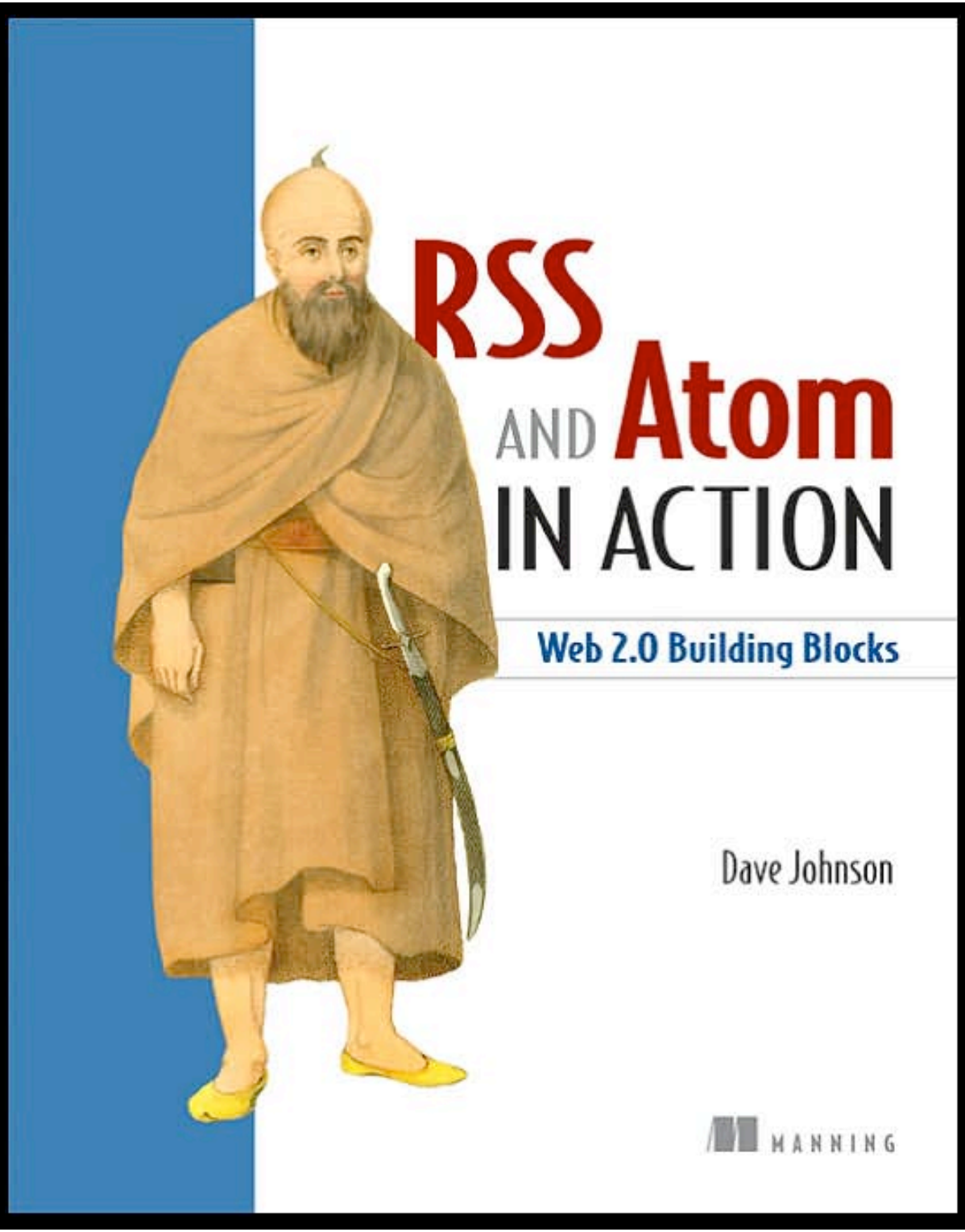
2,192,087 views
darthmilo77
4:11
Jedi Hunters
2,261,773 views
SprmeCmndrGrievous
2:59
Eddie Izzard- Death Star Canteen
6,399,154 views
Thorn2200
2:54

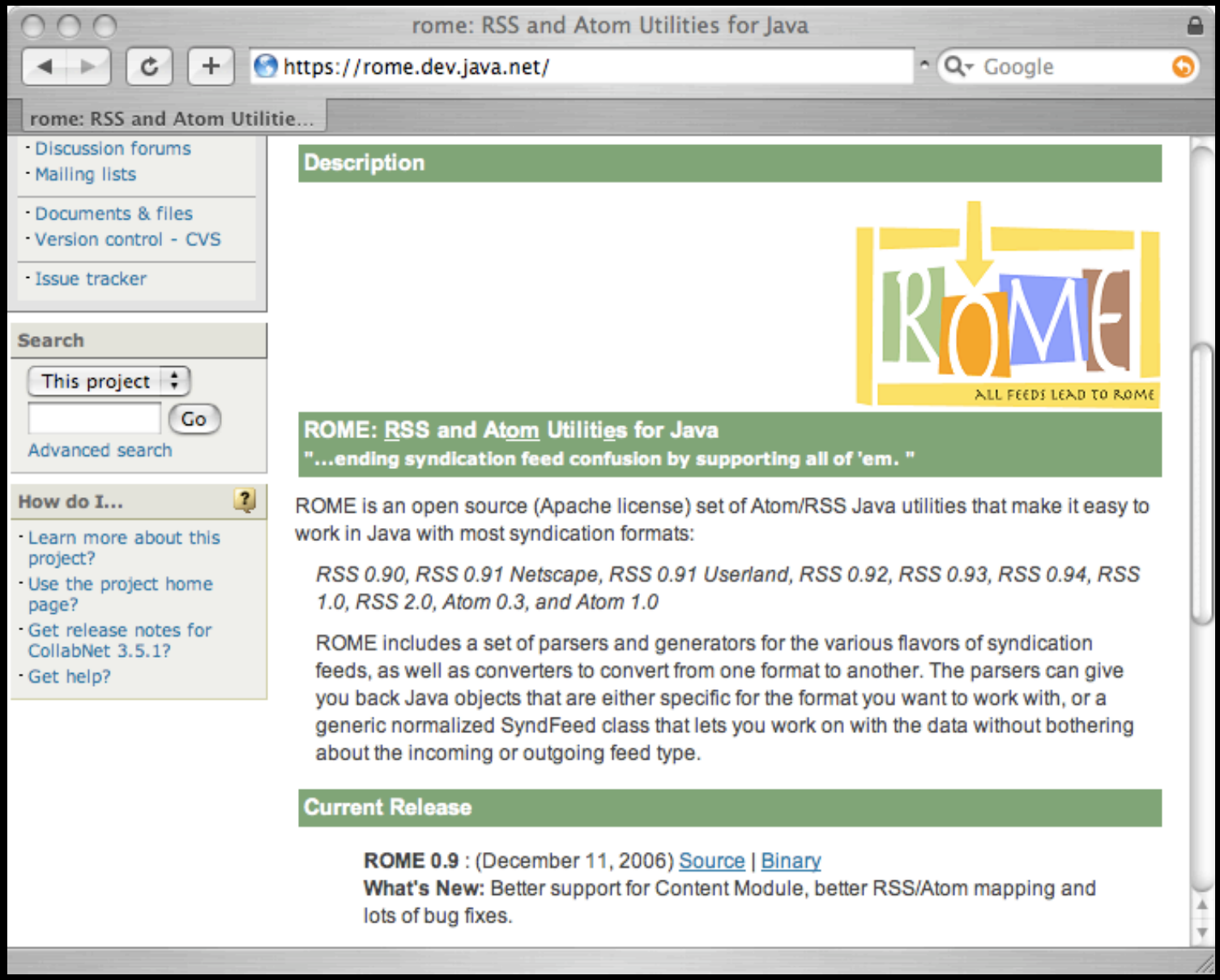


Syndication

ATOM FEED

RSS 1.0

RSS 2.0


rome: RSS and Atom Utilities for Java
https://rome.dev.java.net/
Google
rome: RSS and Atom Utilitie...
Discussion forums
Mailing lists
Documents & files
Version control - CVS
Issue tracker
Search
This project
Go
Advanced search
How do I...
Learn more about this project?
Use the project home page?
Get release notes for CollabNet 3.5.1?
Get help?
Description
ALL FEEDS LEAD TO ROME
ROME: RSS and Atom Utilities for Java
"...ending syndication feed confusion by supporting all of 'em. "
ROME is an open source (Apache license) set of Atom/RSS Java utilities that make it easy to work in Java with most syndication formats:
RSS 0.90, RSS 0.91 Netscape, RSS 0.91 Userland, RSS 0.92, RSS 0.93, RSS 0.94, RSS 1.0, RSS 2.0, Atom 0.3, and Atom 1.0
ROME includes a set of parsers and generators for the various flavors of syndication feeds, as well as converters to convert from one format to another. The parsers can give you back Java objects that are either specific for the format you want to work with, or a generic normalized SyndFeed class that lets you work on with the data without bothering about the incoming or outgoing feed type.
Current Release
ROME 0.9 : (December 11, 2006) Source | Binary
What's New: Better support for Content Module, better RSS/Atom mapping and lots of bug fixes.

What is RSS?

- RDF Site Summary
- Rich Site Summary
- Really Simple Syndication
- Nothing: just three plain old letters

It's a pity nobody used an 'S' for "Standardization" …

RSS' Troubled Childhood

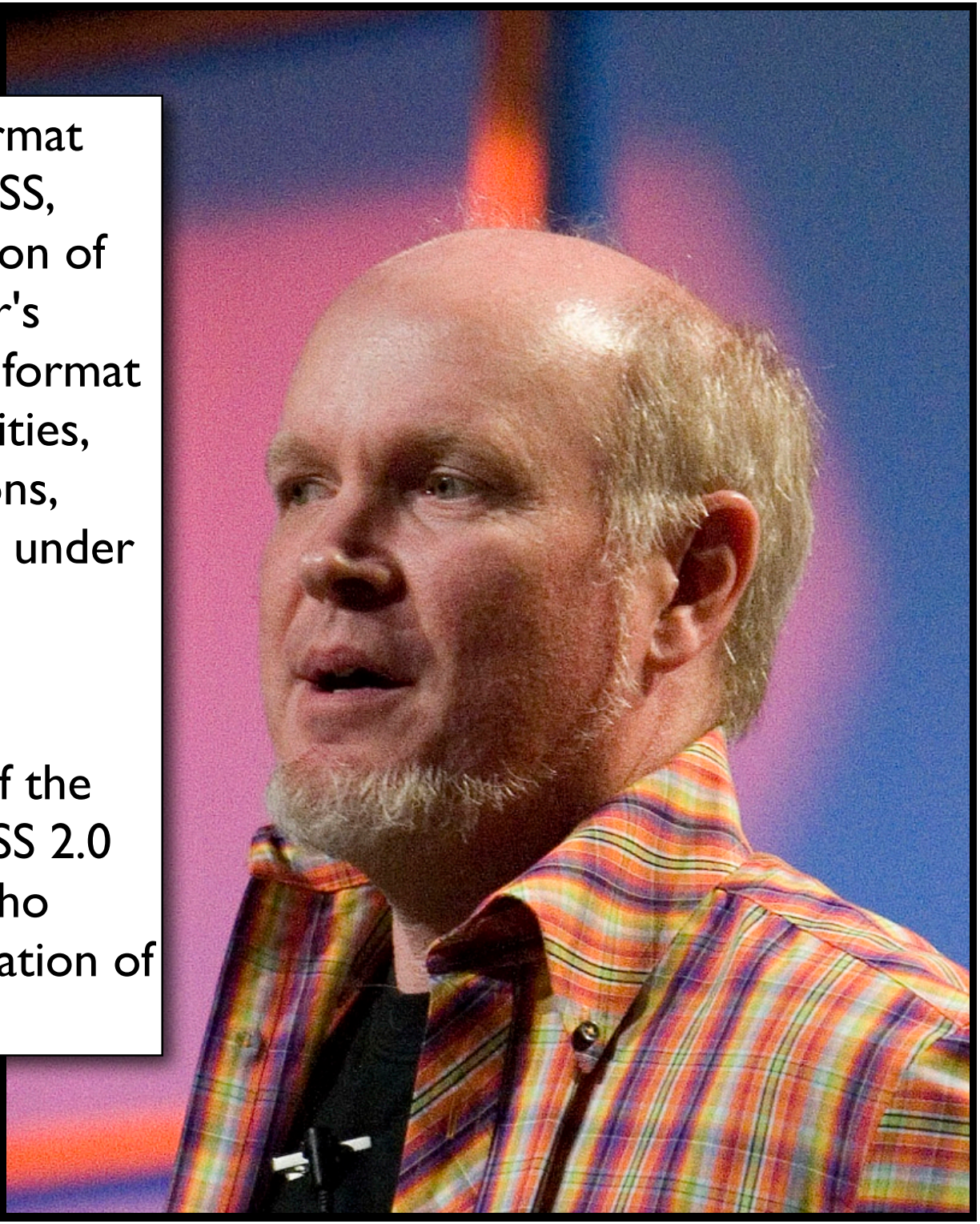
?!

	When?	*Who?*
RSS 0.9	Jan 1999	Netscape
RSS 0.91	Jul 1999	Netscape
RSS 0.91	Jun 2000	Dave Winer
RSS 1.0	Dec 2000	RSS-DEV
RSS 0.92	Dec 2000	Dave Winer
RSS 0.93	Apr 2001	Dave Winer
RSS 0.94	Jun 2002	Dave Winer
RSS 2.0	Aug 2002	Dave Winer
RSS 2.0.1	Jul 2003	Harvard

Source: RSS and Atom in Action

When Atom emerged as a format intended to rival or replace RSS, CNET described the motivation of its creators as follows: "Winer's opponents are seeking a new format that would clarify RSS ambiguities, consolidate its multiple versions, expand its capabilities, and fall under the auspices of a traditional standards organization."

A brief description of some of the ways Atom 1.0 differs from RSS 2.0 has been given by Tim Bray, who played a major role in the creation of Atom:



I E T F

The Atom syndication format was published as an IETF proposed standard in RFC 4287

The Atom Publishing Protocol was published as RFC 5023.

SOAP

A SOA implementation

Atom

A ROA implementation

The Atom Publishing Protocol uses HTTP to edit and author web resources. The Atom Protocol uses the following HTTP methods:

GET is used to retrieve a representation of a resource or perform a query.
POST is used to create a new, dynamically-named resource.
PUT is used to update a known resource.
DELETE is used to remove a resource.

(Source: http://ietfreport.isoc.org/idref/draft-ietf-atompub-protocol/)

Example of an Atom 1.0 Feed [edit]

An example of a document in the Atom Syndication Format:

```
<?xml version="1.0" encoding="utf-8"?>
<feed xmlns="http://www.w3.org/2005/Atom">

 <title>Example Feed</title>
 <subtitle>A subtitle.</subtitle>
 <link href="http://example.org/feed/" rel="self"/>
 <link href="http://example.org/"/>
 <updated>2003-12-13T18:30:02Z</updated>
 <author>
   <name>John Doe</name>
   <email>johndoe@example.com</email>
 </author>
 <id>urn:uuid:60a76c80-d399-11d9-b91C-0003939e0af6</id>

 <entry>
   <title>Atom-Powered Robots Run Amok</title>
   <link href="http://example.org/2003/12/13/atom03"/>
   <id>urn:uuid:1225c695-cfb8-4ebb-aaaa-80da344efa6a</id>
   <updated>2003-12-13T18:30:02Z</updated>
   <summary>Some text.</summary>
 </entry>

</feed>
```

Who is using Atom?

Beyond the SOAP Search API

Dec 20, 2006 - Permalink

Post by Mark Lucovsky, Software Engineer

On December 5th, we stopped accepting new sign-ups for the Google SOAP Search API. This change does not impact current users of the SOAP Search API -- you can continue to execute queries, and we have no plans to turn off the service in the future.

While the product was Google's first API and inspired a lot of Google's current developer products, we are no longer devoting resources to increase the capacity of the service, instead focusing our efforts on the AJAX Search API. While the AJAX Search API does not provide server-side access to search results, it has a number of more powerful features, including access to Video, Maps, Blog Search, and News search results.

Google Data APIs (Beta) Developer's Guide

Use Data from Google on Your Own Website

Get Started with GData

The Google data APIs ("GData" for short) provide a simple standard protocol for reading and writing data on the web.

GData uses either of two standard XML-based syndication formats: Atom or RSS. It also has a feed-publishing system that consists of the Atom publishing protocol plus some extensions (using Atom's standard extension model) for handling queries.

Each of the following Google services provides a Google data API:

- Google Apps Provisioning
- Google Base
- Blogger
- Google Calendar
- Google Code Search
- Google Notebook
- Google Spreadsheets

Google Calendar Data API Overview

Start using the Calendar data API

Google Calendar allows client applications to view and update calendar events in the form of Google data API ("GData") feeds. Your client application can use the Google Calendar data API to create new events, edit or delete existing events, and query for events that match particular criteria.

Here are some of the things you can do with the Calendar data API:

- Create a web front end to let people view their Google Calendar information from within your site.
- Publicize upcoming events by programmatically adding them to Google Calendar.
- Mix and match Google APIs—for example, display upcoming events in Google Maps by combining the Google Calendar data API and the Google Maps API.

Introduction

You can use our API to integrate Twitter search results with your own apps, clients, and readers. Check out these great examples of apps utilizing our API. We currently serve two flavors of our Search API: Atom and JSON.

In the near future, the Search API will be updated to more closely reflect the Twitter REST API, and we'll support XML responses as well.

Formats

Atom

You can grab the search results for any query as a standard Atom feed. For example, this is the Atom feed for the query twitter. For example, to request search results in Atom, append your URL-encoded query as a parameter to the search method and specify the Atom format:

```
http://search.twitter.com/search.atom?q=<query>
```

JSON

You can also request search results in JSON format. For example, this is the JSON response for the query twitter. Note that the tweet content is HTML-encoded. To request search results in JSON, append your URL-encoded query as a parameter to the search method and specify the JSON format:

```
http://search.twitter.com/search.json?q=<query>
```

Requests for JSON support an additional URL parameter:

- **callback**: if supplied, the response will use the JSONP format with a callback of the given name.
  Ex: http://search.twitter.com/search.json?callback=foo&q=twitter

Atom is...

An IETF Standard

RESTful

A syndication format

Resource-Oriented Architecture (ROA) and REST

Scott Davis

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Questions?
Thanks for your time.

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