

$$a + b = ?$$

Open APIs: State of the Market

John Musser, ProgrammableWeb

QCon, San Francisco 2008

Introduction

667 APIs
Search APIs
2850 Mashups
Search Mashups

Vertical Markets
Social Platforms
Mapping
Video
Shopping
Government
Mobile-Telephony

First time here? take a tour

Popular Directory Searches
Celebrity Mashups
Video Mashups
Popular New Mashups
All Popular Mashups
Maps Mashups
Photo Mashups
Shopping Mashups
Sports Mashups
Government Mashups
Dating Mashups
Games Mashups
Crime Mashups
Animals Mashups
News Mashups
Enterprise Mashups
APIs by Date
APIs by Mashups
APIs by Category

Keeping you up to date with mashups, APIs and the Web as platform. [Learn more](#)

Find	Track	Do	Share
API Directory	Industry News	Learn	Sign-up
Mashup Directory	Market Trends	Search Code	Members
Most Popular	Major Players	Win Contests	Add Links
Mashup Matrix	Tag Cloud	Discuss	Talk to us

Latest News Updates [more news](#)

36 Photo APIs

Most people don't realize how many popular photo services like Flickr, Smugmug and Picasa offer web APIs. In this overview, we'll take a look at the breadth and power of currently available photo APIs and the types of photo mashups developers are building with them. - Posted March 11, 2008. [Continue reading](#)

March 11, 2008

New Mashups

- Timepost
- HappyTwitter
- Houston Used Carlist
- BBC On Move
- Unofficial Tupalo Widget

Mashup of the Day

Timepost

New APIs

- Harvest
- iStockphoto
- RadioSherpa
- MapQuest
- Google Contacts

New Members

Wiki Updates

- javos
- jackyhb
- francisco08
- jeniferbautista
- abbetileki

Mashup Tag Cloud

Find mashups quickly with the Mashup Tag Cloud.

Forum Comments

- myDataBus
- TweetStats
- FotoFlexer
- World Time Engine
- TweetStats

Be a rocket scientist. [Develop + Deploy](#)
[BUNGEECONNECT](#) [Unlocked. Fast. Free.](#)

Top Tags

- mapping (1563)
- photo (415)
- shopping (375)
- search (338)
- video (274)
- travel (270)
- news (183)
- sports (173)
- realestate (162)
- messaging (150)

[View as Tag Cloud]

Mashup Timeline - New mashups here, last 6 months

Month	New Mashups
Sep	2350
Oct	2450
Nov	2550
Dec	2650
Jan	2750
Feb	2850

ProgrammableWeb.com 03/11/08

ProgrammableWeb.com

- Launched summer 2005
- API & mashup directory
- News, community, reference
- 1,000+ Web APIs
- 3400+ mashups

Open APIs: State of the Market

- **The big picture**
- The business of open APIs
- Design and technology
- Issues
- Trends

Open APIs: Why Bother?

- **Make money**

- 60% of all listings on eBay.com added via their APIs
- 6 billion API calls per month



- **Save money**

- SmugMug saves > \$500K/year with Amazon S3 Storage



- **Build brand**

- Google Maps 300% growth vs 20% MapQuest



- **Move to the cloud**

- Over 50% of all transactions via their API
- Force.com wants your full dev lifecycle in the cloud



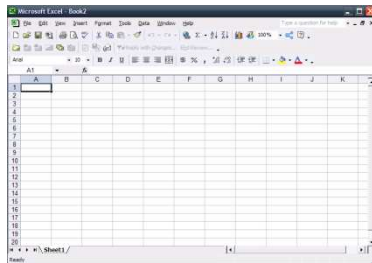
- **Disrupt markets**

- 10,000 applications in 6 months
- Today nearly every social network has an API



APIs moving to the cloud

Old Model



PrintFile

UpdateRow



ORACLE

New Model

- *APIs are now in the cloud*
- *Access to valuable, networked data*
- *Open, global*

DrawMap

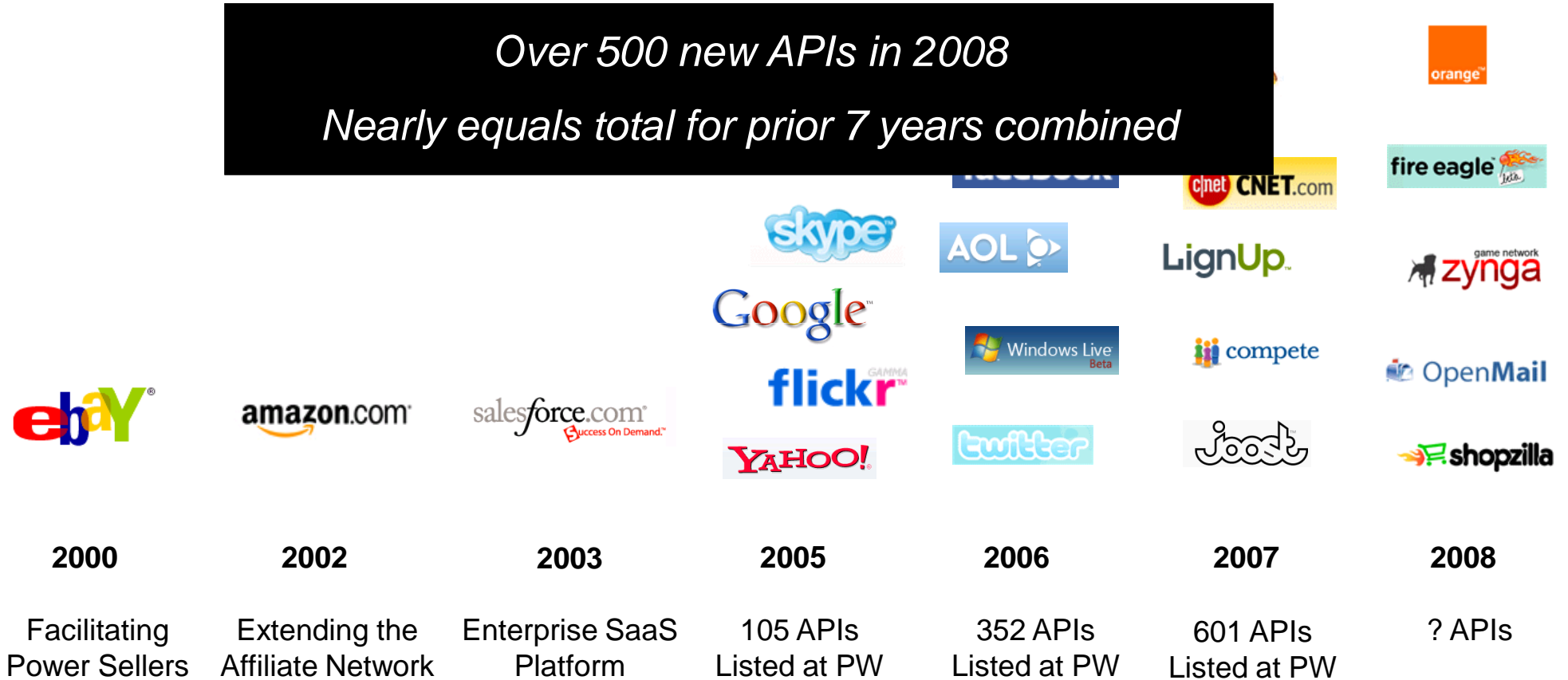
FindProduct

UpdateContact

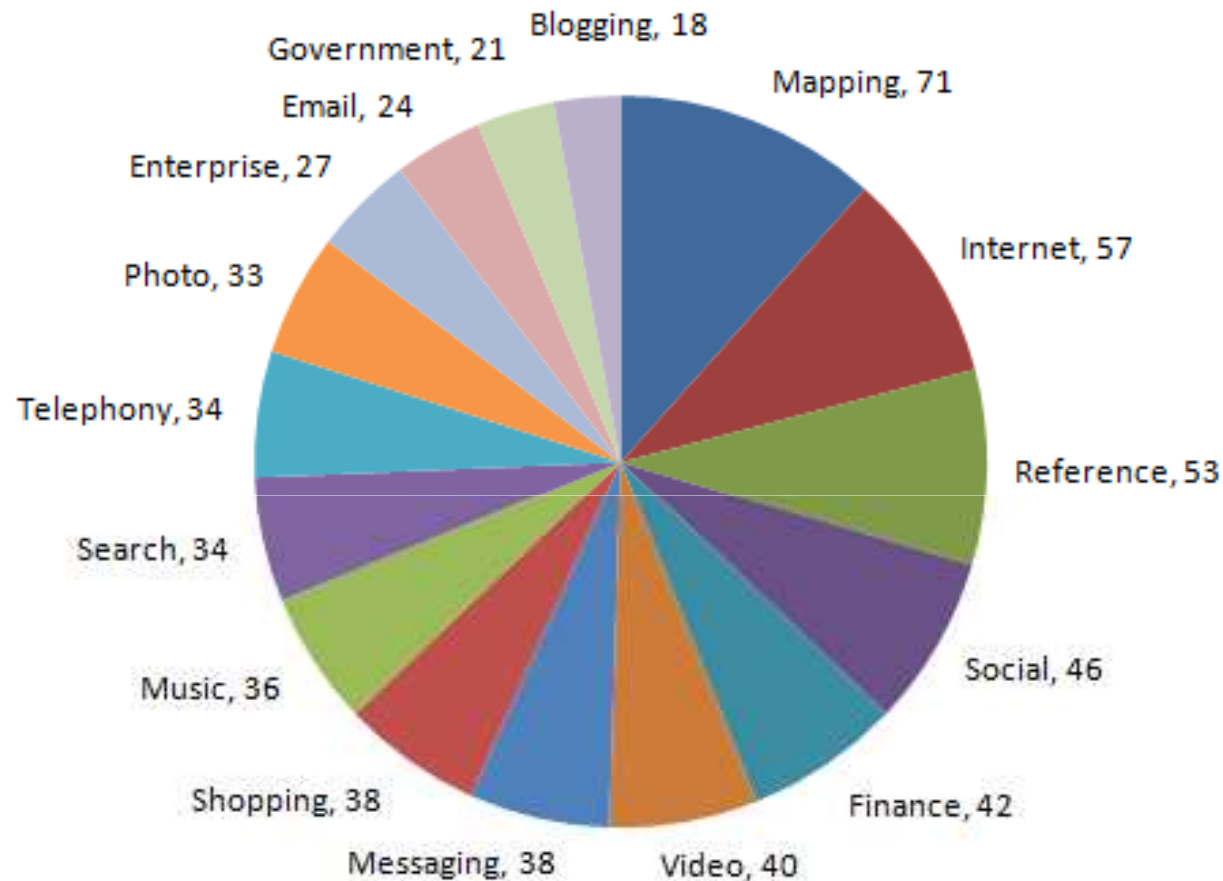


Open API timeline

*Over 500 new APIs in 2008
 Nearly equals total for prior 7 years combined*



APIs: Some very competitive markets



Number of API providers in each of the top 15 categories

Based on sample of 1,000 web APIs listed at ProgrammableWeb, November 2008

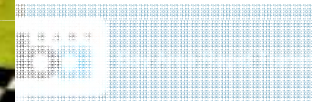
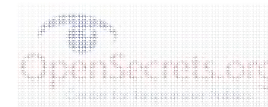
The expected sources...



And the unexpected sources



LIBRARY of CONGRESS



TheyWorkForYou

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- Trends

What makes an open API successful?

- Rule #1, the underlying service
 - Or, a good API on a bad service is lipstick on a pig
- A plan and a business model
- Simple, open, easily adopted
- Providing choices
- Good developer support

API business models

<i>Who</i>	<i>What</i>	<i>How</i>
Amazon Associates	Retail	Affiliate Model
Amazon S3	Infrastructure	Pay-as-you-go
eBay	Auctions	APIs for listings
Salesforce.com	CRM	Seats
Exact Target	Bulk Email	Tiered pricing
Facebook	Social Network	Pixel sharing
Cypress Golf	ASP Tee Times	Integration
Rhapsody	Music	Partnerships

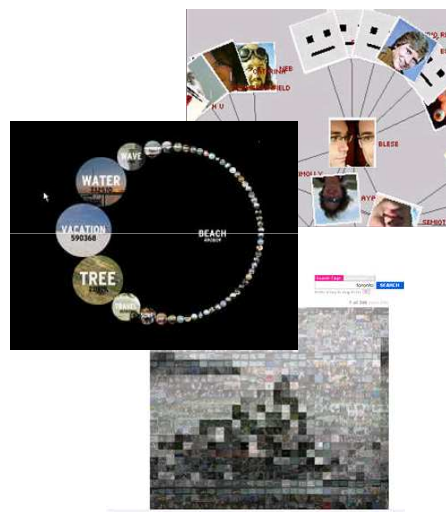
Best practice: Bake your business model into your API

APIs as biz-dev enabler

“Decentralized business development”

-Toni Schneider

An API can lower barriers to working with you



flickr GAMMA™



ZAZZLE™



en_glaze

Flickr API



Consumer/Hacker

Business/Partner

Consumer mashups

HousingMaps.com

s.f. bayarea craigslist > apts/housing for rent [help] [post]

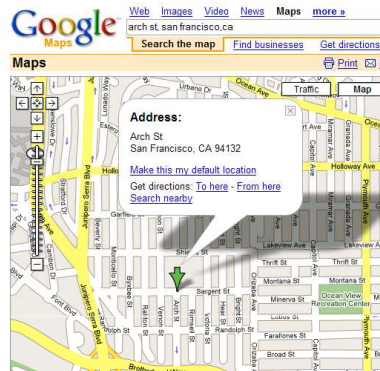
s.f. bayarea | san francisco | south bay | east bay | peninsula | north bay

search for: arch st in: apts/housing for rent Search
rent: min max 0+ BR cats dogs

<< Prev Found: 5 Displaying: 1 - 5

- Mar-3 \$1095 Top Floor Studio, Charm - Hardwood, Arch Details, Parking Available (mission district) pic
- Mar-3 \$1900 / 2br - FURNISHED TOWNHOUSE, Near UC/B Campus (berkeley north / hills)
- Mar-2 \$1919 / 2br - 2BR/1BA Main flr of House, View, Skylights, Hdwd flrs (ingleside / SFSU / CCSE) pic
- Feb-28 \$1100 / 1br - 1br In-law W/Views and Patio (ingleside / SFSU / CCSE) pic
- Feb-27 \$995 Large Studio in North side at 1434 Arch St. Vacant (berkeley)

Company 1



Company 2



For Rent For Sale Rooms Sublets Powered by craigslist and Google Maps

City: San Francisco Price: \$1500 - \$2000 Show Filters Refresh Link

**\$1,919 - 2bd
2BR/1BA Main flr of House,
View, Skylights, Hdwd flrs**
Shields St. At Arch St.
San Francisco Ca

415-584-2685 / email

price	bed	description	date
\$1685	1bd	Pacific Heights - Junior 1Bd - Sunday Showing	3/04
\$1650	1bd	Very Clean-Lower Flat	3/04
\$1750	1bd	Single Family Home - 1Bd, 1BA - Great Location	3/03
\$1895	1bd	Very Large One bedroom One bath, Hw floors, Granite kitchen	3/03
\$1975	2bd	Elegant 2 bed 2 bath with Sweeping Ocean and city view.	3/03
\$1725	2bd	Nice Bright Corner Flat	3/03
\$1645	1bd	Brand new 1BR in Cole Valley, Shrader between Ravolt & 17th	3/03
\$1695	2bd	Large, bright, 2BR/2BA, Apt. on Great Hwy at Arliham	3/03
\$1500	1bd	Richmond dist. Contemporary style 1 bedroom 1 bath	3/03
\$1800	2bd	Contemporary style 2bdrm 1 bath	3/03
\$1750	2bd	See Sat/Sun @4:30pm*Remodeled house/cottage Hwd floors* Sunny/Garden	3/03
\$1990	1bd	Sunny Lower Flat	3/03
\$1800	2bd	Spacious Two Bedroom Apt.	3/03
\$1985	2bd	Sunny Flat Nr. Ucf	3/03
\$1550	1bd	Corner one bedroom 15th & Geary Open House Sunday 4th 3:00pm	3/03
\$1645	1bd	Charming Upper Nob Hill Apartment	3/03
\$1975	2bd	2BR/1Bath Sunny-top floor flat	3/03
\$1750	2bd	5th/Clement Sts. 2 bdrm top floor, crpts, dishwasher, or shops/restaurant	3/03
\$1975	3bd	Awesome views from this baker beach apartment	3/03
\$1900	2bd	Upstairs 2 Bedroom Apt w/ Large Living Room	3/03

Company 3 Person

Enterprise mashups

- Workflow mashup

Loan services + external e-signing web API

80% of 72K applications e-signed in 2 months

75% cost decrease



- CRM mashup

PGP Corp. pulls-in D&B data for new customers

Cleaner data and less data entry time



Invisible mashups

- **Video processing**

Video management and distribution service

Winner of Amazon's AWS Challenge 2007

Integrates EC2, S3, SQS into video processing pipeline



- **One-time data conversion**

Internal project

Convert all Times articles back to 1851

11,000 files from TIFF to PDF (4 TB)

Rented 100 EC2 instances, less than 24 hours

Total EC2 bill: \$240



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Web sites are becoming web services



Apple 30 GB iPod with Video Playback Black

Other products by [Apple](#)

★★★★☆ (592 customer reviews)

[More about this product](#)

Color Name:

Black: \$279.99

List Price: \$299.99

Price: **\$279.99** & this item ships for **FREE with Super Saver Shipping.** [Details](#)

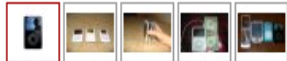
You Save: \$20.00 (7%)

Availability: In Stock. Ships from and sold by Amazon.com.

Want it delivered Tuesday, August 1? Order it in the next 70 hours and 51 minutes, and choose **One-Day Shipping** at checkout. [See details](#)

19 used & new available from \$239.95

[See larger image](#)



[See 40 customer images](#)

[Share your own customer images](#)



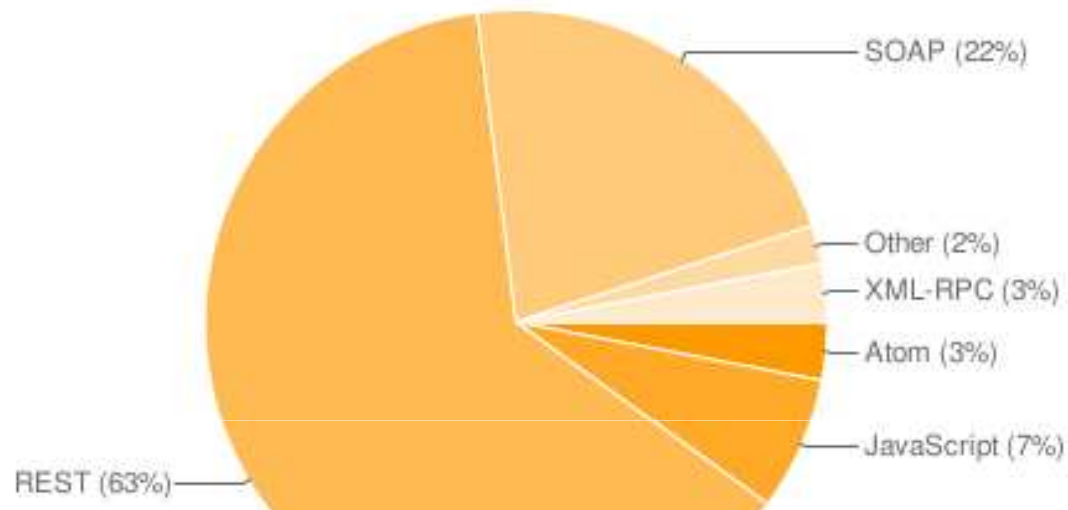
```
- <Items>
  - <Request>
    <IsValid>True</IsValid>
    - <ItemSearchRequest>
      <Keywords>B000A3WS84</Keywords>
      <SearchIndex>Electronics</SearchIndex>
    </ItemSearchRequest>
  </Request>
  <TotalResults>1</TotalResults>
  <TotalPages>1</TotalPages>
  - <Item>
    <ASIN>B000A3WS84</ASIN>
    - <DetailPageURL>
      http://www.amazon.com/exec/obidos/redirect?tag=ws%26link_c
    </DetailPageURL>
    - <ItemAttributes>
      <Manufacturer>Apple Computer</Manufacturer>
      <ProductGroup>CE</ProductGroup>
      <Title>Apple 30 GB iPod with Video Playback Black</Title>
    </ItemAttributes>
  </Item>
</Items>
```

Best practice: Design for people & computers

Open APIs: the big technical debates

- Protocols and styles
 - REST vs. SOAP vs. ...
- Data formats
 - XML vs. JSON vs. ...
- Tools
 - Data vs. Presentation vs. Hosted vs. emacs ...

API protocols and styles



- *20% support > 1 style*
- *SOAP share decreased from 40% to 22% in last 18 months*
- *Other specialized or proprietary models include:
XMPP, SMS, Skype, OSCAR*

REST vs. SOAP with Flickr

REST Call

http://api.flickr.com/

SOAP Call

```
<s:Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/"
```

```
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
```

```
  <s:Body>
```

```
    <x:FlickrRequest xmlns:x="http://www.flickr.com/xml/api/">
```

```
      <method>flickr.photos.search</method>
```

```
      <api_key>abc</api_key>
```

```
      <tags>cars</tags>
```

```
    </x:FlickrRequest>
```

```
  </s:Body>
```

```
</s:Envelope>
```

	Pros	Cons
SOAP	Established standard Wide tool support	Complexity Interoperability issues
REST	Simplicity Built on how the web works (URIs & core HTTP methods)	Implementation differences Tool support challenges

Note: Protocol and data formats alone do not answer the "simple vs. complex" question...

You can design bad or complex REST and some SOAP is simpler than others

Comparing the major players

	REST	SOAP	XML-RPC	JavaScript	Other	Total	Multiple
Google	34	3		14	3	46	11
Amazon	11	14				14	11
Microsoft	7	7	1	8	1	23	1
eBay	5	2			1	6	2
Yahoo!	27	3		4	2	33	5
AOL	7	1		2	4	14	1
Total	91	30	1	28	11	136	31

Favor simple designs

Use > 1 to broaden your base

Be as consistent as possible

Data formats: lots of choices

XML, JSON, RSS, Atom, YAML,
iCalendar, CSV, Serialized PHP, HTML

- 25% of new APIs listed at PW since 2007 support JSON
- 8% of all APIs listed before 2007 support JSON

FOAF, XSPF, SQL, GML, CDF

Favor simplicity and standards

Use > 1 to broaden your base

Provide domain-appropriate alternatives

How will you build your mashup?

Data Mashup Tools



Scripting

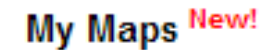
Fundamental commonality

WOA-aware: HTTP, REST, XML, RSS, Atom, Ajax, XHTML

Development Tools & Suites



DIY Consumer Tools



Services



Growing services ecosystem

Data Services



Infrastructure Services



Professional Services



App Marketplaces



Where will you build & run your mashup?

Cloud Application Builders



Cloud IDEs



Cloud Computing



Managed Hosting



Do-it-yourself

Platform as a Service (PaaS), a plethora of options

Phil Wainwright, <http://blogs.zdnet.com/SAAS/?p=47>

Open APIs: State of the Market

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- Design and technology
- **Issues**
- Trends

Mashup and API issues

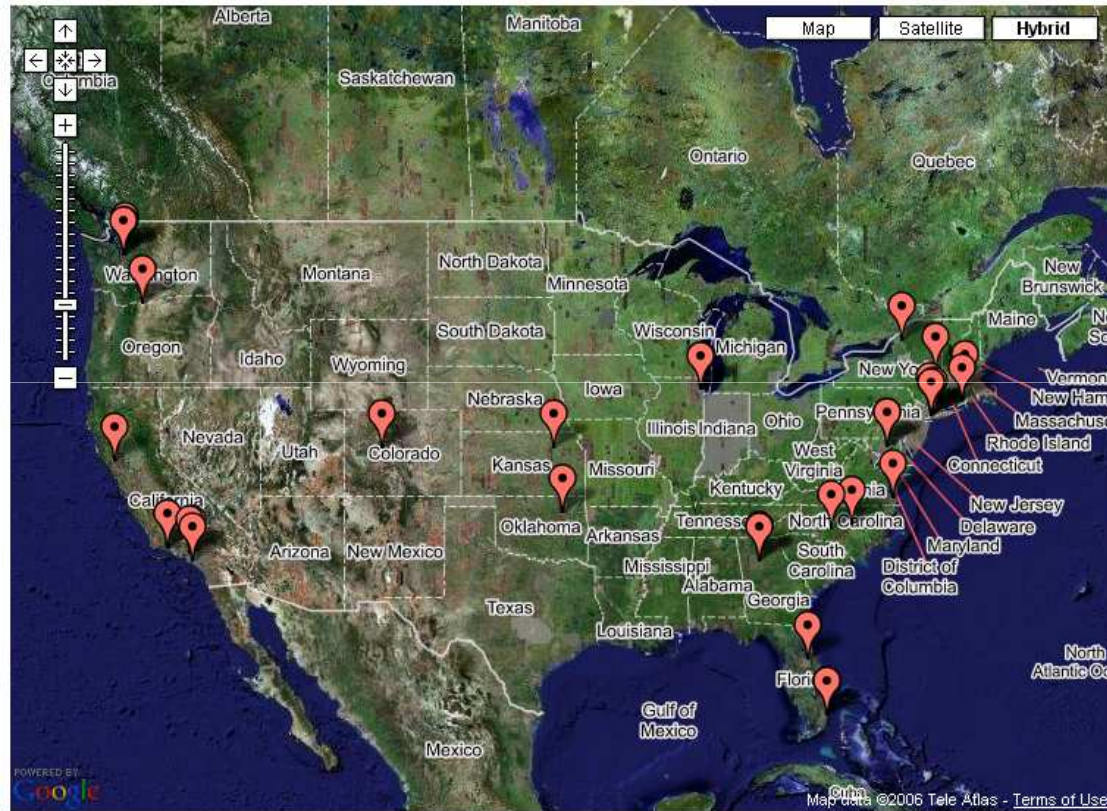
- **Dependencies: business and technical**
Strategize accordingly – go in eyes-open
- **Lack of service level agreements**
Barrier to adoption, especially in the enterprise
- **Commercial vs. non-commercial use**
If you place ads on your mashup app, is that “commercial use”?
- **Copyright law issues**
What data can be re-used and how?
See: Flickr API integrates Creative Commons license

The big issue: Authentication and Authorization

- Where are the ‘personal mashups’?
High-value data locked behind IDs and passwords
- Limited standardization & consensus
Even in new competing “authorization APIs”
Yahoo! BBAuth, Microsoft LiveID, Google Web Auth
- Solutions
OAuth? OpenID? OpenSocial? TBD...
OpenSocial: How to map identity across social networks?
- In the meantime
Phishing Mashups coming soon
Mapping mashups are so safe, right?

Privacy issues. Beware.

Data Mining 101: Finding Subversives with Amazon Wishlists



Readers of "1984"

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A few trends to watch

1. Move toward standards

OAuth, OpenID, Atom

2. Having an API as a checklist item

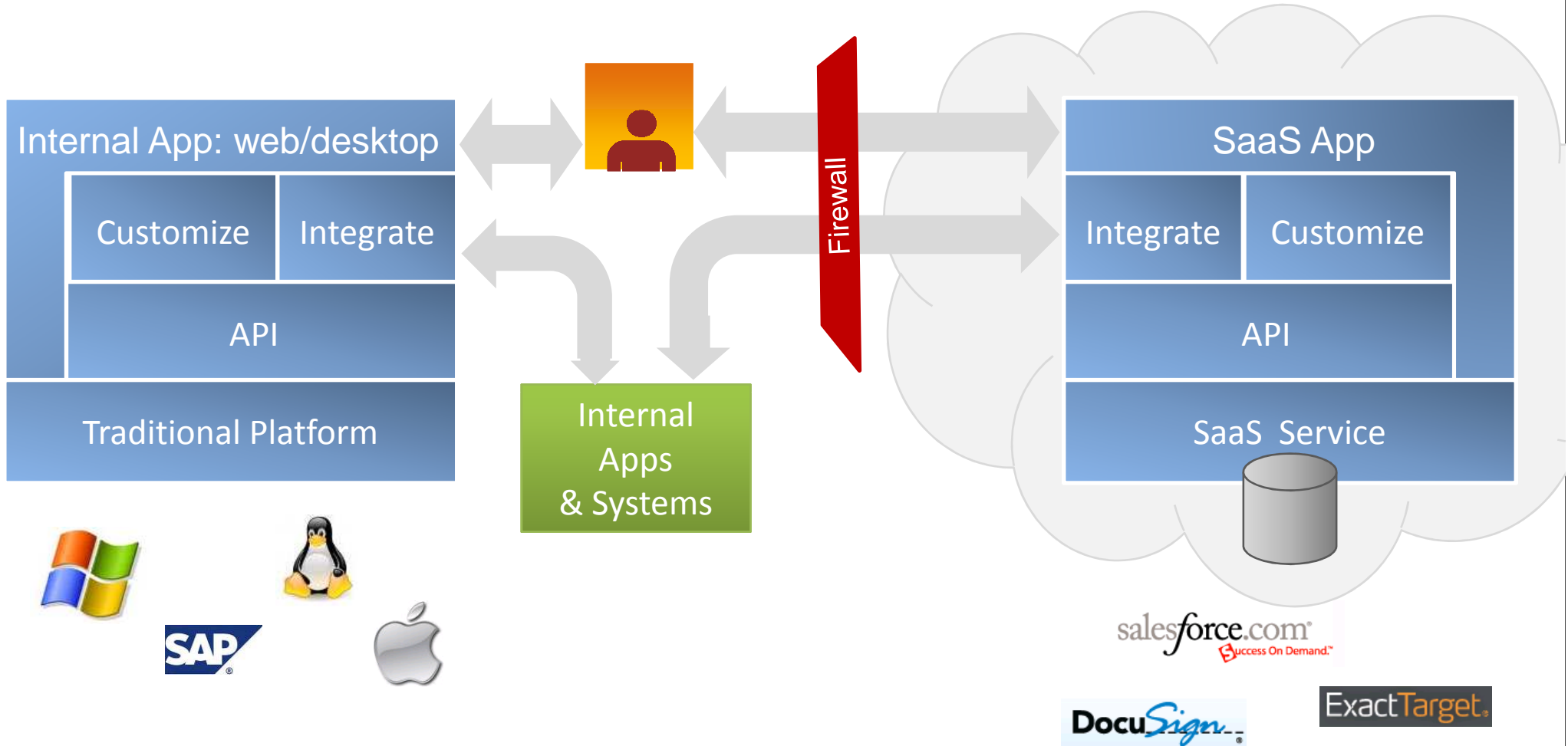
Got an API? Check.

3. Lightweight services and data

REST, JSON, JavaScript, microformats

4. A few others...

APIs are becoming the glue of SaaS



SLAs and Premium Support, more coming soon....

- Service Level Agreements and Premium Support
 - Google Maps Premier (starts at \$10K/yr)
 - Amazon's new Premium Support packages (Silver \$100/month; Gold \$400/month)

Apr 18, 2008

[Report an Issue](#)

Current Status	Details	RSS
 Amazon Elastic Compute Cloud (API)	Service is operating normally.	
 Amazon Elastic Compute Cloud (Instances)	Service is operating normally.	
 Amazon Flexible Payments Service	Service is operating normally.	
 Amazon Mechanical Turk (Requester)	Mechanical Turk web site errors more ▾	
 Amazon Mechanical Turk (Worker)	Mechanical Turk web site errors more ▾	

<http://status.aws.amazon.com>

Vendor software becoming mashups



Business Intelligence

POWERED BY Information Builders

Century Electronics: Worldwide Geographic Sales Analysis

Regional Revenue Results

Country	Region	State	Item Name
Canada	Est	Manitoba	Wireless Audio
Canada	Est	Ontario	ABC Electronics
Canada	Est	Quebec	Therac English
Canada	Quart	British Columbia	Home Audio Outlets
France	More Pas De Calais	Nord (53)	Visionnaire
France	Paris de Loire	Loire-Atlantique (44)	Audio CD
France	Provence-Alpes-Cote d'Azur	Alpes-Maritimes (06)	Movie Night
France	Ile de France	Paris (75)	maget 400
Germany	Nord	Schleswig-Holstein	CD-ROM and Data
Germany	Ost	Saxony	Stems 800 Single
Germany	Sud	Bavaria	Endwerkstatt
Germany	West	North Rhine-Westphalia	Audio/Video
Spain	Andalucia	Madrid	Canon 4 megapixels VHS
Spain	Cataluña	Balearica	Amann-De W. Alfa Romeo
Spain	Cataluña	Balearica	Sony CCD
Spain	Basque	Vizcaya	MicrochipKites
United States	East North Central	Illinois	Audio Equipment
United States	East North Central	Illinois	EMT
United States	East North Central	Illinois	TV CD
United States	East North Central	Illinois	AV VideoTown
United States	East North Central	Indiana	EMT
United States	East North Central	Indiana	AV VideoTown
United States	East North Central	Indiana	EMT
United States	East North Central	Michigan	EMT
United States	East North Central	Michigan	City View

Accounting / Inventory



Microsoft Office Accounting 2007 Marketplace Services

Welcome Aaron Con | Help | Sign Out

1 Select a marketplace 2 Review and list 3 Confirm

Contoso Sunrise Tulips- (12): Edit product details

* Listing Type: Auction

* Item title: Contoso Sunrise Tulips- (12)

Subtitle (\$): Fresh Flowers

* Categories: Tulip, Category 2 (\$): Other Gardening & I

* Item description: This group of extra beautiful Rare of

* Starting price: \$1.00

Duration: 3 days

Accepted payment methods: PayPal - e-mail, Money order/cashier's check, Personal check, American Express, Discover, Visa/MasterCard, Other

Additional Payment Instructions: Payment must be received within 7 days of purchase.



Middleware

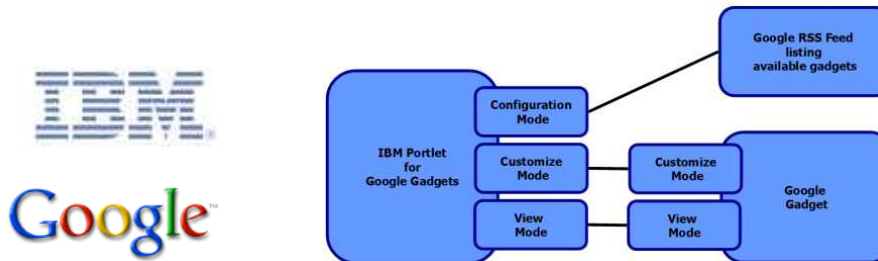


Figure 2. Sample integration

Source portlet

Name: Carol Jones
Responsibility: IBM Fellow (and a goddess)

Search using Intranet ID

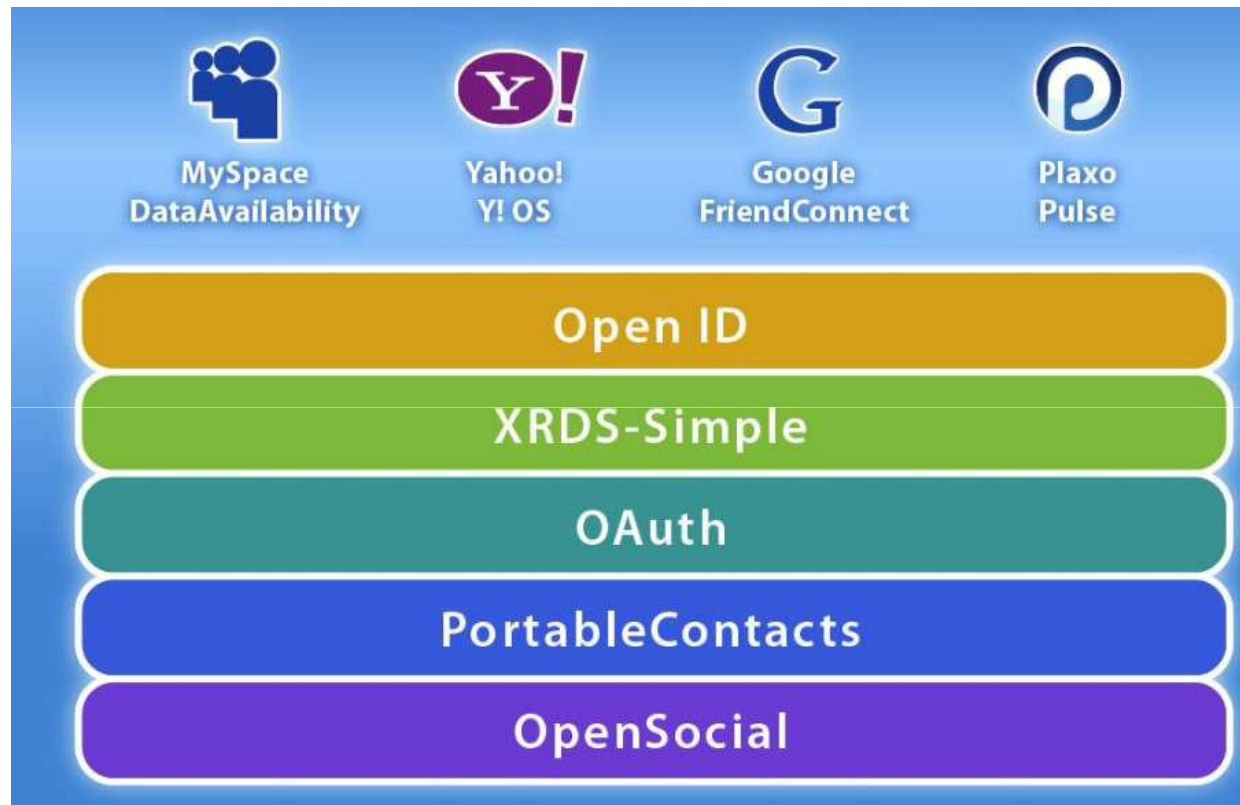
IBM Portlet for Google Gadgets

Durham, NC, USA

IBM WebSphere Portal + Google Gadgets



A new “Open Stack” is emerging



Social software meets enterprise mashups?

The screenshot displays the Salesforce.com interface for a lead named John Barks. The top navigation bar includes 'Setup', 'Apex Log', 'Help', 'Logout', and 'Appexchange'. The main navigation menu contains 'Home', 'Campaigns', 'Leads', 'Accounts', 'Contacts', 'Opportunities', 'Forecasts', 'Contracts', 'Reports', 'Documents', 'Dashboards', and 'Faceforce'. The left sidebar features a search bar, 'Limit to items I own', 'Advanced Search...', 'Create New...', and a 'Recent Items' list including John Barks, Tolu Thomas, Acme Corporation, Mike Lee, Tony Cesarano, Katie Kollitz, and Marc Benioff. The main content area shows the lead detail for John Barks, with fields for Lead Owner (Clara Shih), Name, Company (Cisco), Title (CEO), Lead Source (Partner Referral), Industry (Banking), Annual Revenue, FacebookID (205067), Phone, Mobile, Fax, Email (ceo@ib.com), Website, Lead Status (Open - Not Contacted), Rating, and No. of Employees (1,000). Below the lead detail is a section for 'Facebook Profile Data' showing a profile for John Barks with personal information (Stanford, San Francisco, CA; Work: salesforce.com, inc. - Sales Rep; History: August 12, 1982; Hometown: Louisburg, KS; Gender: male) and a shared network of 76 friends in common, including Jeff Amin and Katherine O'Garra. The interface also includes a 'Recycle Bin' and a 'Current Generator(s)' field.

FaceForce: Salesforce.com + Facebook

More integrations? LinkedIn, Windows Live Contacts, Google Apps....

thank you

Questions, ideas, comments?

Email me: john@programmableweb.com