a + b = ?

Open APIs: State of the Market

John Musser, ProgrammableWeb

QCon, San Francisco 2008

Introduction

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
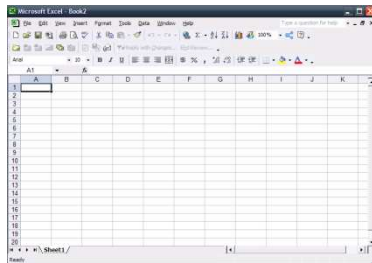 - Force.com wants your full dev lifecycle in the cloud

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

APIs moving to the cloud

Old Model

New Model

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

PrintFile   UpdateRow

DrawMap   FindProduct

UpdateContact

Open API timeline

Over 500 new APIs in 2008

Nearly equals total for prior 7 years combined

2000	2002	2003	2005	2006	2007	2008
Facilitating Power Sellers	Extending the Affiliate Network	Enterprise SaaS Platform	105 APIs Listed at PW	352 APIs Listed at PW	601 APIs Listed at PW	? APIs
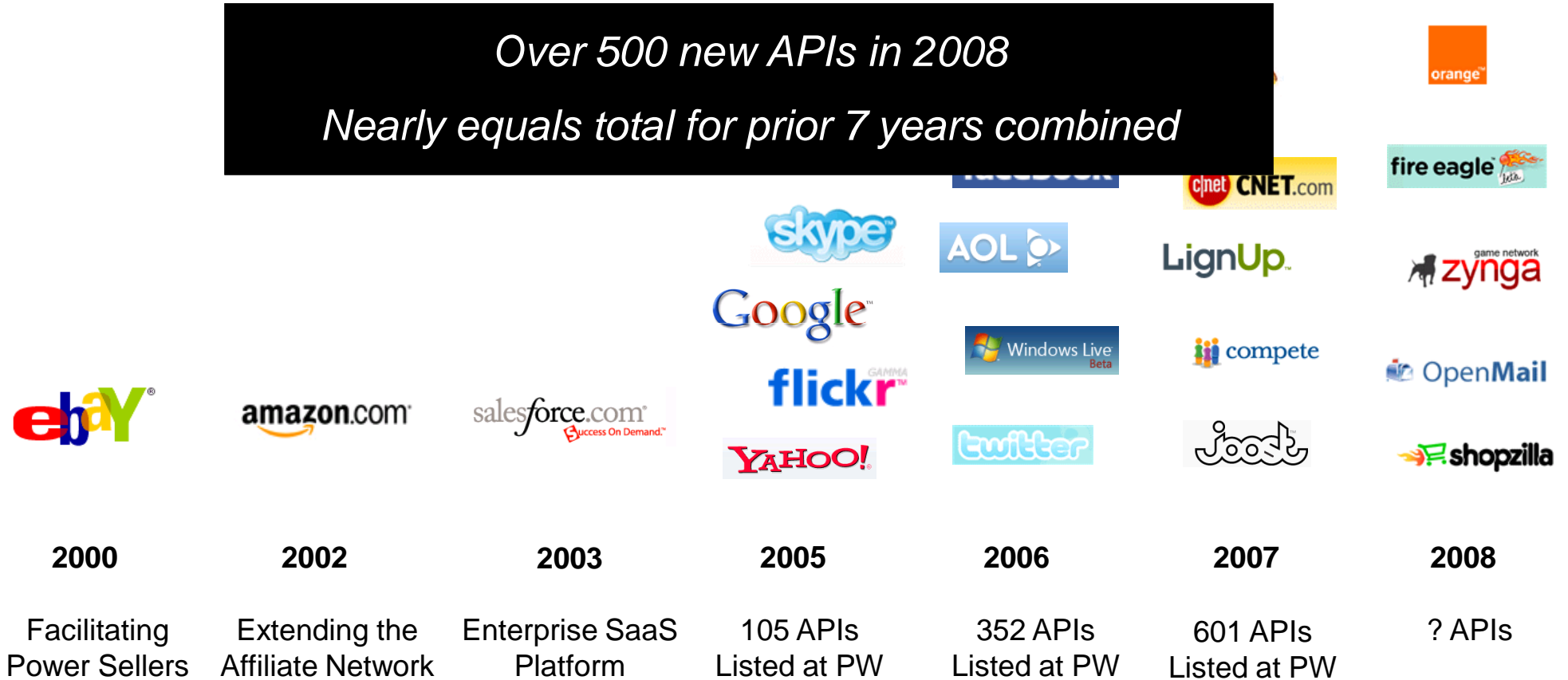
APIs: Some very competitive markets
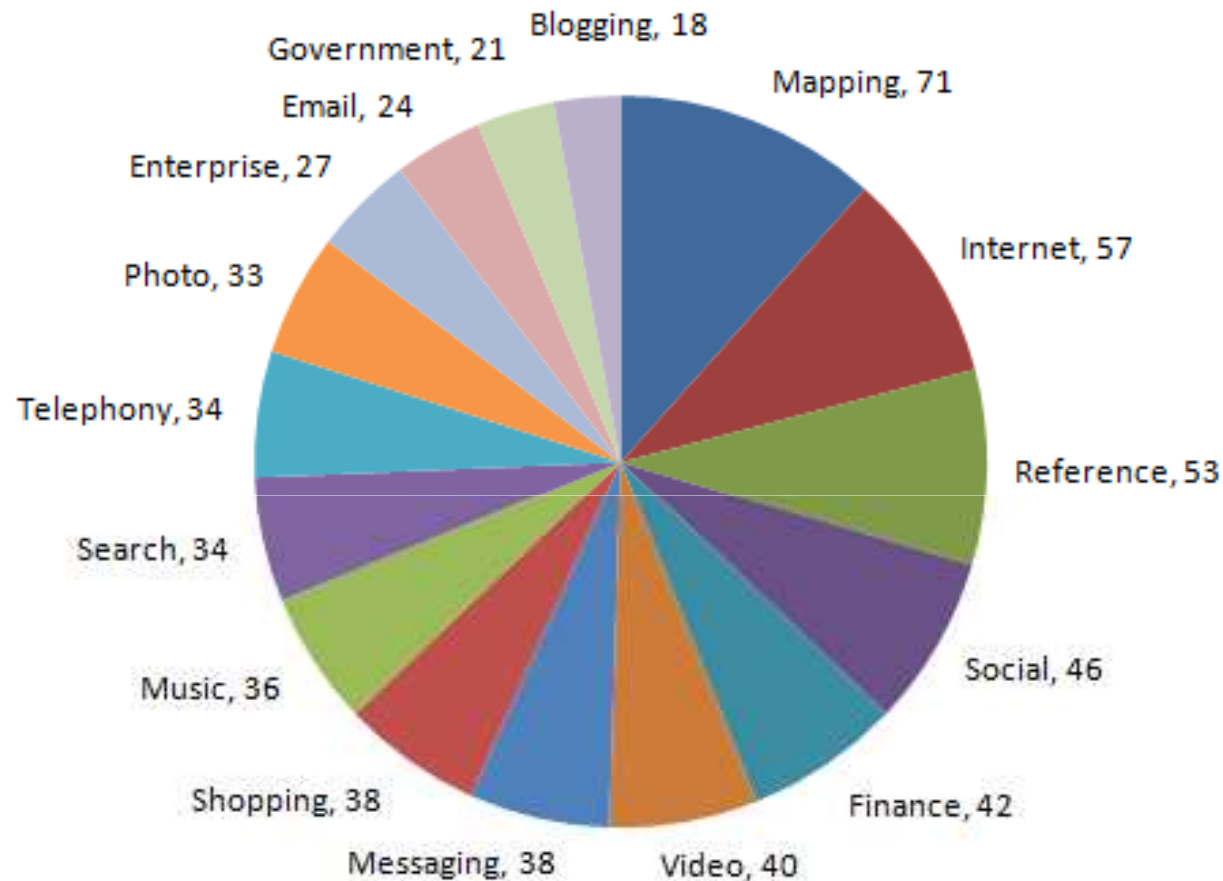
Number of API providers in each of the top 15 categories

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

The expected sources…

And the unexpected sources
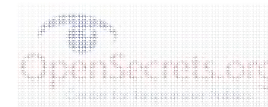
Open APIs: State of the Market

- The big picture
- **The business of open APIs**
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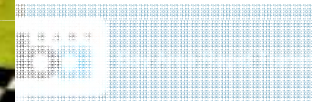- Issues
- Trends

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

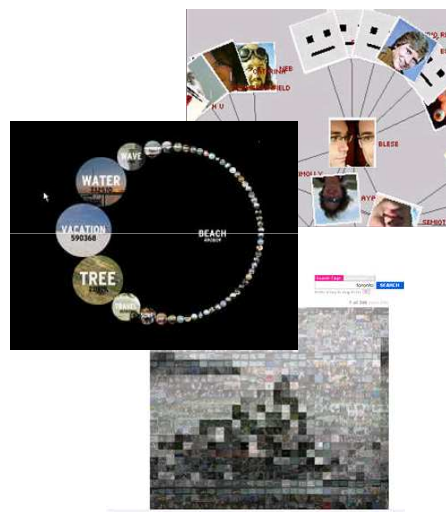| Who	What	How
Amazon Associates	Retail	Affiliate Model
Amazon S3	Infrastructure	Pay-as-you-go
eBay	Auctions	APIs for listings
Salesforce.com	CRM	Seats
Exact Target	Bulk Email	Tiered pricing
Facebook	Social Network	Pixel sharing
Cypress Golf	ASP Tee Times	Integration
Rhapsody	Music	Partnerships

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 API

Consumer/Hacker ⟷ **Business/Partner**

Consumer mashups

HousingMaps.com

Company 1   +   Company 2   =   ~~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
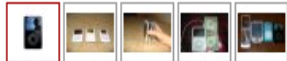You Save: $20.00 (7%)

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

See larger image

See 40 customer images
Share your own customer images

19 used & new available from $239.95

```xml
- <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>
```
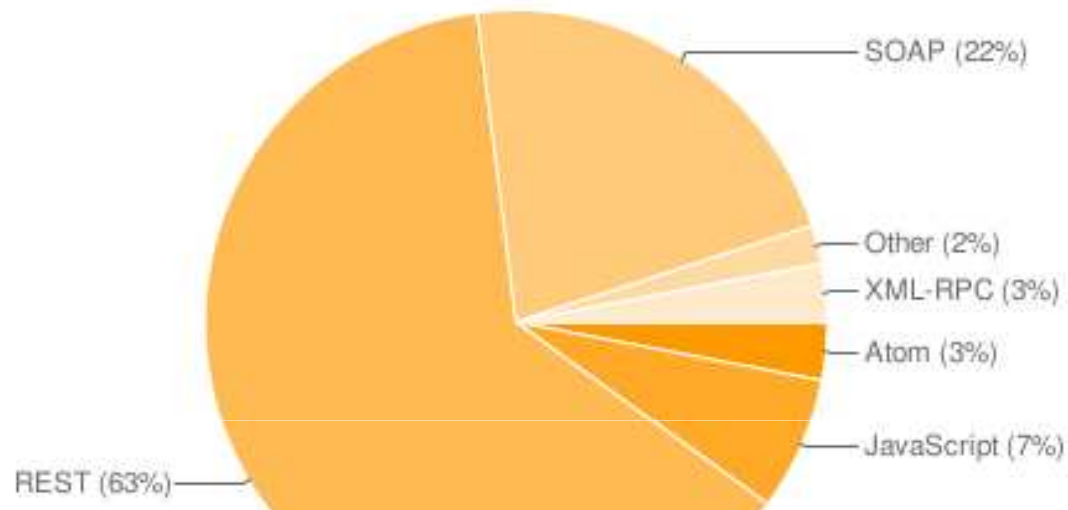
Best practice: Design for people & computers

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

SOAP (22%)

Other (2%)

XML-RPC (3%)

Atom (3%)

JavaScript (7%)

REST (63%)

- 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.c

SOAP Cal

```
<s:Envelope xmln
    xmlns:xsi=
    xmlns:xsd=
    <s:Body>
        <x:FlickrRequest xmlns:x="urn:flickr">
            <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?
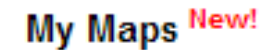
Data Mashup Tools

Scr...

Development Tools & Suites

DIY Consumer Tools

Services

Fundamental commonality

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

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

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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?

programmableweb

Privacy issues. Beware.

Data Mining 101: Finding Subversives with Amazon Wishlists
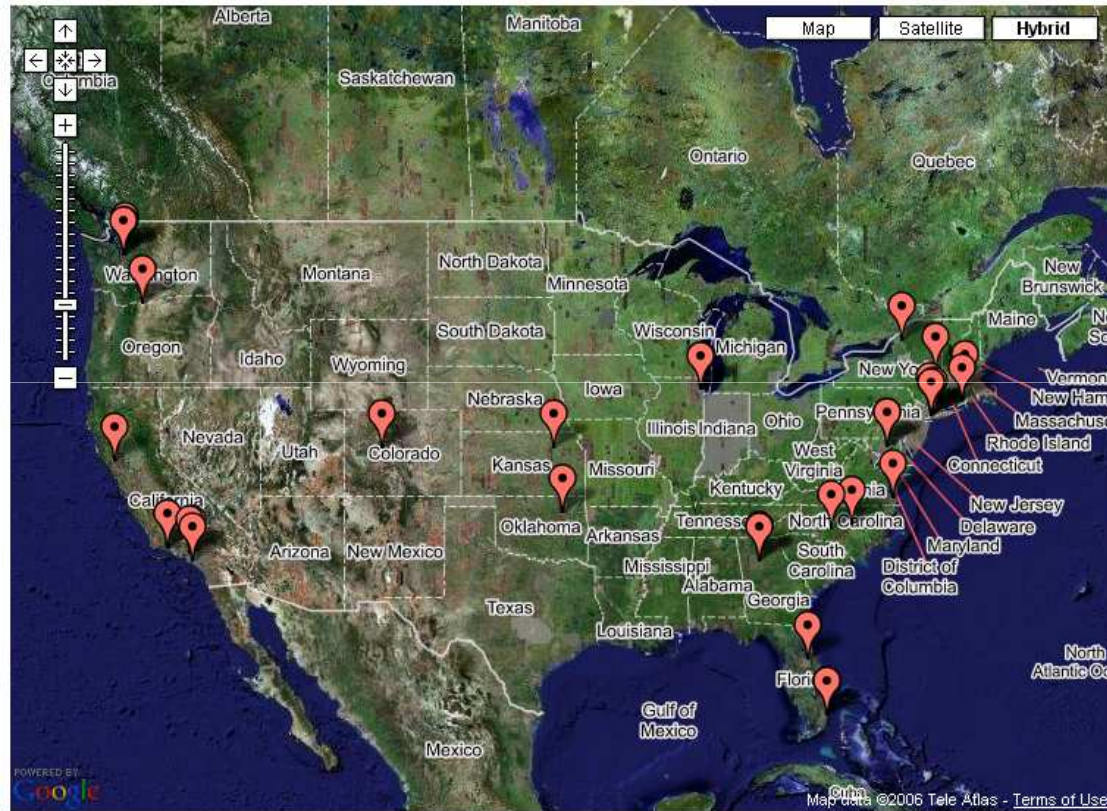
Readers of "1984"

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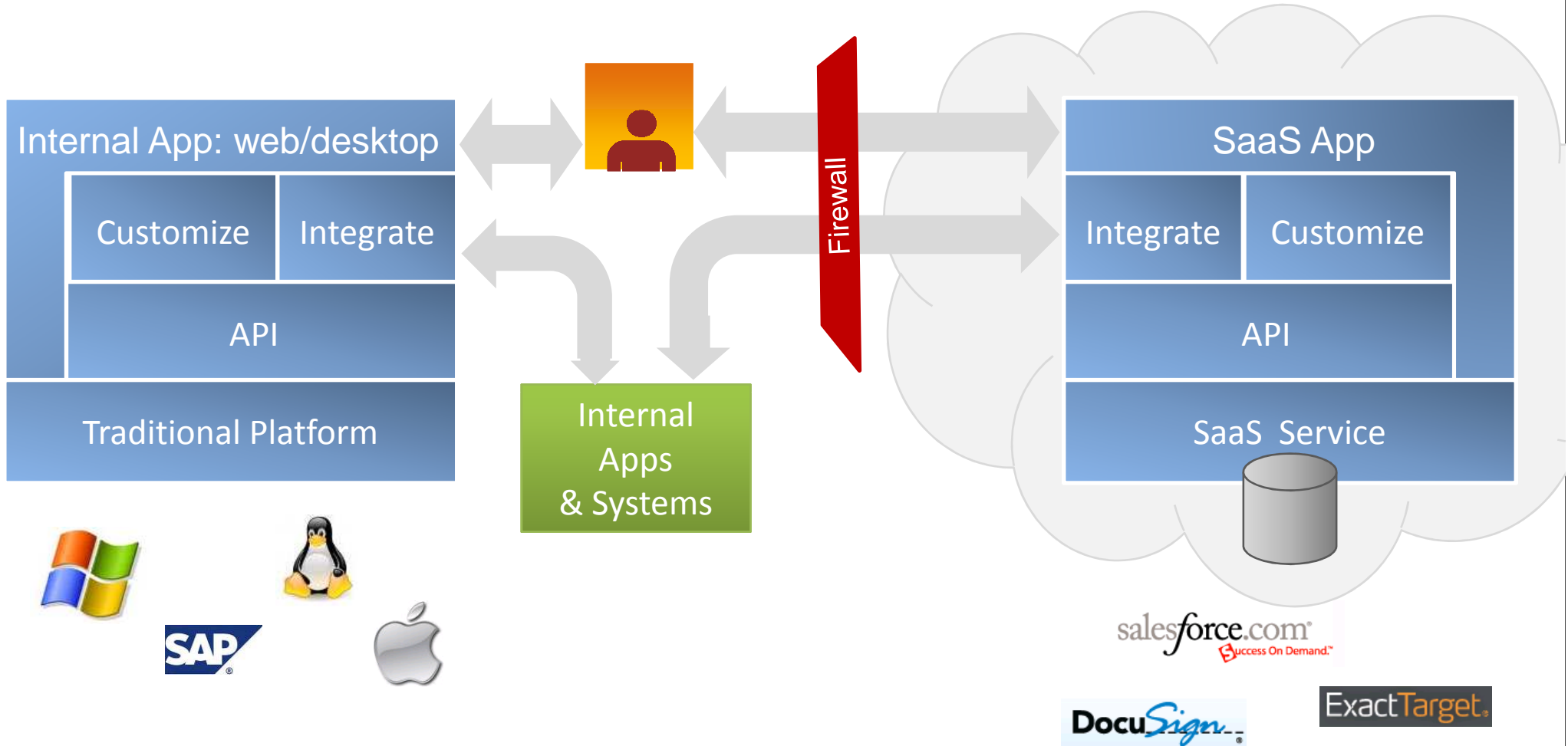
SLAs and Premium Support, more coming soon....

- 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

Accounting / Inventory

Middleware

IBM WebSphere Portal + Google Gadgets

A new "Open Stack" is emerging
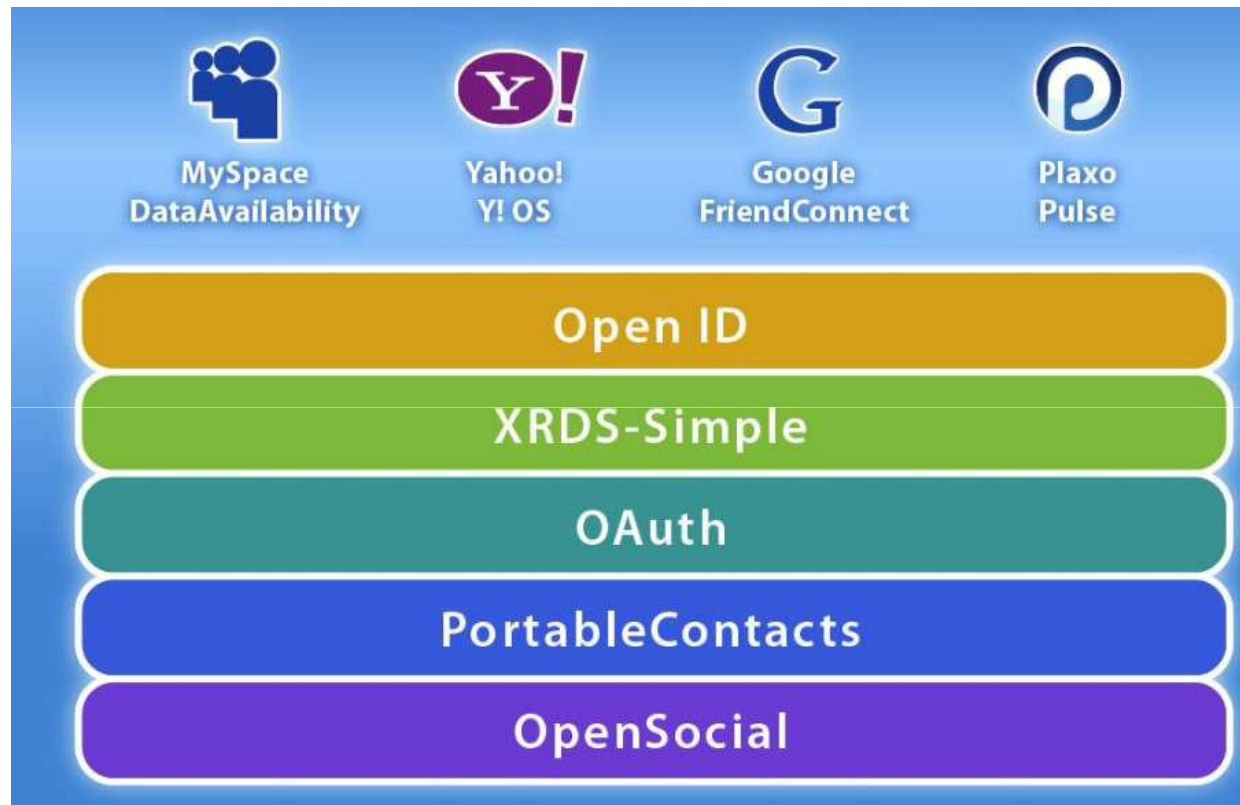
Social software meets enterprise mashups?

FaceForce: Salesforce.com + Facebook

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

thank you

Questions, ideas, comments?

Email me: john@programmableweb.com