



CIO Survival Guide for Web 2.0

*David Boloker
CTO Emerging Internet Technology
IBM Software Group*

info 2.0
mash-up
remix
explore
create

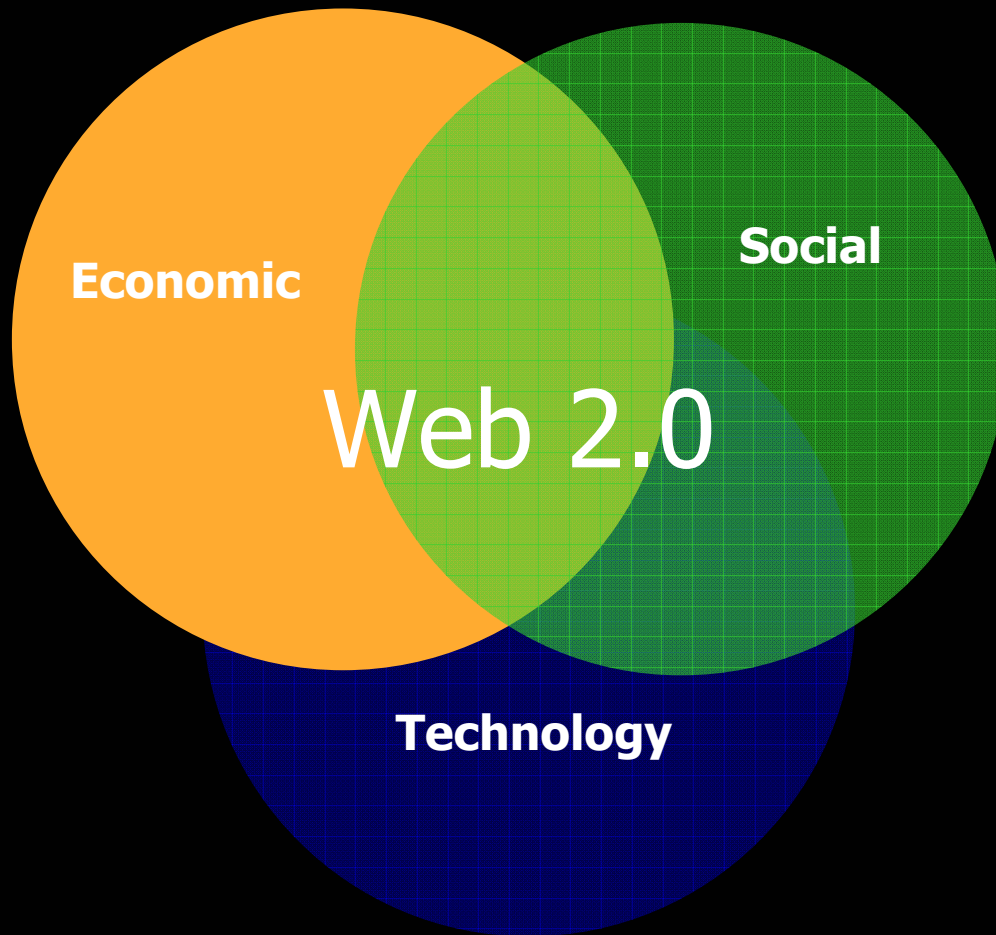
Agenda

What is Web 2.0 About?

Potential Web 2.0 Impact

Summary & Conclusions

What is Web 2.0 About?



Web 2.0 is a set of economic, social, and technology trends that collectively form the basis for the next generation of the Internet - a more mature, distinctive medium characterized by user participation, openness, and network effects.

Source: Web 2.0 Best Practices and Principles, O'Reilly Radar

What is Web 2.0 - Business Model Concepts

The Long Tail

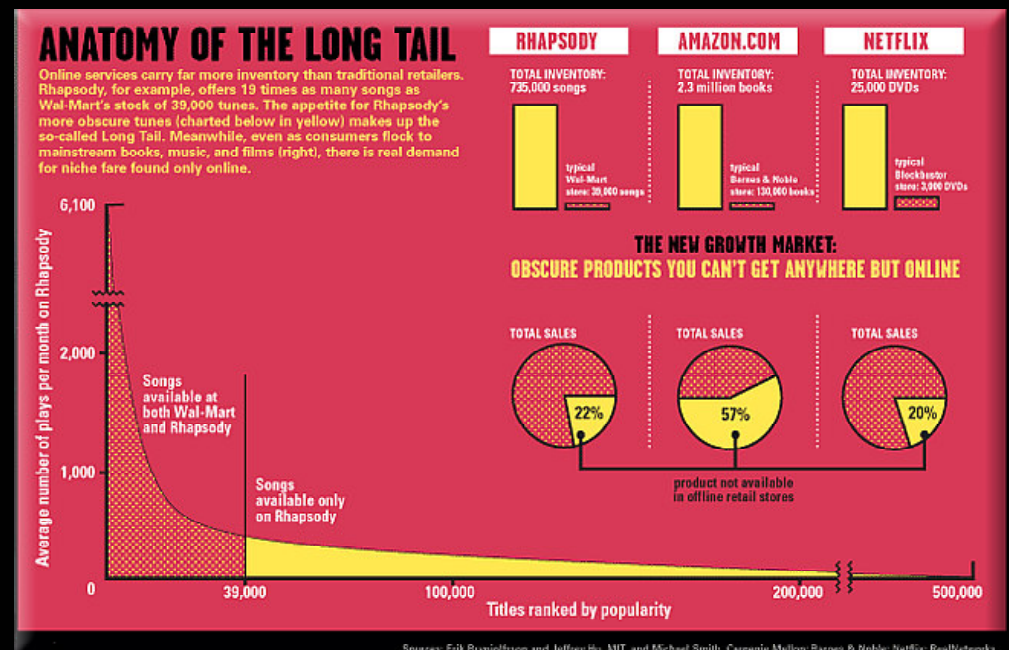
- Targeting niche markets - expanding from dozens of markets of millions of people to millions of markets of dozens of people
- Examples: Google, Netflix, Amazon

Network Effects

- Product or service is more valuable the more people that use it (e.g telephone, email, instant messaging...)
- Examples: eBay, MySpace, Craigslist...

Data as the new "Intel Inside"

- Proprietary data – hard for a competitor to duplicate
- User Generated Data
- Data indirectly created by users
- Examples: NAVTEQ, Amazon, Google Pagerank



Inside Web 2.0: emerging “self service” business pattern

From dozens of markets of millions of users to millions of markets of dozens of people

Where's The Business Value?

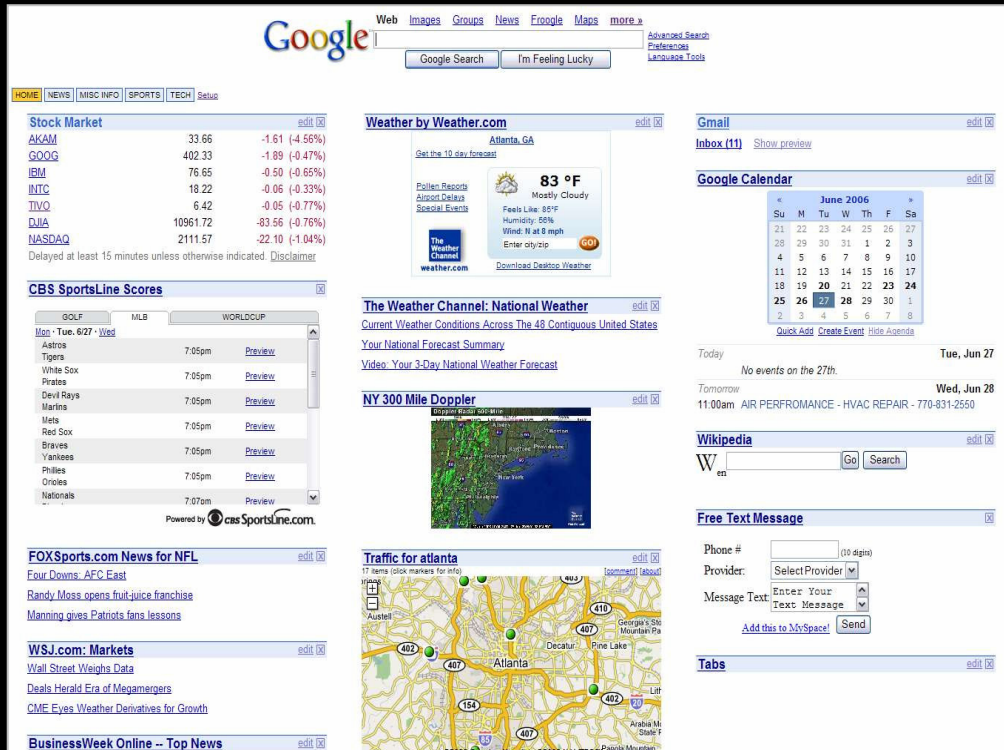
- Targeting niche markets - Internet technologies continue enabling businesses to expand their ecosystems & partnerships
- A cornerstone for Web 2.0 is enabling your data & services to work for you in ways not originally designed to handle
- Unlocking valuable business data opens new business opportunities
- Instant business value - mashing up the right content both from intranet & internet sources to gain valuable insights

Key Business Drivers

- *LOB teams are just IT savvy enough to create their own services/solutions that drive their part of the business (Igniting the Phoenix: A New Vision for IT/Sapir)*
- *Cost of customization down by orders of magnitude...therefore enables acting on emergent business opportunities quickly. (Rather than design general purpose - turn around in an economic way touch diverse users)*
- *Business world “standardizing” on web 2.0 content portability through syndication feeds & widgets*

Web 2.0 Technologies - Ajax

EXAMPLE: Rich User Interface - Web 2.0 services enable rich user experiences to facilitate greater ease of use, ubiquity of access, and increased user affinity



The screenshot displays a rich web interface with multiple widgets and services:

- Google Search:** Search bar with "Google Search" and "I'm Feeling Lucky" buttons.
- Stock Market:** Table showing stock prices and changes for AKAM, GOOG, IBM, INTC, TIVO, DJIA, and NASDAQ.
- Weather by Weather.com:** Weather widget for Atlanta, GA, showing 83°F, Mostly Cloudy, and other details.
- CBS SportsLine Scores:** Sports scores for various teams like Astros, Tigers, White Sox, etc.
- FOXSports.com News for NFL:** News headlines such as "Four Downs: AFC East" and "Randy Moss opens fruit juice franchise".
- WSJ.com: Markets:** Market news headlines like "Wall Street Weighs Data" and "Deals Herald Era of Megameggers".
- BusinessWeek Online -- Top News:** Top news headlines.
- Weather Channel:** National weather conditions across the US.
- NY 300 Mile Doppler:** Doppler radar map for New York.
- Traffic for Atlanta:** Traffic map for Atlanta, GA.
- Gmail:** Email inbox showing 11 messages.
- Google Calendar:** Calendar for June 2006.
- Wikipedia:** Search bar for Wikipedia.
- Free Text Message:** Text messaging interface with fields for phone number, provider, and message text.
- Navigation:** "HOME", "NEWS", "MISC INFO", "SPORTS", "TECH" menu items.

- Leverages the WEB as a Platform
- Flash, Flex, Ajax, OpenLaszlo
- Typically uses XML to transfer data asynchronously
- Provide a more desktop-like experience over the web
- Leverages each technology for their own strengths

Web 2.0 Technologies - Syndication Feeds

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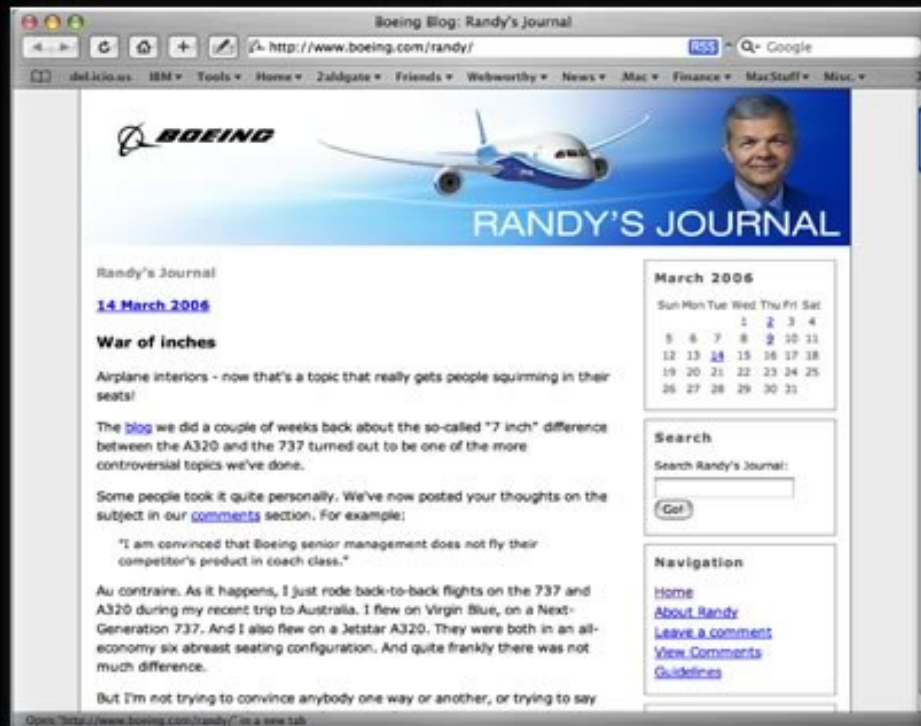
Ask Carrie: The Personal Side of Money
Carrie Schwab Pomerantz, Schwab Chief Strategist for Consumer Education, answers readers' personal finance questions.

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- Atom & RSS are an XML-based file format intended to enable lists of information, "feeds", to be synchronized between publishers & consumers
- Represents a fundamental shift in how consumers consume media – and web 2.0 application simplification
 - Content being transformed into RSS for application integration
 - Flickr using RSS for folks to see what new images are being uploaded
- APP (Atom Publishing Protocol) – could take this one step further
 - HTTP to edit and author web resources
 - 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

Web 2.0 Technologies - Blogs

EXAMPLE: Blogs - Communicating directly with customers, CEO's have begun to communicate directly with the public through blogs enabling an open dialogue to facilitate brand affinity.



- Short for weblogs
- Personal publishing systems
- Focused on the writing not the technology
- Built-in tech for connecting people, ideas, websites and other blogs
- Automatically generates RSS feeds
- Leaves trails of social media

Web 2.0 Technologies - Mash-ups

EXAMPLE: Mash-ups – Integration of disparate data source through simple scripting tools enables users to innovate by combining existing web services into entirely new applications.

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.

- Web Service which uses content from more than one source to create a completely new service
- Typically sourced from a third party via a public interface or API
- Simple methods of sourcing content for mashups include Web feeds (e.g. RSS or Atom) and JavaScript

Web 2.0 Technologies - Ajax

Open Ajax Alliance - Industry Collaboration

Industry group will support the development of open Ajax technologies & tooling

- Focus in 2 primary areas:
 - Marketing
 - White Papers
 - Technology
 - Interoperability via OpenAjax Hub
 - Task forces working on:
 - IDEs, Security, Server

90+ companies have joined since Feb 06



Borland®

dojo

eclipse

Google

IBM



mozilla

Novell



ORACLE®



YAHOO!



Good Examples of Web2.0/Ajax Technologies

- Zimbra Collaboration Suite - www.zimbra.com
- Housing Maps - www.housingmaps.com
- Engineering Heritage of Auckland - www.heritagewalks.co.nz
- Chicago Crime - www.chicagocrime.org
- Yahoo Mail "Beta" - mail.yahoo.com
- iGoogle "Home Page" - www.google.com
- Zoho Office & Productivity Suite - www.zoho.com
- NetVibes Web2.0 home page - www.netvibes.com
- Flickr - www.flickr.com
- Facebook - www.facebook.com
- MySpace - www.myspace.com
- YouTube - www.youtube.com
- Zillow - www.zillow.com
- Apple iPhone - www.apple.com/iphone

Agenda

What does the Emerging Technology do?

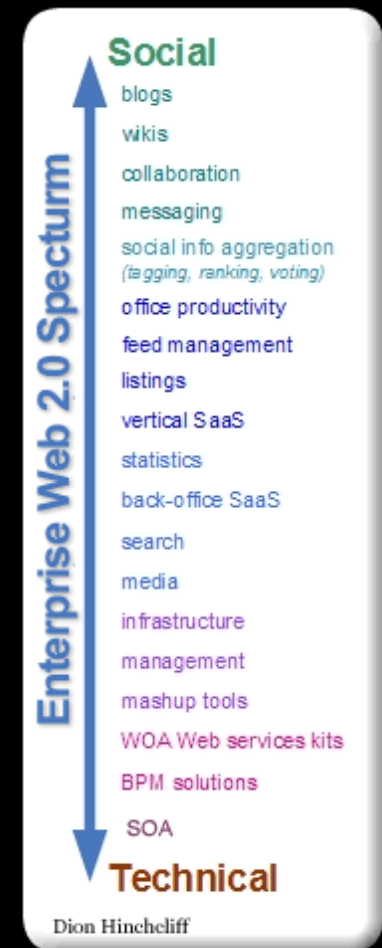
What is Web 2.0 About?

Web 2.0 Impact

Summary & Conclusions

Web 2.0 - Opportunities

- Target niche markets
- Transform existing corporate data into new business opportunity
- Improve the customer experience
- Build communities and collaboration
- Transform their web site into an Internet platform
- CIO's long tail - Significantly reduce the application backlog by empowering new classes of developers



Web 2.0 Impact - SMB/Enterprise Pain Points?

- Internet technologies continue enabling Businesses to expand their **ecosystems** & partnerships
- Partnerships cause integration work items it IT - usually requiring a minimum of 6 months per request
- **Change Happens** a number of business collaborations last less than 12 months - do the math
- **Attention Economy Factor** keeping a pulse on external business data that *could* impact results is constantly changing

...whole bunch of apps not being written today because they're not affordable

**What's
Should
Businesses
Do?**

Web 2.0 - Reshaping Lines Between IT, LOB & Customers

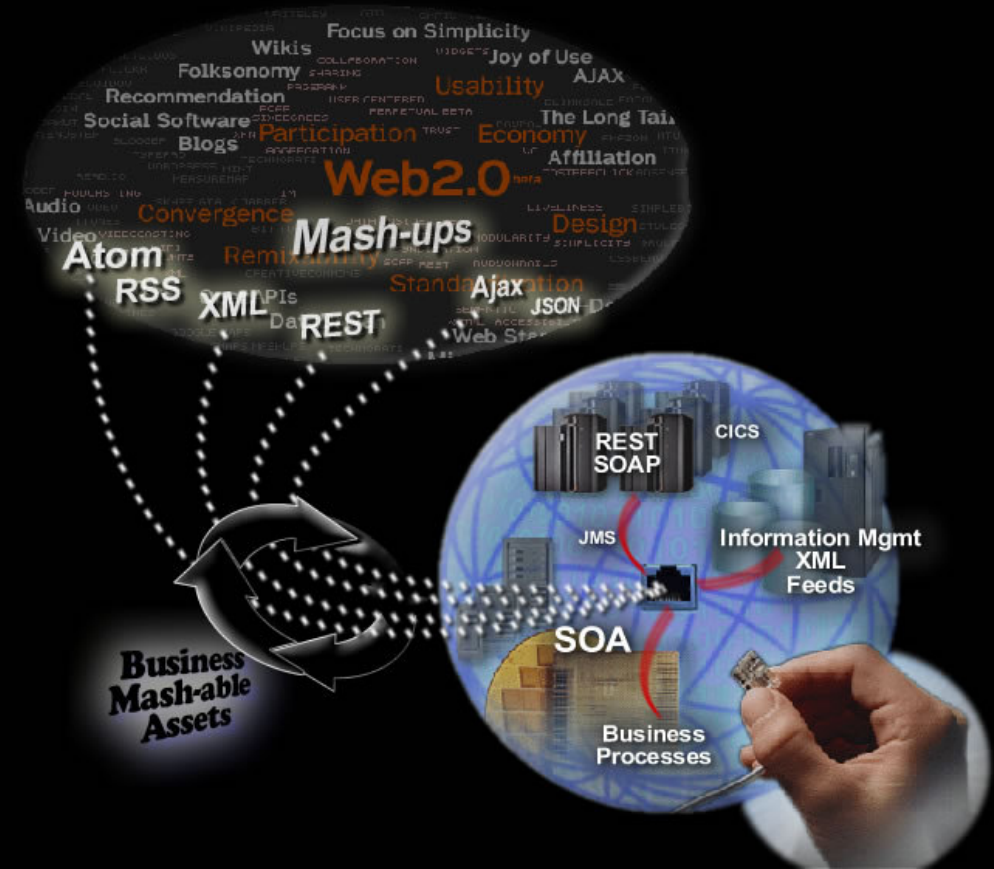
“ ...I want my IT Assets to be mash-able...

...businesses will be *exposing* more services to the Web, transforming the web into a platform...

...*consuming* more services and feeds from the Web

... *expanding* into ecosystems not reachable with prior technologies

...where folks use my services & content in ways not planned for by IT?”



inside Web 2.0: emerging “self service” business pattern



Emerging Mash-up Ecosystem



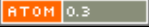
- ease of access to the data that can be combined in different ways for ad hoc business requirements
- designing for *re-mixability*
 - Combine data for diverse information services
 - Transforming into portable, remixable content
 - Discover-ability of content both internet & intranet
- exploiting *emergent* business opportunities
 - enterprise *mash-ups* - enabling “web apps” creation by LOBs & subject matter experts

Info 2.0 - emerging "self service" business pattern

Info 2.0

An integrated suite that enables the manipulation of mashable content into easily customizable, instant dashboards

4 steps for cooking up a mash-up

1. **Discover**   in the web - collect & post in mash-up hub *catalog*
2. **Find** company content (Excel, Docs, Access) and transform into *in catalog*
3. **Browse catalog**, discover related content to *filter, cleanse, join* to expose new business insights - post resulting *in catalog* 
4. **Assemble** a dashboard in the mash-up maker. Drag, drop feeds & widgets from palates, then arrange & wire to achieve desired business insights.

Dashboard complete, deployed & shareable with workgroup! Can easily repeat steps to customize based on evolving business needs & newly discovered content

- ✓ (Behind the scene, anRSS/Atom Feed Server is responding to the mash-up makers requests. The Feed server has all the QoS, Security, scalability built in)



Where do I start?

...how do I
make my
data **mash-able**



Enterprise
 mash-ups

Info 2.0 - Discover Remixable Content

Mash-up Hub connects web 2.0 mash-up creators with public & company re-mixable content to assemble their solutions.

This component incorporates an enterprise RSS/Atom feed server along with web 2.0 social networking features such as tagging, ratings, comments necessary for community business collaboration

The screenshot shows the Mashup Hub interface. At the top, there is a search bar and navigation tabs for 'My Stuff', 'All', 'Feeds', and 'Widgets'. A 'Tagging' callout points to the 'Tags' column in the main table. A 'User Ranking' callout points to the 'Rating' column. The main table lists various mashups with their titles, tags, added dates, ratings, and authors. A sidebar on the left contains 'Categories' and 'Tags' sections.

Title	Tags	Added	Rating	Author
Access Test		June 14, 2007	★★★★★	Nikolay Mutafov
American Express Entertainment Offers	Travel, Dining	June 11, 2007	★★★★★	Dan Gisolfi
Maritime Attacks from 2006	icc, maritime, attack, sql	May 11, 2007	★★★★★	Dan Gisolfi
NOAA Weather Alerts	weather		★★★★★	Joel Farrell
NY Times News Feed	news, nytimes	May 9, 2007	★★★★★	John Feller
Popular Del.icio.us Tags	Dapp	May 10, 2007	★★★★★	Dan Gisolfi
Programmable Web News	Web2	June 5, 2007	★★★★★	Dan Gisolfi
QEDWiki News	MashupMaker, Yahoo, QEDWiki	May 10, 2007	★★★★★	Dan Gisolfi
San Jose Criminals	Criminals	June 20, 2007	★★★★★	Dan Gisolfi
San Jose MLS Listing	real, estate	June 20, 2007	★★★★★	Dan Gisolfi
Top News Stories	atom, yahoo, news	May 9, 2007	★★★★★	John Gerken
TV Guide Podcasts	Television, podcast	June 11, 2007	★★★★★	Dan Gisolfi
Avian Flu Pipe	avianflu, yahoo, yahoopipes	May 9, 2007	★★★★★	Dan Gisolfi
USDA Bird Flu Videos	Influenza, USDA, Dapp	June 1, 2007	★★★★★	Dan Gisolfi
XML Feed Widget	feed, xml, widget, qed	May 16, 2007	★★★★★	Mike Whitley
Yahoo Finance Charts	finance, charts, yahoo	May 10, 2007	★★★★★	Jason C. Wagner
Yahoo Finance Feed Widget	finance, yahoo	May 10, 2007	★★★★★	Jason C. Wagner
Yahoo Geocoder	geocode, yahoo	May 10, 2007	★★★★★	Jason C. Wagner
Yahoo Image Search	search, image, yahoo	May 10, 2007	★★★★★	Jason C. Wagner
Yahoo Sports News	atom, yahoo, news, sports	May 9, 2007	★★★★★	Seth Peterson
BBC Cycling News	Cycling, News	June 15, 2007	★★★★★	Dan Gisolfi

Mash-up features for content developers are:

- Browse & discover remixable content
- Register existing feeds - tag, comment & rate
- Secure access to sensitive corporate data

- Support for authenticated feeds & widgets
- Feed & widget versioning for governance
- Controlled access feeds & widgets - I.e. who can view
- Publish controls but public & private for LOBS
- View & sort feeds by tags, categories, Author, etc..

Info 2.0 - Step1. Start Design with the Data

From mashup hub, start by registering or creating a new feed:

Create feeds from:

- SQL files
- Excel
- CICS
- XML
- WAS Connectors for SAP & PeopleSoft, etc.
- Tivoli
- Jazz
- Lotus Connections & Notes

Simple form to provide a title, description, version and tagging...

...then select the content to transform into a feed

Mashup Hub

Search

My Stuff All Feeds Widgets

Login:
Password:
Login
Click here to register!

All Items Feeds Widgets

Title	Tags	Added	Rating	Author
Access Test		June 14, 2007	★★★★★	Nikolay Mutafov
American Express Entertainment Offers	Travel, Dining	June 11, 2007	★★★★★	Dan Gisolfi
Maritime Attacks from 2006	icc, maritime, attack, sql	May 11, 2007	★★★★★	Dan Gisolfi
Weather	weather	May 9, 2007		Tom Farrell

New

My Stuff
Help

Categories:

- General
- Enterprise
- Project
- CRM
- Finance
- Sales
- Production
- Mobile
- HR
- IT

Tags:

- Cloud
- List
- CDC Criminals
- Cycling Dapp
- Dining Flu
- Influenza
- MashupMaker
- QEDWiki Television
- Travel USDA Web2
- atom attack
- avianflu charts
- estate feed finance
- geocode loc image
- maritime
- news nytimes
- podcast qed real
- search sports sql
- weather widget

Inventory Information

Please provide the following information.

Title: (Enter a title for this entry)

Description: (Enter a long description)

Version: (Example: 1.0.0, 2.1.1.x etc.)

Tags: (Example: tag1, tag2, tag3)

Status: Unpublished

- > Details View
- > Set Categories
- > Set Documentation
- > Set Related Entries
- > Delete Entry

Select a type:

- widget
- xml
- access
- SQL
- excel
- RSS
- atom

Creating new feeds from...

Info 2.0 - Step 2. Transform & Remix Feeds

Data Mashup Fabric for Intranet Applications

Damia is a browser-based component of Info 2.0 that enables data in the mash-up hub to be remixed in a variety of ways - such as filter data based on specific values, sort the data, or publish it as a new feed.

Remix features are:

- Importing Feeds
- Filtering Feeds
- Annotate Feeds
- Merge Feed
- Publish Feeds
- Transform Feeds
- Group/Sort/Union Feeds

The screenshot displays the IBM Data Mashup Fabric interface. At the top, it shows the user 'Rod Smith' and the mashup name 'City Policy'. The main workspace contains a workflow diagram with the following components: 'Import (NWS)', 'Annotate (City)', 'Import (Policies)', 'Annotate (City)', 'Merge (City)', and 'Publish'. The 'Publish' operator is highlighted in green. Below the workflow, the 'PARAMETERS' panel for the 'PUBLISH' operator is visible, showing the 'Output Type' dropdown menu with options: Atom, RSS, and XML. The 'ADVISE AND HELP' section provides a description: 'The Publish operator publishes the output of the mashup as a feed for further consumption by feed aggregators or AJAX applications, or to be used as input to other mashups. Publish supports the types Atom, RSS, and XML.'

Demonstrations

- QEDWiki & Manipulation of Feeds/Content
 - "Weather"
 - "NYC Railroad"
 - "Relocation"

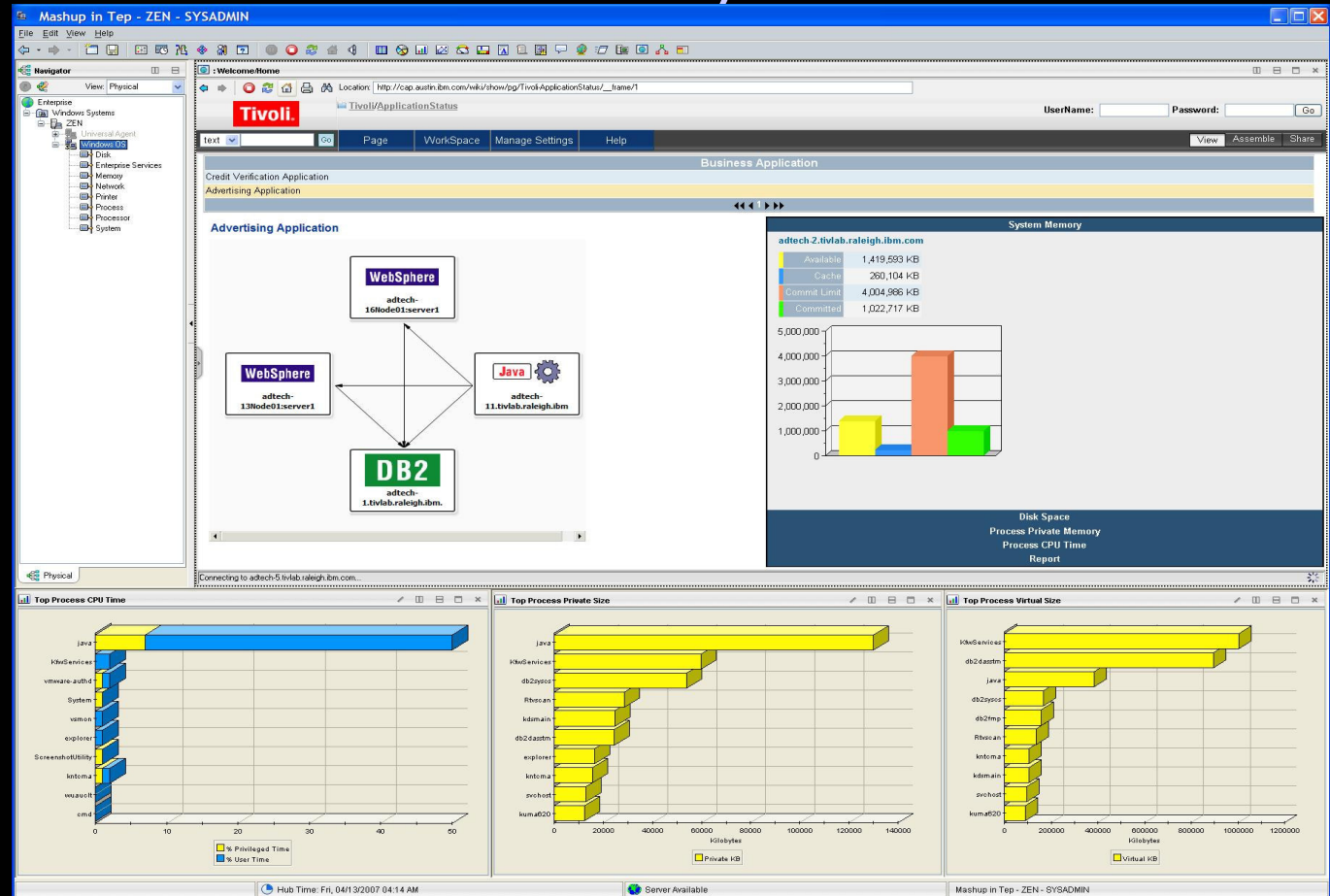
Using Mashup Maker to Create Integrated Tivoli Application

Features

- ❖ Ability to integrate services from multiple management tools in the context of a service.
- ❖ Ability for an application owner to manage the service with an end to end view.
- ❖ Ability to change the interface as the need arises.

IBM Solutions Utilized

- ❖ IBM Tivoli Change and Configuration Management Database
- ❖ IBM Tivoli Monitoring
- ❖ IBM Tivoli Provisioning Manager
- ❖ IBM Tivoli Provisioning Manager for OS Deployment
- ❖ **IBM QEDWiki technology**



Web 2.0 benefits

- ❖ **Simplicity** – lower level of skills needed to create and use tools.
- ❖ **Community** – content built in cooperation with the users or built by the users.
- ❖ **Relevance** – presentation of information based on need.

Agenda

What does the Emerging Technology do?

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Summary & Conclusions

Closing Thoughts/Summary

Web 1.0	Web 2.0
Servicing the Masses	Servicing the Long Tail
Focus on Software	Focus on Data and Web Services
Coordination	Syndication
All Rights Reserved	Some Rights Reserved
Connecting Computers	Connecting People

Summary - Web 2.0 Impact on Apps

Web 2.0 technologies will significantly lower the cost and skill required to build composite applications (which utilize backend SOA business services)

- Enables growth in a market for “millions of applications - dashboards” that serve niche markets
- Empowers sophisticated users

Summary - Web 2.0 Impact on Middleware

Customer Needs	Middleware Extensions
Make data available as feeds	<ul style="list-style-type: none">• Application adapters and connectors• RSS / Atom enabled middleware
Assemble content centric applications from feeds	<ul style="list-style-type: none">• Tools that make it easy to create and consume feeds• Different sets of tools targeting different audiences: from power users to J2EE programmers
Deploy and manage Web 2.0 applications	<ul style="list-style-type: none">• Quality of service• Mechanisms which guarantee availability & data accuracy• Security

Summary - Evolving Web-Oriented Architecture

Rich Internet Applications

AJAX incorporating: XHTML and CSS, DOM, XML and XSLT;; XMLHttpRequest and JavaScript binding everything together."

Instant Web Apps

Empo
collab

A web of **data sources**, services for exploring and manipulating data, and ways that users can connect them together

Lightweight Programming Model

REST,

Mash-able Assets

Remix Tom Coates
approach for web-app composition

Feeds

Atom, RSS enable folks to link not just to a page, but to subscribe to it, with notification every time that page changes.

*Back-up Slides
Summarizing Changes in Web 2.0*

MetaTrend

- **New business models:**

- Focus on data and web services, not packaged software.
- Use software above the level of a single device.
- Employ lightweight user interfaces, development models, and business models.
- Use syndication to connect people, harnessing their collective intelligence.
- Trust users as co-developers, making data sources richer as more people use them.

MetaTrend

- **New social models** in which user-generated content can be as valuable as traditional media, where social networks form and grow with tremendous speed, where truly global audiences can be reached more easily, and rich media from photos to videos is a part of everyday life online.
- **New business models** facilitated by changes in infrastructure costs, the reach of the Long Tail, viral network-driven marketing, and new advertising-based revenue opportunities.
- **New technology models** in which software becomes a service; the Internet becomes the development platform, where online services and data are mixed and matched; syndication of content becomes glue across the network; and high-speed, ubiquitous access is the norm.

* O'Reilly -- Web 2.0 Principles and Best Practices

WEB 2.0 - Quick and simple “social tools” with different functionality and business impact.

<p>Social networks Technology that allows users to leverage personal connections.</p>		<p>P2P file sharing Sharing media files over a network powered by users who act as both client and server.</p>	
<p>RSS An XML standard that lets users collect and read content feeds.</p>		<p>C2C eCommerce Buying and selling among consumers via the Net.</p>	
<p>Open source software Publicly available software that can be copied or modified without payment.</p>		<p>Comparison shopping sites Sites that allow consumers to compare products or services.</p>	
<p>Blogs Online diaries of text, photos, or other media.</p>		<p>Podcasts Online audio or video that users can download to a device.</p>	
<p>Search engines Services that find Web content based on user-specified criteria.</p>		<p>Wikis/Collaboration software Shared publishing software or site that allows users to edit content.</p>	
<p>User review portals Web portals that allow users to search for peer reviews on a product or service.</p>		<p>Tagging Metadata assigned to items like photos or Web pages to facilitate searching and sharing.</p>	

Source: Forrester Research, Inc

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Source: Forrester Research, Inc

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Spectrum of Ajax toolkit approaches – 250+ toolkits



adaptive layout *globalized* *multimedia*
comprehensive *all-or-nothing*
declarative *data binding* *extensibility*
encapsulating *vector graphics* *framework*
styles and themes *widgetry*
events *library* *special effects*
browser *communication*
compatibility *snippet*

These will consolidate down to 3-5 by developer demographic - Enterprise OO experienced, Designer/JavaScript-HTML, etc.