Services Foundation

Msc in Management - Services Science

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Lecture 3 / 4 / 5

Technologies for Services

- Interaction Modes (Publish /Subscribe)
- (SOA) / Mashups / Clouds
- Services Composition and Orchestration

Lecture 3: Summary

Interaction Modes

- Publish / Subscribe
  - Basic interaction scheme
  - Data delivery mechanism
    - Push / Pull
  - Topic- / Content- / Type- based
  - Location-based publish/subscribe
- Alternatives
  - Message passing / RPC / Shared spaces / Notifications / Message queuing

Lecture 4: Summary

Mashups

- What is a mashup?
- Mashup infrastructure

Cloud Engineering

- Data Warehouse Center
- Computing Strategies

What is a mashup?

http://techaxe.com/2010/06/15/very-easy-to-create-web-pages-using-mashups-but-what-are-the/

Mashups

A **mashup** is a Web page or application that uses and combines data, presentation or functionality from two or more sources to create new services. The term implies easy, fast integration, frequently using open APIs and data sources to produce enriched results that were not necessarily the original reason for producing the raw source data.

The main **characteristics** of the mashup are combination, visualization, and aggregation. It is important to make existing data more useful, moreover for personal and professional use.

To be able to permanently access the data of other services, mashups are generally client applications or hosted online.

In the past years, more and more Web applications have published APIs that enable software developers to easily integrate data and functions instead of building them by themselves. Mashup composition tools are usually simple enough to be used by end-users. They generally do not require programming skills and rather support visual wiring of GUI widgets, services and components together.

http://en.wikipedia.org/wiki/Mashup_%28web_application_hybrid%29

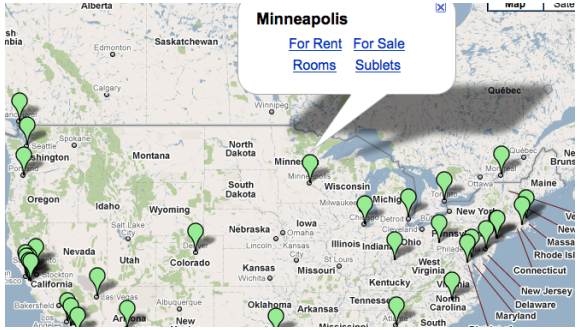
Mashups

A **consumer mashup** is an application that combines data from multiple public sources within a browser and organizes it through a simple browser user interface.

An **enterprise mashup**, also often called a **business mashup**, is an application that combines data from multiple internal and public sources, and publishes the results to enterprise portals, application development tools, or as a service in a service-oriented architecture.

A **data mashup**, opposite to the consumer mashups, combine similar types of media and information from multiple sources into a single representation. The combination of all these resources create a new and distinct Web service that was not originally provided by either source. (DaaS – Data as a Service)

Examples



Combination with Google Maps

HousingMaps: combines rental listings from Craigslist with Google Maps for a visual representation of local apartments for rent.

Wikipediavision: combines Google Map and a Wikipedia API

List of such services:
http://googlemapsmania.blogspot.com/

Combination with eBay

RSS feeds and Google Maps

http://mapifiedrss.gmapify.fr/

Mashup Architecture

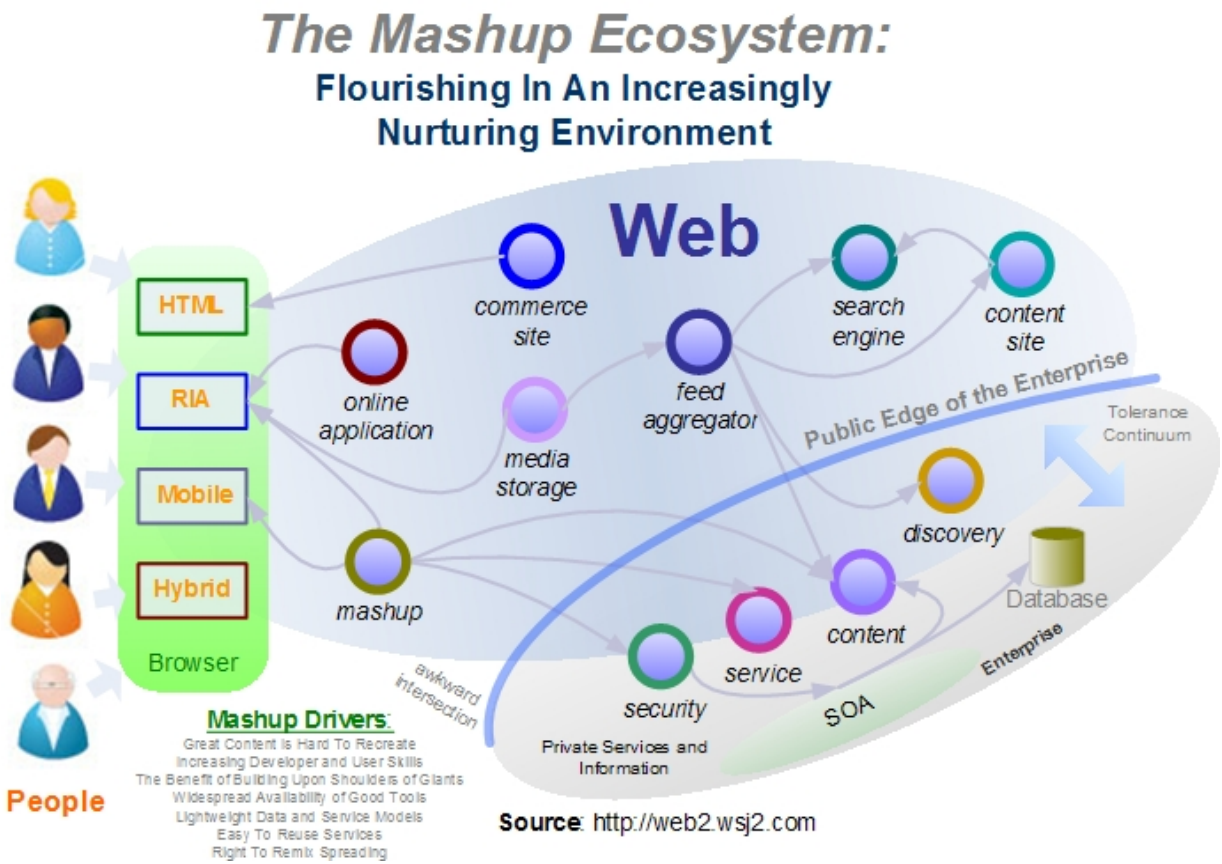
3-tier architecture

Presentation: Mashups are almost always presented visually, in portals or portal-like applications.

Mashup Infrastructure: Technology for accessing, assembling, and processing mashups, as well as ultimately serving them to applications.

Information Sources: Virtually anything that is a 'service' can be an information source for a mashup. This includes internal databases, flat files, Java objects, Web Services and REST and external RSS feeds.

Mashup View



http://techaxe.com/2010/06/15/very-easy-to-create-web-pages-using-mashups-but-what-are-the/

Mashup Technology

Three layers

Presentation / User interaction: this is the user interface of mashups. The technologies used are HTML/XHTML, CSS, Javascript, Asynchronous Javascript and Xml (Ajax).

Web Services: the products functionality can be accessed using the API services. The technologies used are XMLHTTPRequest, XML-RPC, JSON-RPC, SOAP, REST.

Data: Handling the data like sending, storing and receiving. The technologies used are XML, JSON, KML.

Pros and Cons

Innovation potential: fusion of multiple services. More services at a low cost with reusable components.

Use of Open APIs: allow to diffuse content of service adapted to the needs of users.

Security problems: aggregation of own site with application coming from unknown source using APIs not fully understood by “developer”.

Why Mashup?

Access both internal and external information faster. Mashups access – and combine – data faster than almost any other method, avoiding complex APIs and middleware and leveraging information that is easy to access. For certain business scenarios, where speed is critical, mashups are a fast way to get to critical business information.

Make better business decisions. Mashups give business users the ability to assemble their own 'situational applications' in response to ever-changing business requirements.

Combine your business data in new ways. Mashups integrate different data sources – corporate data from current systems mashed up with external data, all provided to the user in a browser for efficiency and speed.

Characteristics

A dynamic combination of external data sources and internal data source (public and private).

Created for the user, usually by a 'power-user'.

Designed to be tagged/searchable/shared.

A dynamic/ ad-hoc requirement that will change over time (in other words, not anticipated to be a heavy duty, transaction based application that requires extensive knowledge of a legacy system).

Typically targeted at a few users - usually line-of-business people needing to make ad-hoc decisions.

An application that requires rapid assembly of information and other opinions and data, where some of that information is located externally.

Time-sensitive information requirement, sometimes competitive in nature, and requires some workflow or collaboration with multiple data sources.

Low-cost application requirement, with rapid delivery time

Examples

Demographics against product and services offerings

Daily sales charted against inventory.

Regional military assets with enemy positions.

Product defects associated with blog comments on the web.

Expenses graphed to competitor's expenses.

Product prices compared to competitors' prices.

Portfolio charted against market news headlines.

Internal job postings matched to external resumes.

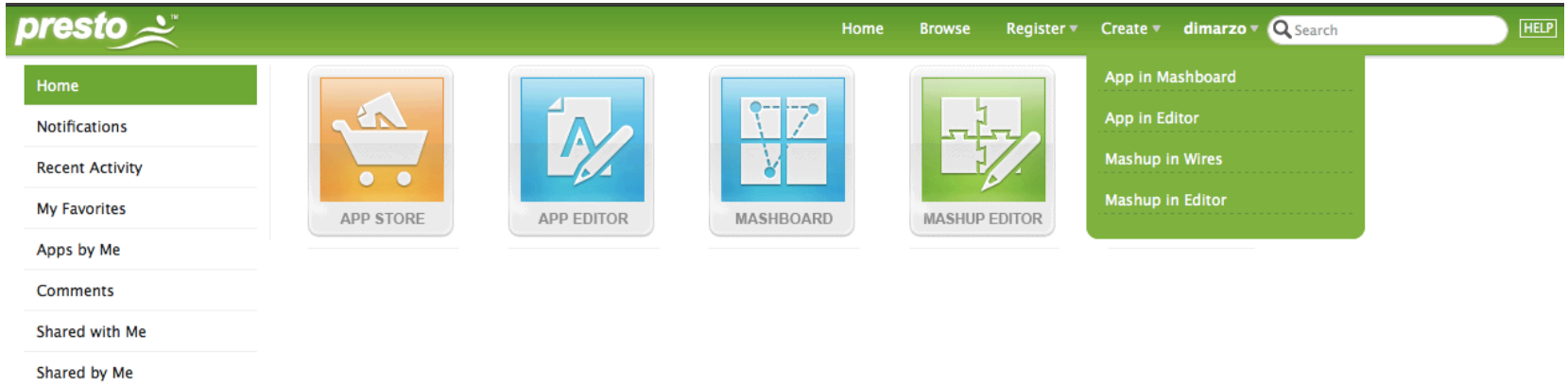
Call center with package tracking with google maps.

And more: http://www.jackbe.com/mashups/7mashups.php

Mashup Infrastructure Tool

Presto Tool

http://prestocloud.jackbe.com/prestohub/home.html



Mashup Infrastructure Tool

Presto Tool

Explains how to make a mashup

http://www.jackbe.com/tv/

Cloud Service Engineering

http://www.slideshare.net/gwendal/cloud-engineering

Summary

Mashups

- What is a mashup
- Mashup infrastructure

Cloud Engineering

- Data Warehouse Center
- Computing Strategies (cf MapReduce, WebSearch)

Recommended Reading

http://www.jackbe.com/mashups/

http://www.makeuseof.com/tag/cloud-computing-work-technology-explained/