

Advanced web technology

高级Web技术

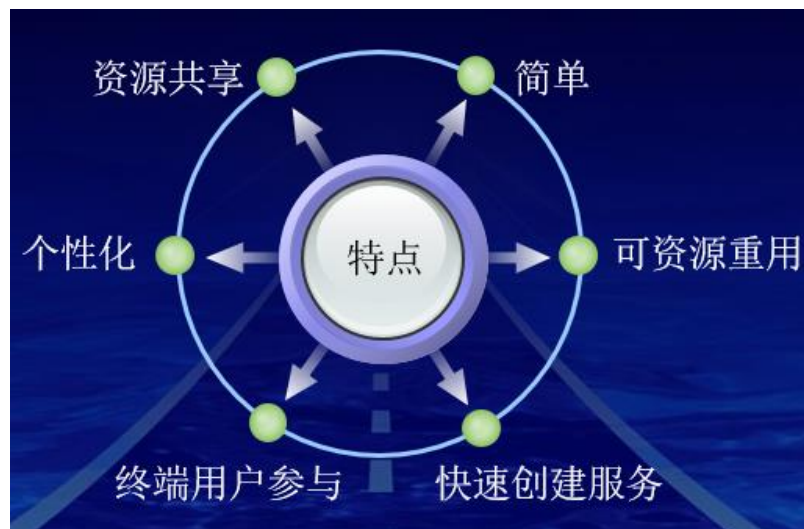
Mashup

Mashup

■ 什么是 Mashup?

混搭(Mashup)是一种基于Web Services、资源元数据规范 Ajax,RSS,Web API等技术的网络应用开发技术,它可以将不同站点或应用程序的数据、资源、API加以混聚来构建新的应用和业务流程

- 最初的时候, **Mashup** 应用的含义只局限于在一个页面上集成了几个网站的内容
- 发展成为对来自不同网站的信息进行处理,增加自己的业务逻辑,比如筛选过滤等等



Mashup

■ mashup 程序架构

- **API/内容提供者:聚合来源**
 - 提供API
 - 屏幕抓取 : HTMLParser , DataScrape, Harvest
- **mashup 站点: 聚合内容**
- **客户机的 Web 浏览器: 交互聚合内容**



Mashup

■ Mashup 类型

– 地图 mashup

- Google Maps API ; Microsoft (Virtual Earth) 、Yahoo (Yahoo Maps) 和 AOL (MapQuest)

– 视频和图像 mashup

- Flickr 使用自己的 API 来共享图像

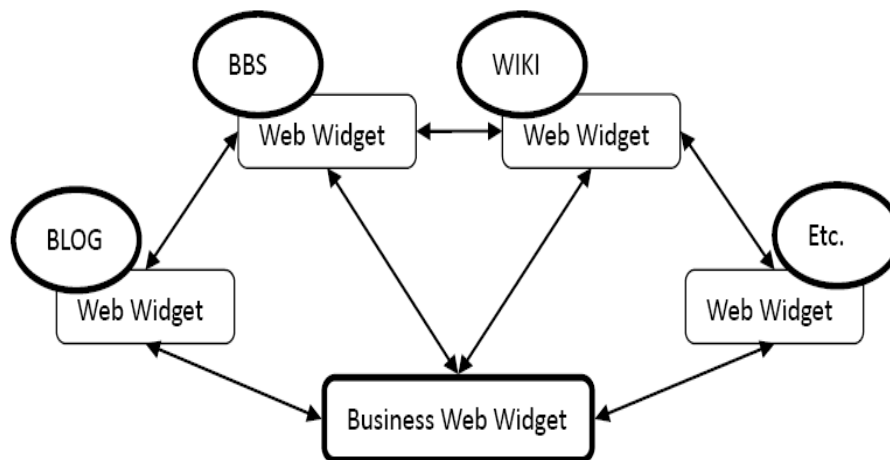
– 搜索和购物 mashup

- eBay 和 Amazon 之类的消费网站已经为通过编程访问自己的内容而发布了 API

– 新闻 mashup

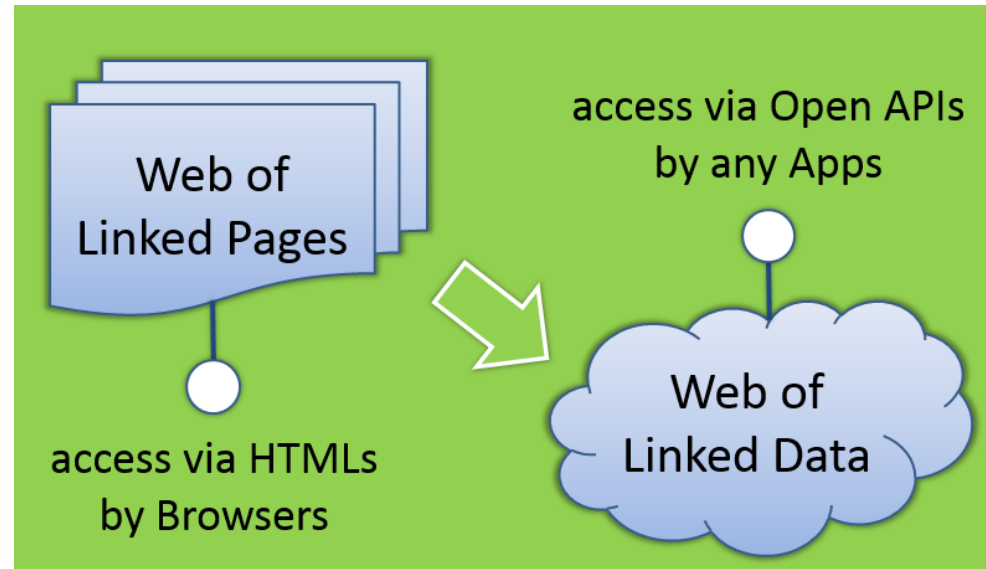
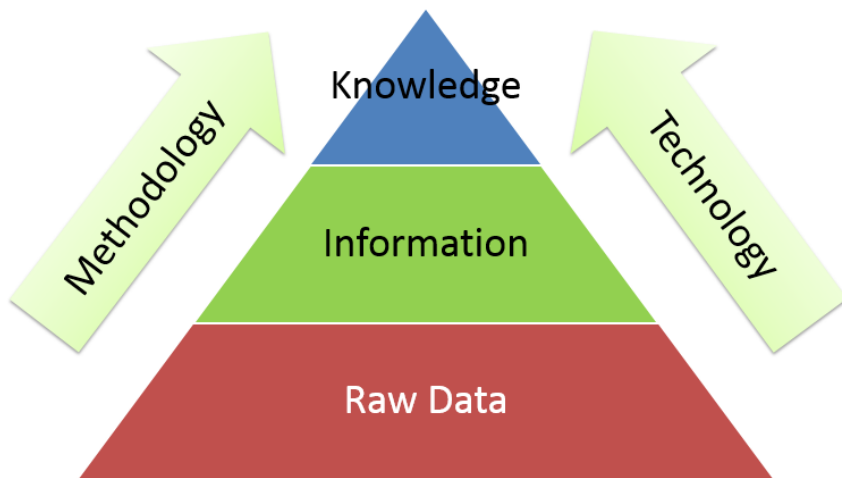
- Diggdot.us

– ...



Mashup

■ 基于数据的整合



Mashup

■ 基于数据的整合

– RSS

- Really Simple Syndication或者Rich Site Summary
- 轻量级、多用途、可扩展的元数据描述及内容聚合推广格式

```
<?xml version="1.0" encoding="ISO-8859-1" ?>
<rss version="2.0">

<channel>
  <title>W3Schools Home Page</title>
  <link>http://www.w3schools.com</link>
  <description>Free web building tutorials</description>
  <item>
    <title>RSS Tutorial</title>
    <link>http://www.w3schools.com/rss</link>
    <description>New RSS tutorial on W3Schools</description>
  </item>
  <item>
    <title>XML Tutorial</title>
    <link>http://www.w3schools.com/xml</link>
    <description>New XML tutorial on W3Schools</description>
  </item>
</channel>

</rss>
```

RSS 2.0

Mashup

■ 基于数据的整合

– Atom

- 一种基于XML的超媒体格式，弥补了RSS的许多不足
- IETF组织标准化程序下的一个开放的标准

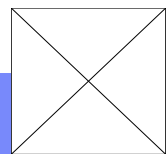
```
<?xml version="1.0" encoding="utf-8"?>
<feed xmlns="http://www.w3.org/2005/Atom">

  <title>Example Feed</title>
  <link href="http://example.org/" />
  <updated>2003-12-13T18:30:02Z</updated>
  <author>
    <name>John Doe</name>
  </author>
  <id>urn:uuid:60a76c80-d399-11d9-b93C-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>
```

XML Atom 0.3

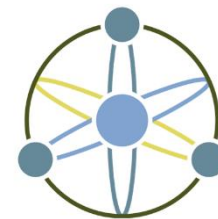
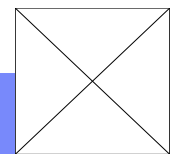
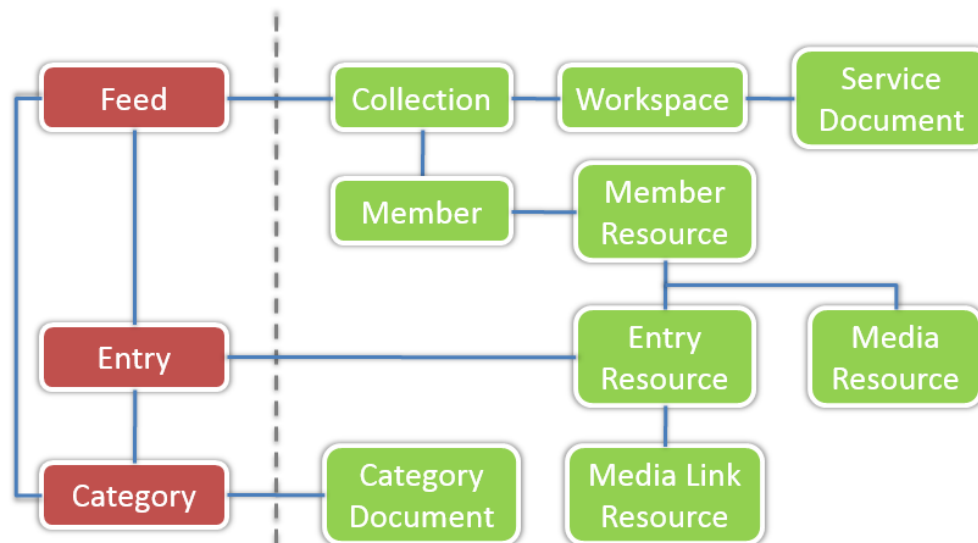


Mashup

■ 基于数据的整合

– AtomPub (APP)

- *Atom Publishing Protocol*, Atom发布协议
- 一个简单的基于RESTful的协议，用于创建和更新Web资源

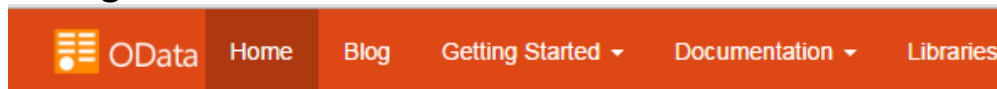
**Atom***syndication format***AtomPub***publishing protocol*

Mashup

■ 基于数据的整合

– odata

- 微软公司启动的Open Data Protocol（开放数据协议，OData）是用来查询和更新数据的一种Web协议。
- 构建于HTTP、Atom Publishing Protocol和JSON等web技术之上。



Open Data Protocol

What is the OData protocol?

The Open Data Protocol (OData) enables the creation and consumption of **REST** APIs, which allow resources, identified using URLs and defined in a data model, to be published and edited by Web clients using simple HTTP messages.

Mashup

■ 基于数据的整合

– Gdata: Google Data Protocol

- GData是Google Data API的简称，扩展了原有的RSS和Atom协议，使用Atom发布协议（Atom Publishing Protocol），用于网络数据的读写。

Google Data APIs

Google Data APIs
API Directory
Client Library Downloads
Google Data Protocol
Developer's Guide
Version 2.0
Protocol Basics
Protocol Reference
Common Elements
Version 1.0
Protocol Basics
Protocol Reference
Common Elements
JSON Alt Type
Batch Processing
More Resources
Authentication
Overview
ClientLogin
OAuth

API Directory

The following Google services provide APIs that implement the Google Data Protocol.

Each API has its own set of guides and resources, including information about using client libraries. If you're trying to accomplish a certain task with an API, the Developer's Guide for that API should point you in the right direction. Most APIs also include code samples and other easy ways to get started.

Warning: Several of the APIs listed on this page are deprecated or obsolete, and some have been replaced with APIs that aren't Google Data APIs.

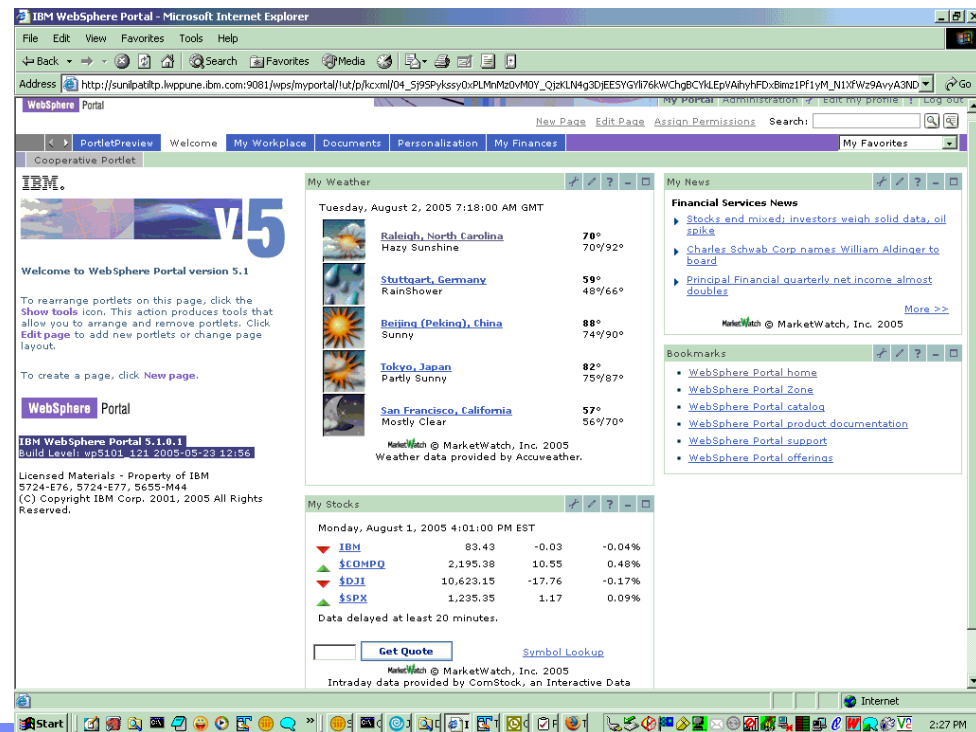
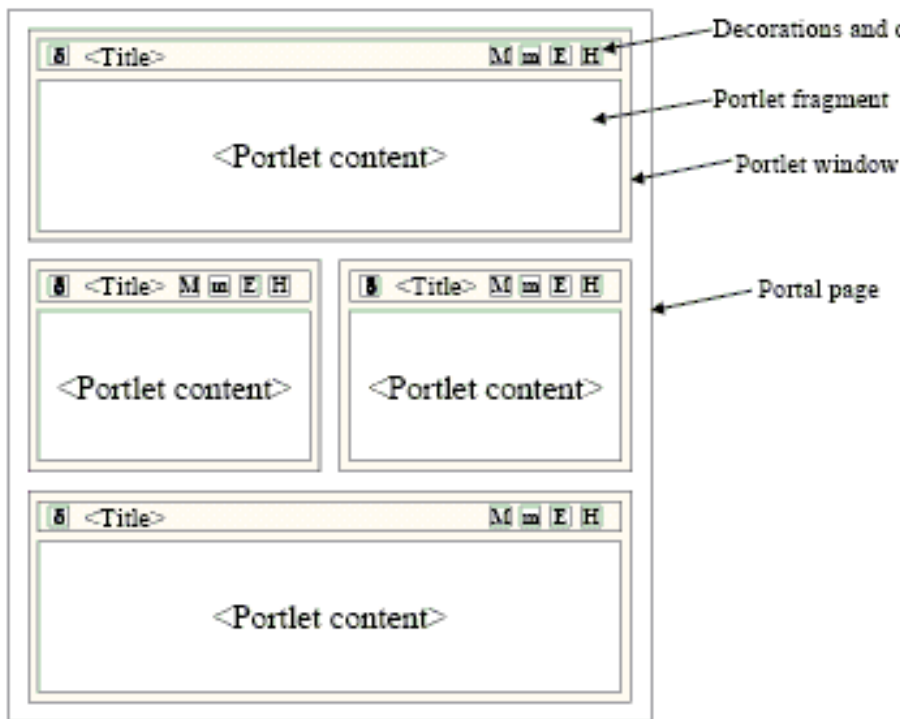
API Home	Guides	Client Libraries
Google Analytics Data Export API	Developer's Guide Reference Guide	Client Libraries and Sample Code (JS, Java, PHP, Python, Ruby)
Google Apps APIs	Links to all Apps APIs	
Google Base Data API		
Blogger Data API	Developer's Guide Reference Guide	Client Libraries and Sample Code (Java, .NET, PHP, Python, JS, Obj-C)
Google Booksearch Data API		
Google Calendar Data API	Developer's Guide Reference Guide	
Google Code Search Data API		

<http://code.google.com/apis/gdata/>

Mashup

■ Portal和portlet

- 门户可以被认为是内容和应用程序的聚合
- **Portal和portlet**

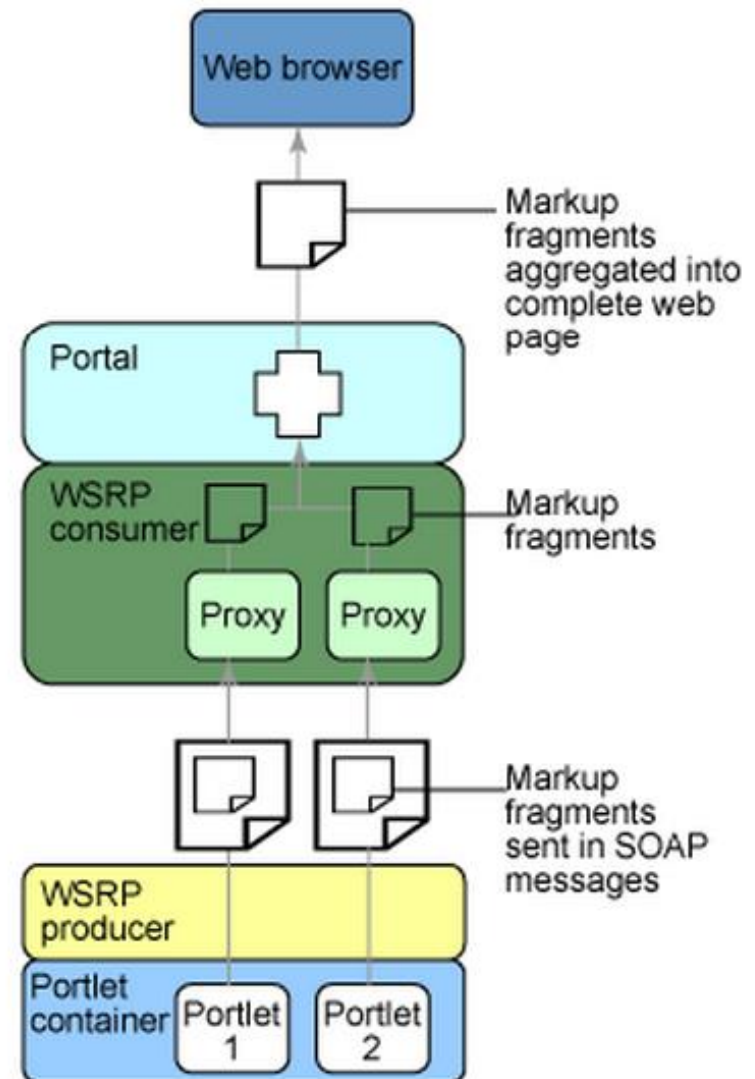
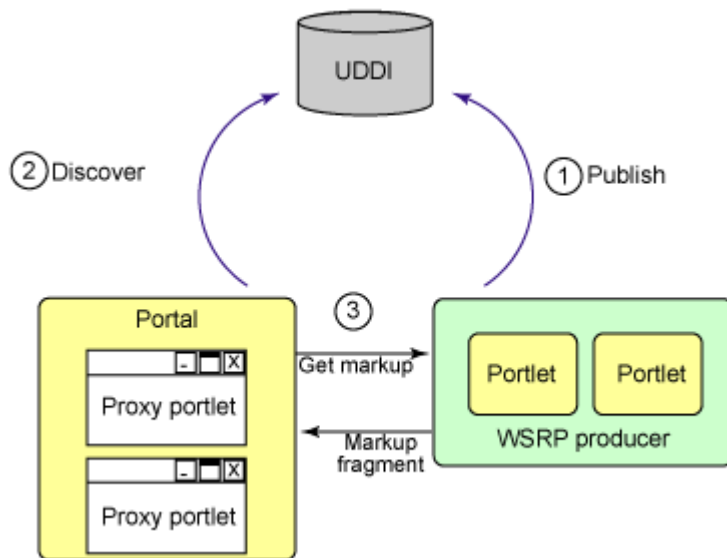


Mashup

■ WSRP和portlet

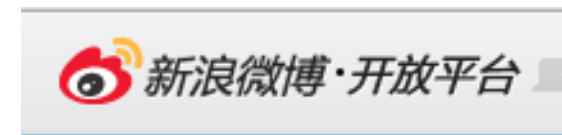
– Web Services for Remote Portlets

- 基于Web Services技术
- 面向远程portlet的集成



Mashup

■ Web API



Mashup

- 基于Web API的Mashup
 - 可编程Web

What is IFTTT? IFTTT is a service that lets you create powerful connections with one simple statement:



ifttt.com (if this then that) : 将 if...then...else 的语言机制扩充到了整个互联网, 将Facebook, twitter等各个网站或者应用通过API衔接成了一个跨互联网的自动机器。比如我们可以设定: 如果有人在 Facebook 的照片中@我, 这张照片就自动上传到我的 Dropbox 上

API Dashboard
API news, how-to, contests and comprehensive database of API resources

API Directory
Total APIs: 11196
Past 7 Days: 38
Past 30 Days: 154

Featured API
DocuSign
Read more on PW

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

Latest API
OneNote

New APIs
OneNote
YayMicro
Brandwatch
jsDelivr
Blue Button Connector
See more new APIs

Browse our API DB
View all APIs
By Category
By Mashups
Add an API
How-To Guide

Top APIs for Mashups
Last 14 days | See all time

Click on a slice or label to see details

API	Percentage
Plivo	21%
Facebook	14%
BingMaps	14%
Finansportalen	7%
IMSAS	7%
BingStaticMaps	7%
Page2Images	7%
Mallgun	7%
CoinDesk	7%
LinkedIn	7%

ProgrammableWeb.com 03/21/14

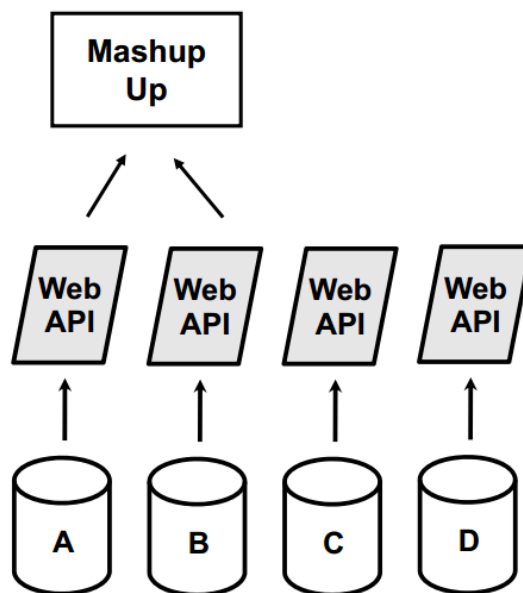
Mashup

Web API实例

- Yahoo! 的天气搜索的 API (zip code 94089)
 - <http://weather.yahooapis.com/forecastrss?p=94089>
- del.icio.us获得收藏信息
 - <http://api.del.icio.us/v1/posts/recent>

• • •

REST化的Web
Services



Mashup

■ Web API

- **Google Data Protocol GData:** <http://code.google.com/apis/gdata/>

Google Data APIs

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API Directory
Client Library
Downloads

Google Data Protocol

Developer's Guide
Version 2.0
Protocol Basics
Protocol Reference
Common Elements

Version 1.0

Protocol Basics
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JSON Alt Type
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More Resources








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API Home	Guides	Client Libraries
 Google Analytics Data Export API	Developer's Guide Reference Guide	Client Libraries and Sample Code (JS, Java, PHP, Python, Ruby)
 Google Apps APIs	Links to all Apps APIs	
 Google Base Data API		
 Blogger Data API	Developer's Guide Reference Guide	Client Libraries and Sample Code (Java, .NET, PHP, Python, JS, Obj-C)
 Google Booksearch Data API		
 Google Calendar Data API	Developer's Guide Reference Guide	
 Google Code Search Data API		

Mashup实例

■ 微信公众平台开发模式流程逻辑



微信公众平台开发模式流程逻辑图

Mashup实例

■ 微信公众平台开发

接口配置信息

URL

必须以http://开头，目前只支持80端口

Token

必须为英文或数字，长度为3-32字符

消息回复

对于每一个POST请求，开发者在响应包中返回特定xml结构，对该消息进行响应（现支持回复文本、图文、语音、视频、音乐和对收到的消息进行星标操作）。

微信服务器在五秒内收不到响应会断开连接。

回复xml结构如下：

回复文本消息

```
<xml>
<ToUserName><![CDATA[toUser]]></ToUserName>
<FromUserName><![CDATA[fromUser]]></FromUserName>
<CreateTime>12345678</CreateTime>
<MsgType><![CDATA[text]]></MsgType>
<Content><![CDATA[content]]></Content>
<FuncFlag>0</FuncFlag>
</xml>
```

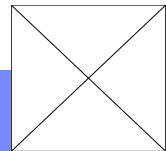
消息推送

当普通微信用户向公众账号发消息时，微信服务器将POST该消息到填写的URL上。结构如下：

文本消息

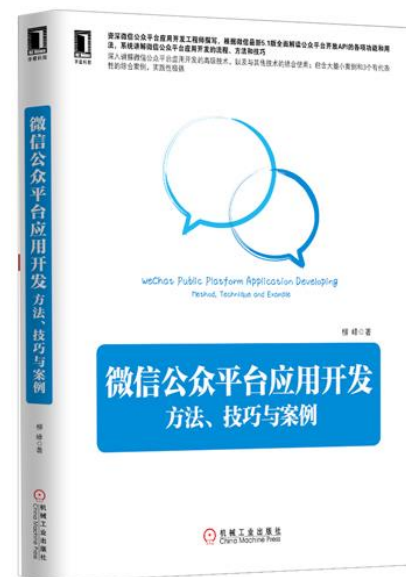
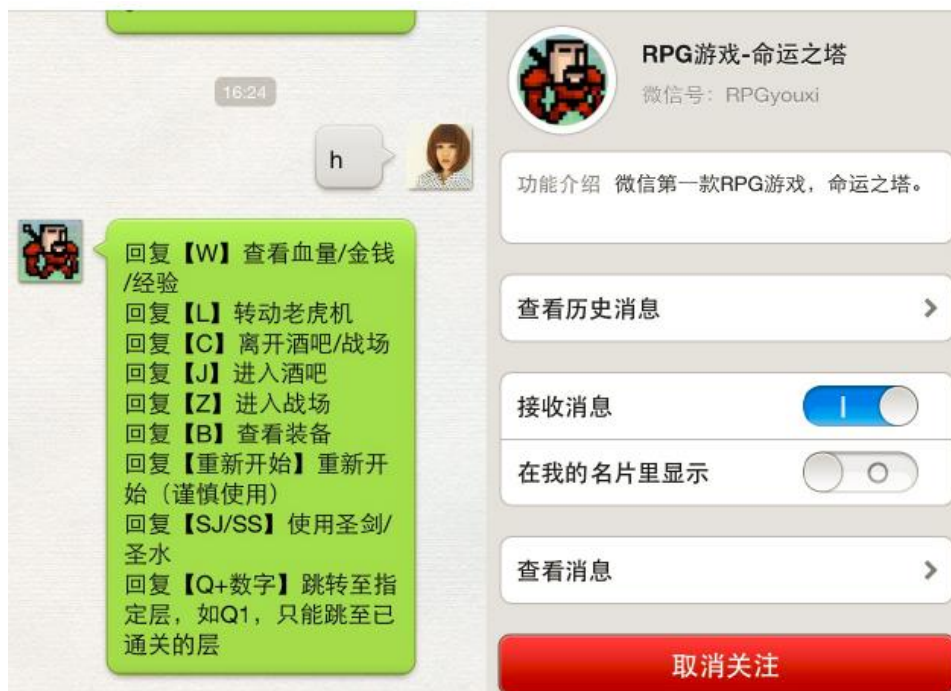
```
<xml>
<ToUserName><![CDATA[toUser]]></ToUserName>
<FromUserName><![CDATA[fromUser]]></FromUserName>
<CreateTime>1348831860</CreateTime>
<MsgType><![CDATA[text]]></MsgType>
<Content><![CDATA[this is a test]]></Content>
<MsgId>1234567890123456</MsgId>
</xml>
```

当用户向公众帐号发消息时，微信服务器会将消息通过POST方式提交给我们在接口配置信息中填写的URL，而我们就需要在URL所指向的请求处理类CoreServlet的doPost方法中接收消息、处理消息和响应消息。



Mashup实例

■ 微信公众平台开发



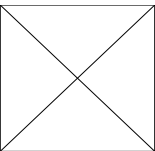
Mashup

- 企业mushup

“Enterprise Mashups are an approach to **composite applications** that targets very **rapid application delivery and modification** through the assembly or easy integration of **existing computing resources** (visualization, logic and data) by **developers or end users.**” (Gartner)

- Mashup 开发工具示例
 - IBM 的 QEDWiki
 - 微软的 Popfly
 - 雅虎的 Pipes

[IBM Demo IBM Mashup Cente](#)



Mashup

■ 技术挑战

- 数据集成挑战：语义和数据的品质
- 组件挑战
 - Ajax 引擎利用了一个 XMLHttpRequest 对象，Internet Explorer 6 中，这个对象是使用 ActiveX 实现的
- 安全性问题
 - 调用时的身份认证

■ 社会问题

- 知识产权的保护

