



Building Situational Apps with IBM WebSphere sMash

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WebSphere sMash PHP runtime development

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Faster Flexible Development with IBM WebSphere sMash & Orbital

- sMash provides the fastest way to create situational applications
- Join us for a full morning seminar
 - ▶ **Central London, 17 of March**
- Free Proof of Technology day at IBM Hursley for attendees

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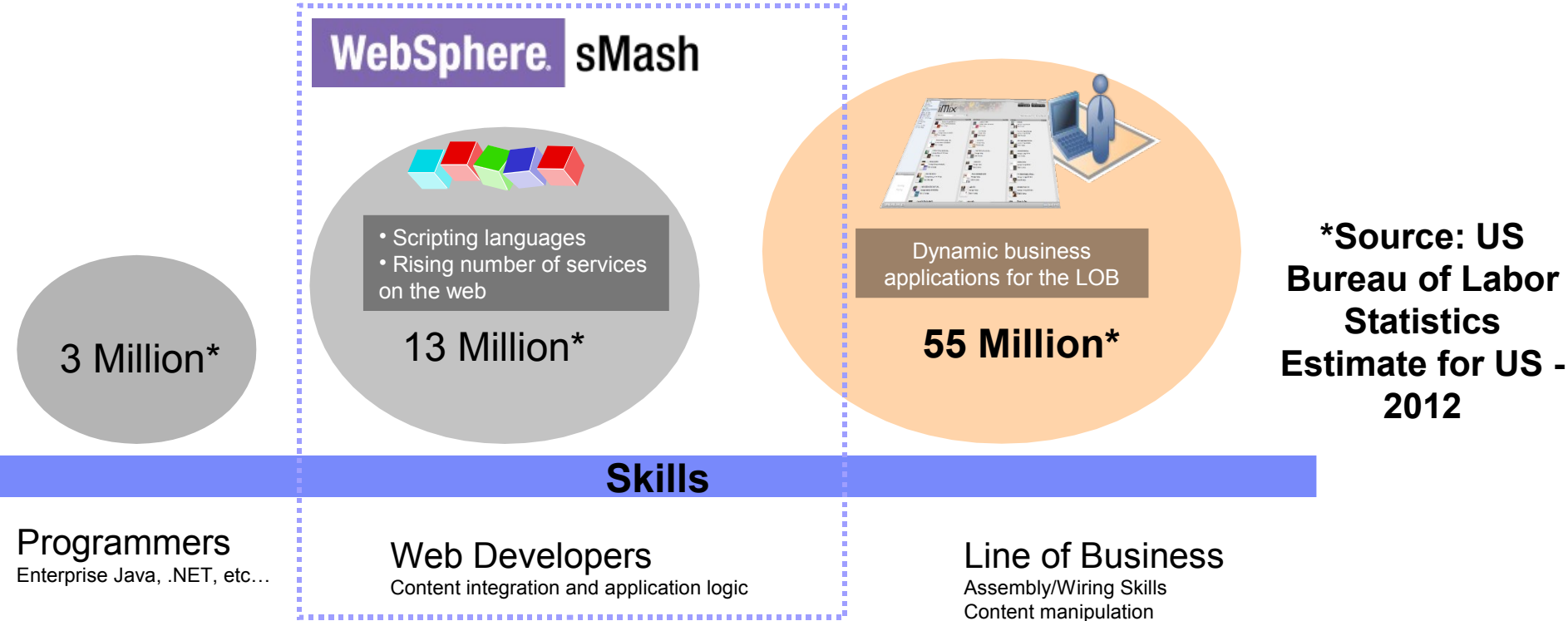
Situational Applications

- **What are situational apps?**
 - ▶ **Lightweight** business applications that target **unique** situational needs
 - ▶ **Rapidly developed** to use existing assets within the enterprise or across the web
 - ▶ Can be mid-market or enterprise departmental applications
- **Demand for situational apps is growing!**
 - ▶ Growing availability of **services** on the web
 - ▶ Growing popularity of **web 2.0** technologies
 - ▶ Both in enterprise departments and in mid-market companies
 - ▶ **Opportunity is shifting to the partner channel** (RSIs, VARs, ISVs, VADs).

By 2012, the US is predicted to have **over 55M business users** who will require **web-based applications that rapidly meet the situational needs of the business.**

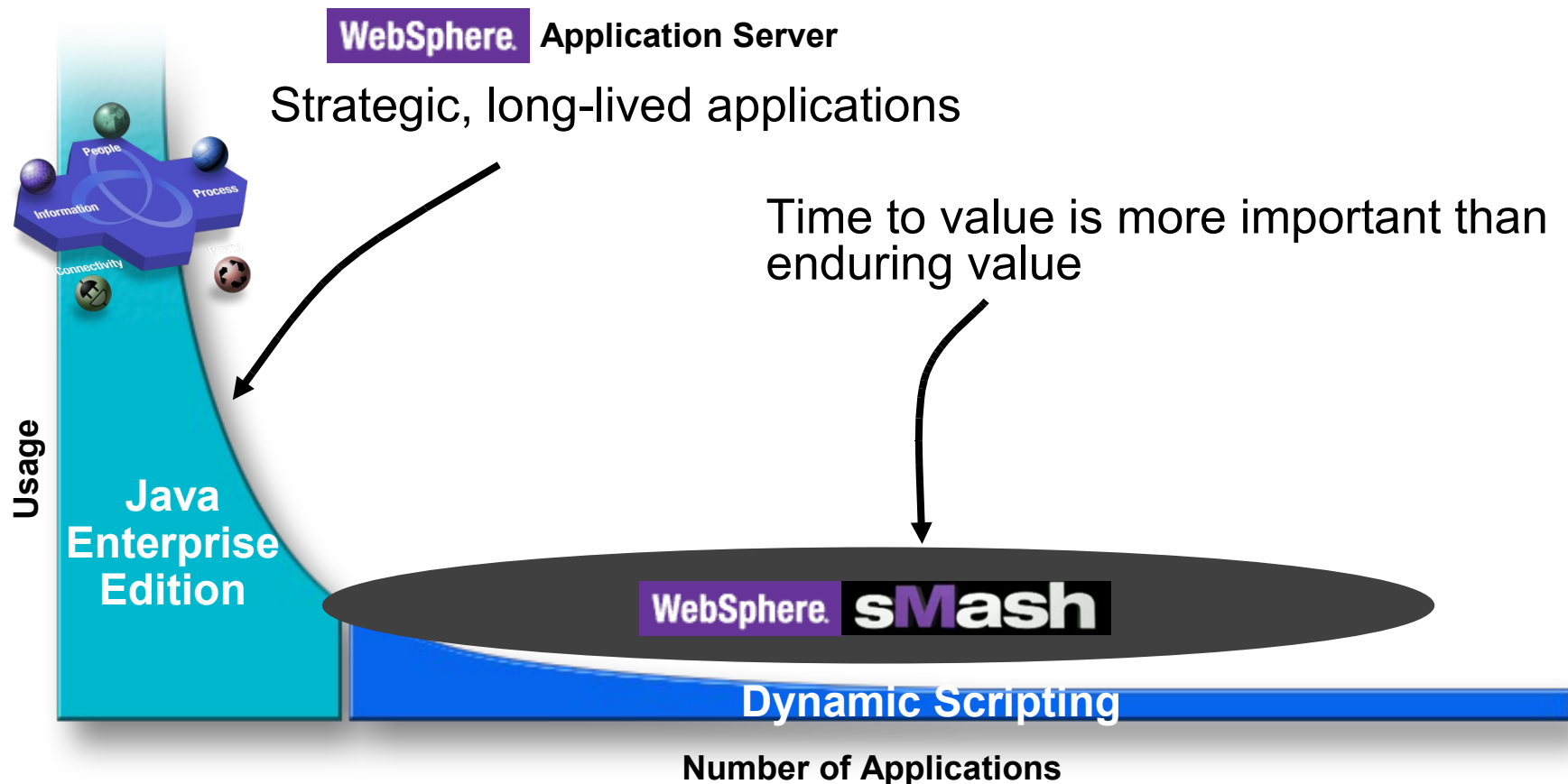
Who Creates Situational Applications?

- **Web developers** – skilled in content integration and scripting
- **Business users** – skilled in content manipulation (“wiring” content)
- **WebSphere sMash is for skilled and “casual” scripters**



WebSphere sMash & the Application Long Tail

- Situational apps form a long tail in the application space
- WebSphere sMash is a platform for creating and running situational apps



What Makes Situational Apps Work?

- **Rich user experience, intuitive user interaction**
 - ▶ Technologies: Ajax, client-side scripting (JavaScript/Flex)
- **Emphasis on data and on exposing data (& user generated content)**
 - ▶ Technologies:
 - REST: **lightweight** architectural style – close to HTTP, so easy to consume
 - JSON, Feeds (RSS/atom): **simple** data formats – programmer and user friendly
- **Agility: quick turnaround, low ceremony**
 - ▶ Technologies: **Dynamic languages** (PHP, Groovy, Ruby...)
 - Low barrier to entry, high productivity
 - Agile: no compilation/deployment
 - “Search, copy & paste” style development

→ **Creating rich experiences for users**
→ **Lowering the bar for developers**
→ **Speed** (time to value), **simplicity** and **agility**

WebSphere sMash: Speed, Simplicity & Agility

Speed

- ▶ Dynamic scripting languages (**PHP** and **Groovy** – with Java as system language)
- ▶ Convention over configuration, pre-built services, templates

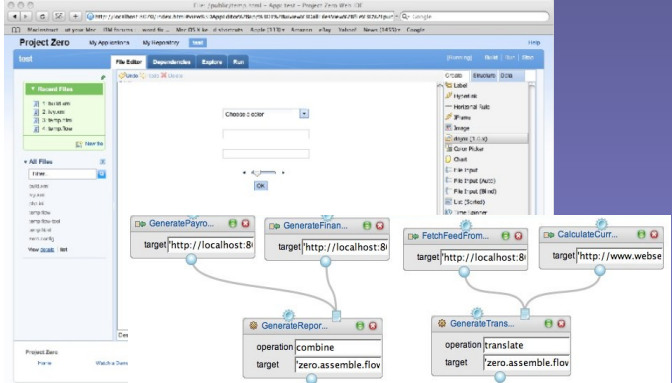
Simplicity

- ▶ Built-in browser-based composition tools: **Visual tools** (for web page construction or scripting activities into a flow) and **scripting tools** (server-side dynamic scripting)
- ▶ **REST-style architecture** – simple ways to expose and consume services

Agility

- ▶ **Application-centric runtime** (application “is” the server)
- ▶ **Runtime Characteristics** (clean, cost effective, short-lived)

Lightweight platform
with browser-based
composition Tools




```

import zero.json.JsonType;
import stats.BlogStats;

def onGET()
{
    def wksHistory = 24 // nu
    def blogs = new BlogStats
    def allWeeks = blogs.get

    // println allWeeks;
    displayBlogHits( allWeek
    displayBlogHitsStats( al
}
  
```



WebSphere sMash is an **agile** platform for developing, assembling and executing situational apps **quickly** and **simply**.

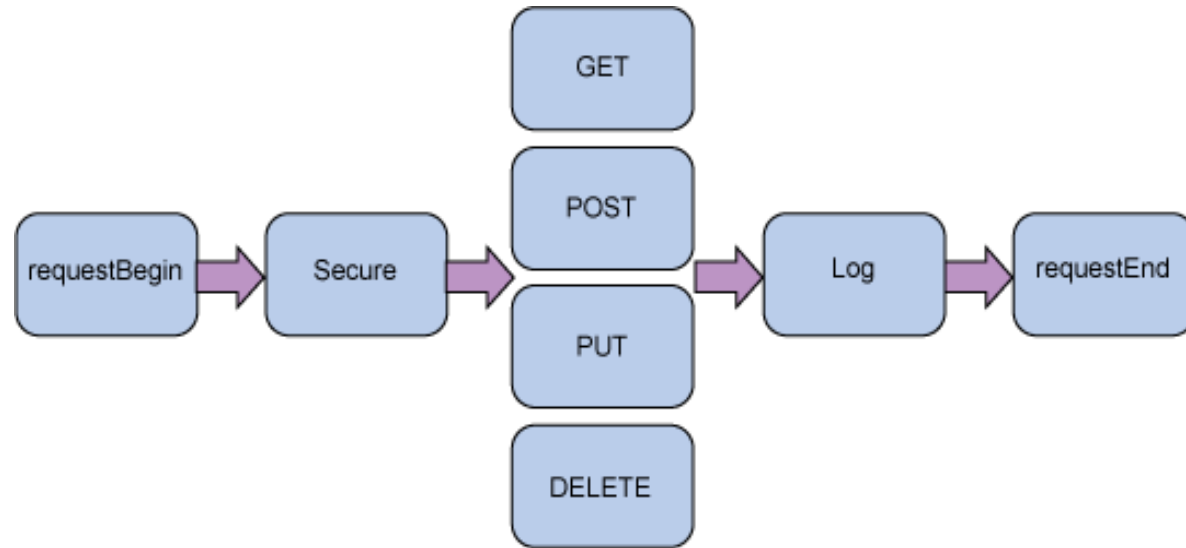
WebSphere sMash & the IBM Web 2.0 and SOA Strategy

- **The WebSphere Web 2.0 Strategy**
 - ▶ **Unleash enterprise content so it is more easily accessible**
 - REST-enabling the product portfolio (WSRR, WebSphere Commerce, WPS, Web 2.0 FP...)
 - ▶ **Leverage this content by enabling agile web-based applications**
 - WebSphere sMash, Lotus Mashups, InfoSphere MashupHub
 - ▶ **Run, manage and host agile applications**
 - WebSphere sMash for agile web applications and products such as WebSphere XD to manage the growing volume / size of web applications, if required.



Programming model: Events

- WebSphere sMash fires well-known system events.
- Applications can create and fire custom events.
- Developers define the application behaviour by implementing event handlers.
- Conventions define where sMash will search for event handlers.
- Events are **stateless**. State information is stored in the Global Context.



Groovy	<pre>println "Hello World"</pre>		
	<pre>def onGET() { println "Hello World" }</pre>	<pre>function onGET() { echo "Hello World"; }</pre>	PHP
Java	<pre>public void onGET() { PrintWriter writer = (PrintWriter)zget("/request/writer"); writer.println("Hello World"); }</pre>		
	<pre>/config/handlers += { "events" : "GET", "handler" : "HelloWorld.class", "conditions" : ["/request/path matches /hello"] }</pre>		

Programming model: Global Context

- It's a map of data!
- Language-agnostic
- Used for passing data between events, for storing application state
- Zones define the life time of the data:

Zone	Scope/Visibility
Event	All handlers for a single event
Request	All handlers along the path of a single request
Temp	All requests for all users of the application
Config	All requests all users
User	All request for a particular user (HTTP Session equivalent)
Application	All requests for all users of the application
Storage	All requests for all users of the application

Non-persistent

Persistent

Spot the **zget()** & **zput()** calls in the demo!

Modular Architecture

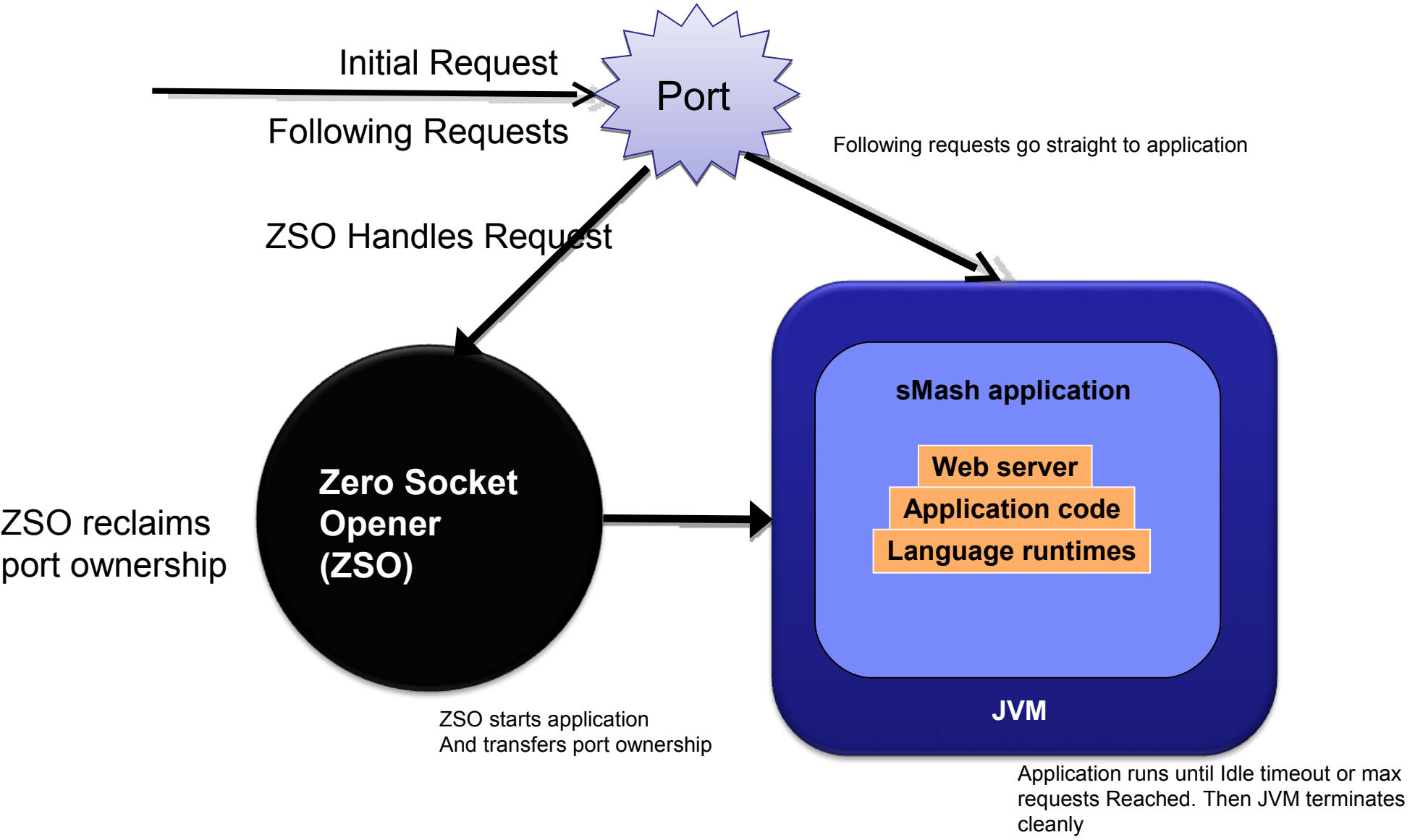
- WebSphere sMash applications are based on a very small core
 - ▶ 5.4 MBytes (includes Groovy).
 - PHP adds additional 14.5 Mbytes
 - Size includes all 3 supported platforms
 - ▶ Core provides all of the framework and runtime support, including HTTP transport
- Additional features provided in downloadable modules
 - ▶ Applications declare a dependency on desired features (using Ivy)
 - ▶ A package management system manages your dependencies, including:
 - The ability to share dependencies on a machine
 - The ability to demand load missing dependencies from the network
 - The ability to manage updates to dependencies that you are using

```
<dependencies>
  <dependency org="zero" name="zero.core" rev="1.0+"/>
  <dependency org="zero" name="zero.php" rev="1.0+"/>
</dependencies>
```

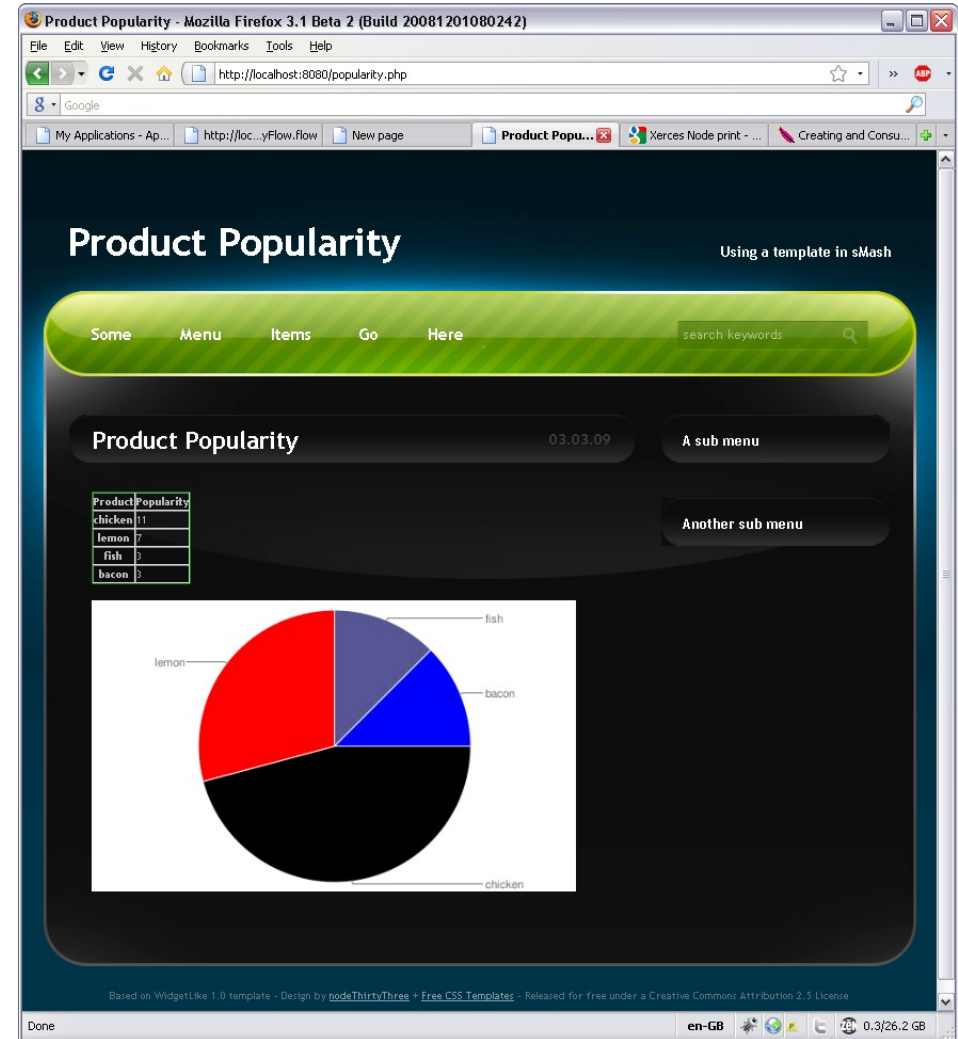
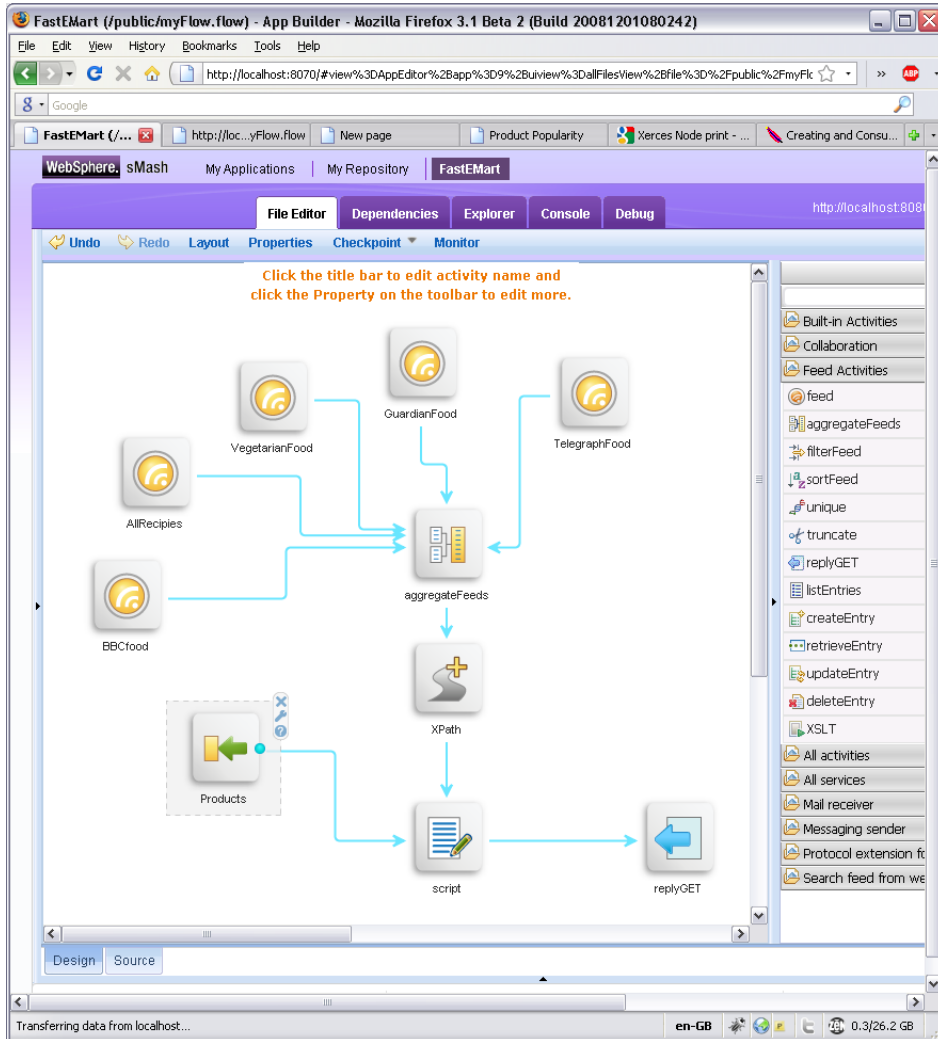
Many Pre-Built Modules

- There are 65+ modules available currently
- Modules provide function in many categories
 - Data Formats (JSON, ATOM, RSS, XML)
 - Data Access
 - Resource Modeling
 - Security / Content Filtering
 - Activity Flows
 - Services
 - Amazon ECS, Flickr, Weather, etc
 - Utilities (such as HTML parsing)
 - Timer service
 - File Kicker
 - Management Tools
 - Development Tooling
 - Reliable Transport Engine for Messaging Interactions

Runtime Model



Demo:



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<http://ProjectZero.org/blog> - 'Video' tag

Project Zero Blog

Video: Integrating SugarCRM using WebSphere sMash

Posted by nicholsr on January 31st, 2009. Other posts by [nicholsr](#)



I have just uploaded a [new HD video to YouTube](#). It shows one of the demos for [SugarCon ...](#)

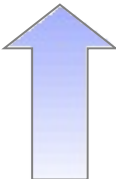
WebSphere sMash as a component provider for IBM Mashup Center



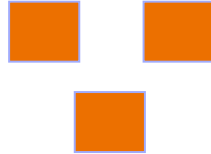
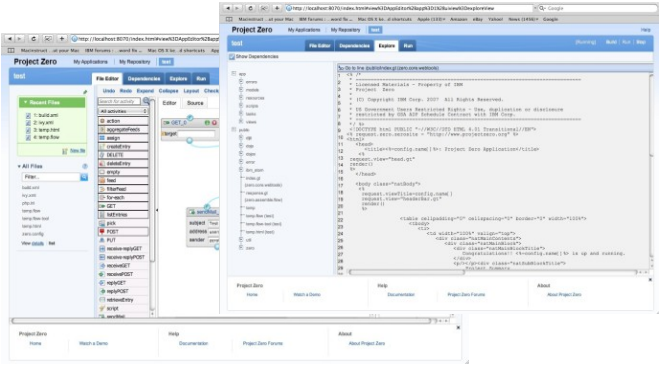
Lotus Mashups: Business users can assemble widgets into dynamic mashups.



MashupHub: Sharing & discovery of mashable assets.



WebSphere sMash: Developers can create, test, and run widgets based on dynamic scripting languages and Web 2.0 technologies.





New in 1.1!

Tighter Integration with IBM Mashup Center

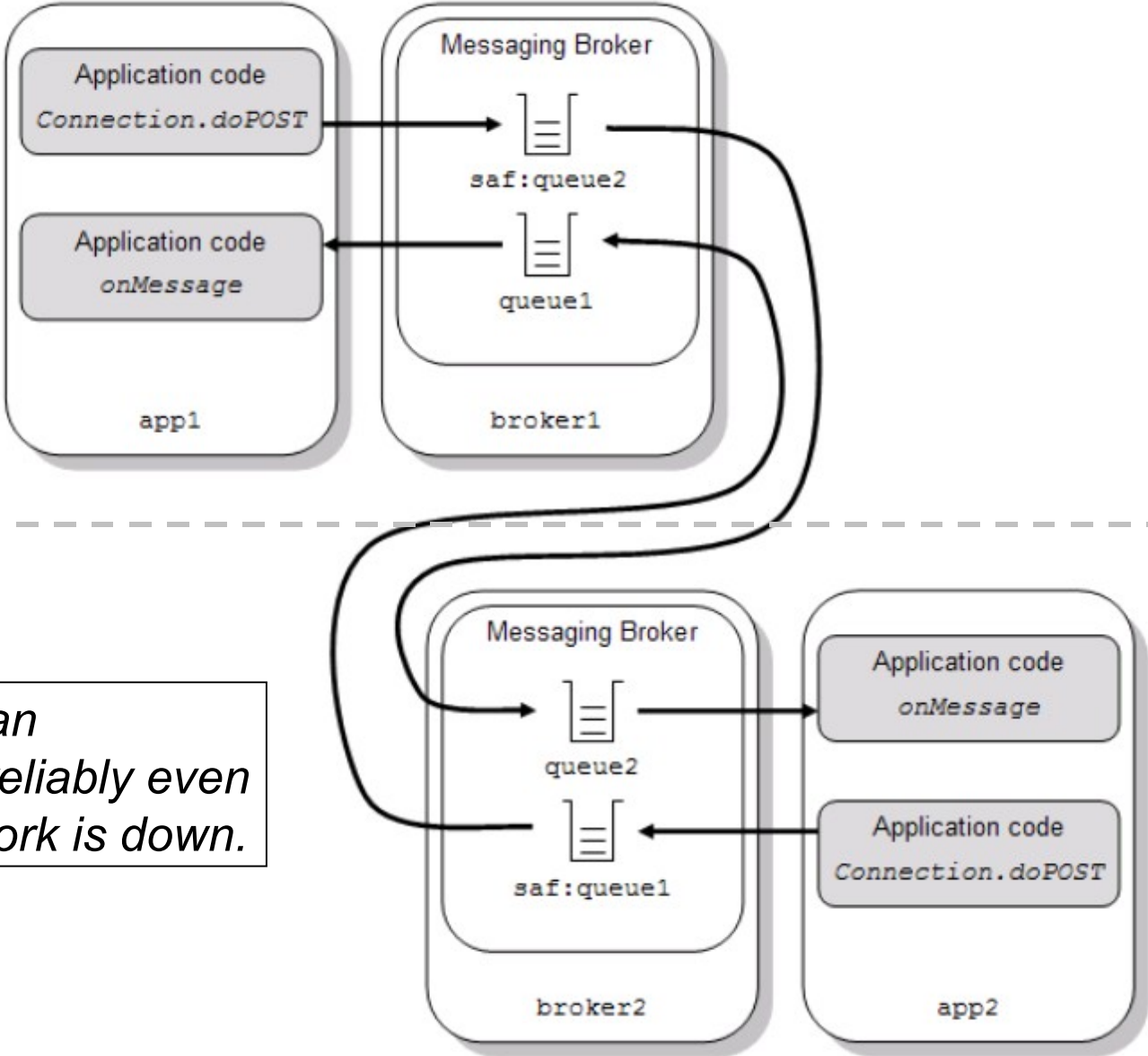
- sMash generates iWidget templates
- Also provides a simple web page to test iWidget interactions
- Easy deployment into MashupHub:



Reliable Transport Extension

- Allows sMash applications to communicate using **asynchronous messaging**
- Applications can be on **same or different machines**
- Supports **store and forward**
- Supports security via **pre-shared secrets**.

Store and Forward with RTE



sMash Apps can communicate reliably even when the network is down.

Security

- Very easy to enable security for common HTTP processing
- Authentication & Authorisation based on JAAS
- Authentication
 - ▶ Basic / form-based / Zero Single Sign-On / programmatic API for login/logout
- Authorisation
 - ▶ User centric (users, groups, roles)
 - ▶ User registries can be text-based (useful for development), LDAP or customized via an extension point

```
@include "security/rule.config" {  
    # The REST resource and methods to be protected  
    "conditions": "(/request/path =~ /customers(/.*)?)  
                  && (/request/method =~ (PUT|POST))",  
  
    # Authentication type  
    "authType" : "Basic",  
  
    # Which users/groups can access the above resources  
    "users" : ["MrAdmin"],  
    "groups" : ["CUSTOMERS"]  
}
```

Security

- Active Content Filtering module to prevent **Cross-Site Scripting (XSS)**
- Tokens to prevent **Cross-Site Request Forgery (CSRF/XSRF)**
 - ▶ sMash can transparently re-write responses to provide a unique token to the user
 - ▶ Requests from the user must include this token
- **OpenID** Consumer library to easily add OpenID support to your Apps
 - ▶ Offload user profile management to a trusted third party and concentrate on writing the application

Scenario: Corporate Client Support Portal (internal IBM)

Scenario:

- CCSP is an internal, SSO protected IBM support portal that **provides authorized users with a “need to know” view of client support situations** for IBM products.
- New CCSP Mobile application created using sMash, targeting BlackBerry mobile devices.

Goals of CCSP Mobile:

- Ease of use, simple to maintain & update, improve customer satisfaction.
- Reuse same services as main Portal application.

Time to value:

- Written in **< 60 hours**.
- Consisted of **< 2000 lines of code**.

Home **My Clients**
Change, Add, or Delete clients

This page is used to select a client, or to manage your 'My clients' list.

Number of 'My clients': 7

Client Name	Total PMRs	Avg Sev idx
[Client Name]	58	37
[Client Name]	63	61
[Client Name]	98	180
[Client Name]	117	184
[Client Name]	40	40
[Client Name]	88	102
[Client Name]	414	72

Page 1 of 1

[Add a new client to 'My list'](#)
[Delete a client from 'My list'](#)
[RETAIN search](#)
[Preferences](#)
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Home > Client

Client summary

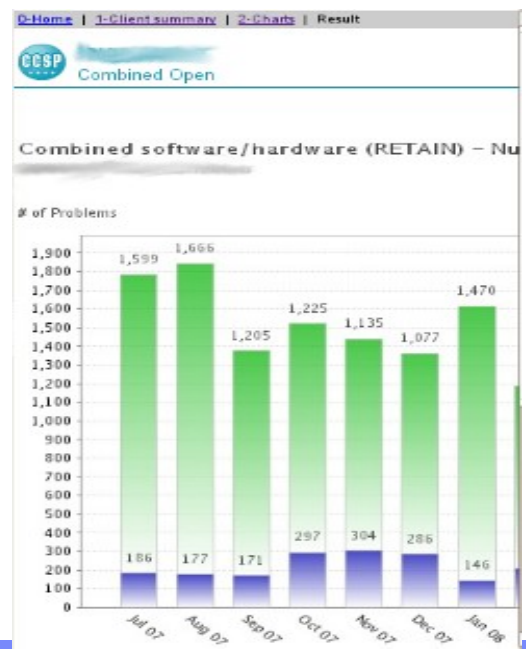
Client type	Trusted		
Assigned SAL	unassigned		
Customer count	186		
Executive	unassigned		
S.O. Account	N/A		

Open PMRs	SW	HW	Total
Sev 1	7	2	9
Sev 2	38	4	42
Sev 3	26	18	44
Sev 4	15	9	24
Other	0	1	1
Total	80	32	118

Severity Index	SW	HW	Total
Average	218	91	180
Highest	1900	1020	1900
Total	18032	2037	21569

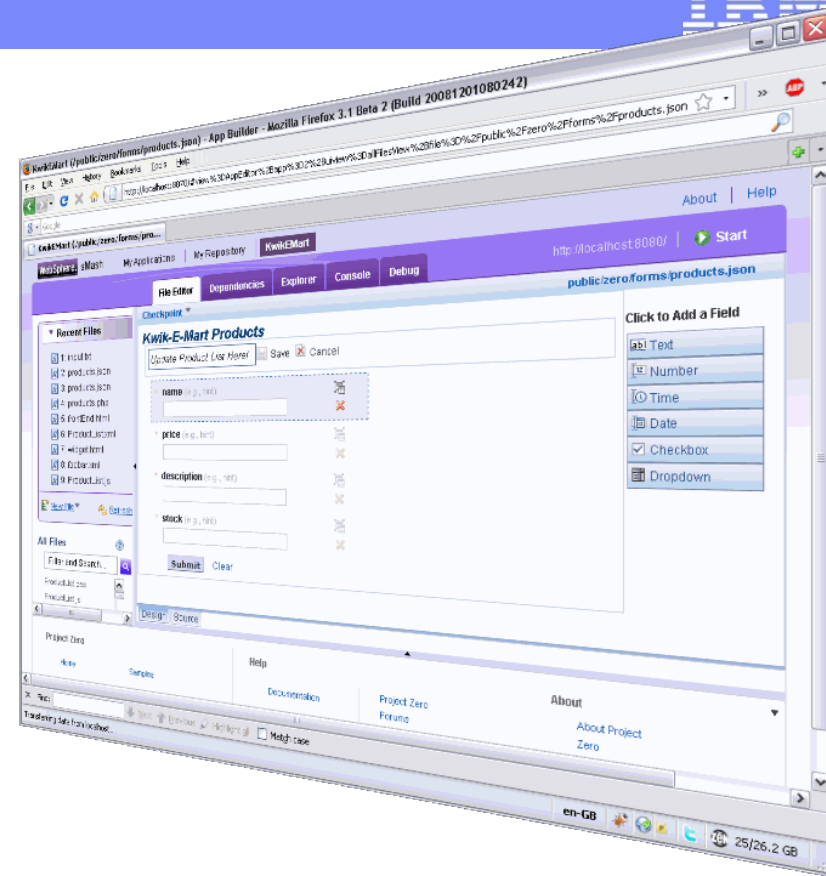
[Charts](#)
[Issues browse](#)
[Customer numbers](#)
[Change current client](#)
[Return to Home page main menu](#)
[Home > Client](#)
[Send us feedback](#)

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What's new in 1.1?

- Improved integration with Mashup Center
- App Builder
 - ▶ Debug server-side Groovy code in your browser
 - ▶ Access App Builder remotely
 - ▶ Visual form builder
- Flow
 - ▶ Improved UI
 - ▶ More activities
- PHP
 - ▶ Improved PHP/Java bridge
 - Imported Java classes feel just like PHP classes
 - instantiation, extension, reflection, iteration...
 - Persistent code cache
 - ▶ More extension functions



Available now
in Sebring!

PHP/Groovy Bridge

- Previously, the PHP engine viewed Groovy classes in the same way as Java classes
- The PHP/Groovy Bridge integrates PHP and Groovy as first class citizens

A Groovy class definition:

```
class Dynamic {
    def storage = [:]

    def invokeMethod(String name, args) {
        return "Hello!";
    }

    def getProperty(String name) {
        storage[name]
    }

    void setProperty(String name, value) {
        storage[name] = value
    }
}
```

Using that class from Groovy, then from Java:

```
foo = new Dynamic();
def s = foo.bar(); // returns Hello!
foo.guff = "abc"; // puts abc in storage
print foo.guff; // gets abc from storage
```

```
public class Test {
    public static void main(String[] args) {
        Dynamic foo = new Dynamic();
        String s = (String)
            foo.invokeMethod("bar", null);
        foo.setProperty("guff", "abc");
        result = (String) foo.getProperty("guff");
    }
}
```

```
<?php
groovy_import("dynamic.groovy");
$foo = new Dynamic();
$foo->bar();
$foo->guff = "Hello World!";
echo $foo->guff;
```

With the new PHP/Groovy bridge,
PHP code can integrate neatly with
Groovy's dynamic features:

sMash Tech in Other Products...

■ PHP and REST Support in **CICS TS 3.2**

- ▶ CICS transactions can interact with databases, COBOL programs etc...
- ▶ These CICS assets can be hard to use outside of the CICS transaction processing loop
- ▶ Write a thin layer of PHP to expose them RESTfully
- ▶ See <http://tinyurl.com/phpOnCICS>

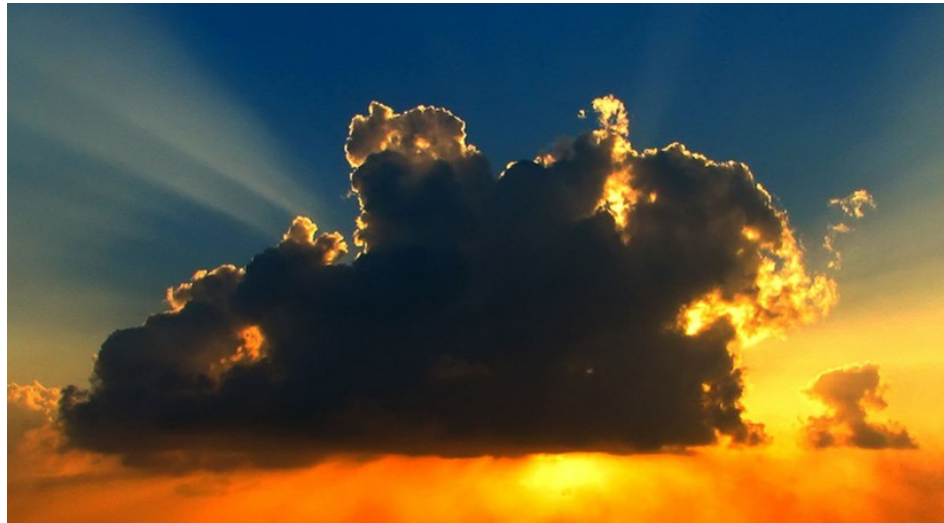
■ PHP Compute Node in **Message Broker 6.1.0.3**

- ▶ Use PHP code to transform, filter and route messages
- ▶ PHP's syntax and dynamic features → easy to walk complex message trees
- ▶ See <http://tinyurl.com/phpOnMB>

```
$attr = $input->XMLNSC->document->chapter[1]['title'];
```

WebSphere sMash 1.1 in the Cloud

- WebSphere sMash is now available on Amazon EC2
- Rent highly virtualized, flexible hardware to run sMash
- Other IBM products on EC2 include:
 - ▶ DB2, Informix Dynamic Server, WebSphere Portal, Lotus Web Content Management
- **See <http://tinyurl.com/sMashEC2>**



WebSphere sMash SI Experience

- Business need: ZSL's challenge was enabling workforce collaboration and innovation both within ZSL and for ZSL customers.
- Solution: ZSL's Enterprise 2.0 SocNet solution brings businesses the benefits of bridging people across the globe for collaboration and information sharing at a very low cost.
- Rich, interactive features including
 - ▶ Blogs
 - ▶ Forums
 - ▶ Google Gadgets
 - ▶ Feeds
 - ▶ Social Bookmarking
 - ▶ Search capabilities
 - ▶ Facebook integration.



<http://www.youtube.com/watch?v>

ZSL develops Web 2.0 Assets 3x faster with WebSphere sMash

- Downloaded sMash DE from projectzero.org
- Assets built in 3½ weeks
- Junior web development team
 - ▶ Dynamic Scripting Skills
 - ▶ Web Development Focus
 - ▶ Know very little about .Net and Java EE
 - ▶ Understand concepts and functioning of Web Services, but may not have built or deployed them.
- 67% reduction in time-to-market for developing Web 2.0 assets
- 90% less time to implement best-of-breed programs
- Ability to reuse 25% of code
- Out-of-the-box functionality vs. 2½ days to install comparable software



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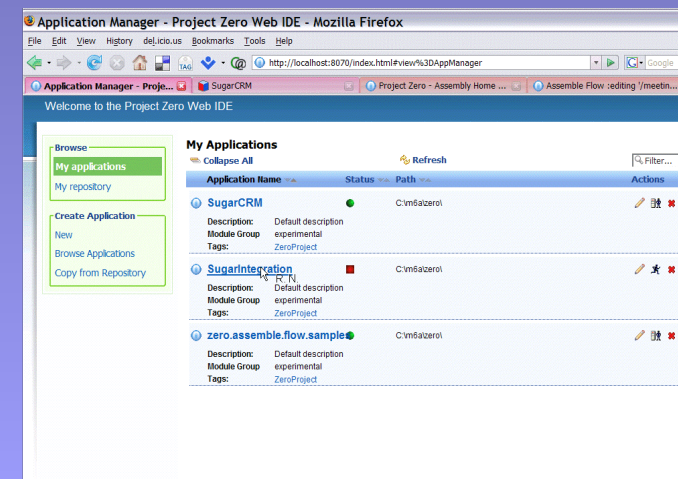
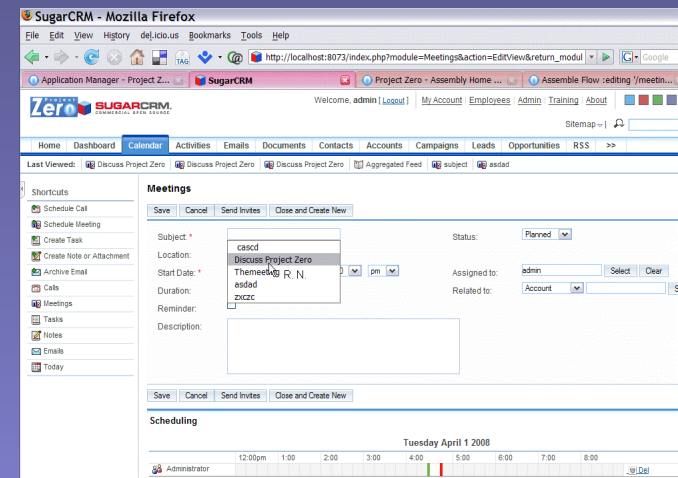
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WebSphere sMash ISV Experience



SugarCRM PHP Application running on WebSphere sMash



Scenario:

- ▶ CRM Requires extensive customization to be effective
- ▶ Customers want to integrate their CRM with other applications
- ▶ Customers want to simplify their IT delivery and use familiar tools
- ▶ WebSphere provides enterprise capabilities and security

Other references:

- ▶ IBM's WebSphere sMash named Project of the Month on SugarCRM's community development web site www.sugarforge.org
- ▶ [SugarCRM Developer Blog](#)
- ▶ [YouTube SugarCRM](#) (see a demo of this scenario being built)
- ▶ [DeveloperWorks link](#) - Podcast with Jerry Cuomo, WebSphere CTO and Jacob Taylor, SugarCRM's CTO

WebSphere sMash value to Business Partners

System Integrators

Independent Software Vendors

Best suits SIs who are:

- Developing new Rich Internet (RIA) and Web 2.0 applications.
- Extending applications and content to the web.
- Integrating applications and content across the business to meet situational needs.

Best suits ISVs who are:

- Developing new Rich Internet (RIA) and Web 2.0 applications.
- Looking for a new or an alternative platform to build and deliver lower complexity applications where time to value is critical.

Value:

- **Simplifies development** through scripting languages (enables use of junior programmers).
- **Expedites** engagement delivery time.
- Offers an **easy entry point into IBM**: start small and grow.
- **Supports new technology offerings** (example: Software as a Service).

Value:

- Get started with **no up-front costs**: Web based tooling allows applications to be developed quickly & cost effectively.
- Easily embeddable **lightweight execution environment**.
- Leverages (or creates new) strategic relationship with IBM.

Versions of WebSphere sMash

WebSphere. sMash DE (Developer Edition)	<i>Free download!</i> WebSphere sMash + development tooling. Restricted production use.
WebSphere. sMash	The runtime environment. Available under a standard IBM commercial license.
WebSphere. sMash RTE (Reliable Transport Extension)	Allows sMash apps to communicate with one another using asynchronous messages.
Sebring	<i>Free download!</i> Bleeding edge version of WebSphere sMash DE.

PROJECT ZERO The development community for WebSphere sMash

<http://projectzero.org>



Faster Flexible Development with IBM WebSphere sMash & Orbital

- sMash provides the fastest way to create situational applications
- Join us for a full morning seminar
 - ▶ **Central London, 17 of March**
- Free Proof of Technology day at IBM Hursley for attendees

Register at

www.orbital-ltd.co.uk

What sMash Early Adopters Are Saying...

- “If you are building Web Applications you want to look at IBM’s Project Zero initiative. It is very innovative not only in it’s development but also in it’s function. The Project Zero platform **provides a fantastic Web Development** addition to IBM portfolio for providing front end to enterprise solutions, stand alone solutions and creating web presence.” **Perficient (Denise Hatzidakis) - US**
- “We are very excited about Project Zero providing our customers with an end-to-end environment that hides the complexity of development and deployment of dynamic Web applications. Not only will users benefit from a **small footprint and an affordable price point**, Project Zero offers a standardized interface for rapid application development and a full development suite.” **Prolifics (Devi Gupta) – US**
- ‘**Project Zero objective is very well defined for providing an entry point in the mid market**, if you are interested in selling them Business process technology. It will reduce development costs and provide flexibility and easy maintenance. At the same time.’ **b2b Solutions Group (Rafael Delgado) - Colombia**
- “Project Zero provides an extremely valuable and innovative approach to filling an important gap in Summa's solutions for **SaaS and other situational integration**“ **Summa (Rick Kotermanski) - US**
- “Tomorrow’s customers ask us how is possible to **build applications in hours**, how to integrate social communication needs with their enterprise systems and how our solutions is able to use every core of every cpu of their datacenter. Well, ProjectZero is our answer.“ **Santin E Associati (Diego Visentin) - Italy**
- “**One of the best engineered runtimes I've seen in over 20 years** of computing.” **FMT Worldwide (Bjarne Matzen) - Australia**



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