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1 OMNITURE AND THE IBM USER EXPERIENCE OPTIMIZATION INITIATIVE

The IBM User Experience Optimization Initiative (UEOI) teams IBM and Omniture to enable WebSphere Portal customers to easily capture and measure the user activity so that portals can be better designed and targeted. This initiative is the first step in implementing our vision to provide an improved and more personalized experience to our clients by allowing them to deploy dynamic and smarter Web solutions.

The UEOI was started because IBM and Omniture were customers demanding better integration. Today integration with site analyzer tools are performed by manually imbedding tags into portlets and themes. Customers want seamlessly integration within each product to enable easy site metric analysis. WebSphere Portal integrated with Omniture will enable IBM and Omniture customers to provide a more personalized experience to their clients by deploying a more dynamic Web solution. This will result in increase revenue with better targeting and decrease cost with automatic tuning. It will also result in increase customer satisfaction, decrease infrastructure costs, and testing costs with better designs. Customers are more willing to buy products that are tested and integrated with their Web analytic infrastructures.

The UEOI is a multiple phase initiative. The first phase is to show customers how easy it is to integrate WebSphere Portal and Omniture today. This whitepaper discusses integrating Omniture and WebSphere Portal.

2 WEB ANALYTICS VISION

Omniture is derived from the word “omniscient” meaning “all-knowing” and the word “future”. This combination reveals Omniture’s two-fold mission. The first is to provide our customers with the most comprehensive and real-time knowledge of online activity by using the Omniture Online Marketing Suite which consists of a comprehensive portfolio of optimization applications for Visitor Acquisition, Conversion, Online Analytics and Channel Analytics and is built on an Open Business Analytics Platform. The suite is highly modular and flexible, allowing customers to tailor the suite to meet their specific business requirements. Customers can utilize individual products, a combination of products and services or the entire suite.

The second, is to give each client the ability to not only identify and hone in on specific factors and trends, but more importantly to make critical decisions that have a direct and measurable impact on future success through the use of Omniture’s reporting, advanced trending, and site path analysis capabilities.

The company mission is to set new standards in the field of online business optimization by providing powerful and accessible analytic tools and services to our users, empowering their marketing initiatives with new levels of insight that generate quantifiable results many times the value of cost.
3 INTRODUCTION TO OMNITURE

Omniture is a leading provider of online business optimization products and services, which is delivered through the Omniture Online Marketing Suite. Our customers use our products and services to manage and enhance online, offline and multi-channel business initiatives. The Omniture Online Marketing Suite, which we host and deliver to our customers on-demand and provide as an on-premise solution, consists of an Open Business Analytics Platform and an integrated set of optimization applications for online analytics, channel analytics, visitor acquisition and conversion. Our Open Business Analytics Platform, the foundation of the Omniture Online Marketing Suite, includes the Omniture DataWarehouse, which contains the information captured by Omniture SiteCatalyst, our core product offering, and our other products and services. The platform also includes the Omniture Genesis application programming interfaces, or APIs, to integrate and augment this data with relevant data from Internet and enterprise applications and data from a number of online and offline channels to enable business optimization. Our online analytics applications are Omniture SiteCatalyst and Omniture Discover and our channel analytics applications are Omniture Discover OnPremise and Omniture Discover OnPremise for Retail. Our visitor acquisition application is Omniture SearchCenter and conversion applications include: Omniture Test&Target, Omniture Recommendations, Omniture SiteSearch, Omniture Survey and Omniture Merchandising. These services, built on a scalable and flexible computing architecture, enable our customers to capture, store and analyze information generated by their Web sites and other sources and to gain critical business insights into the performance and efficiency of marketing and sales initiatives and other business processes. This information is also utilized to automate the delivery of content and marketing offers on a Web site and test site design and navigational elements to optimize the user experience and revenue opportunities for our customers. Our services provide customers with real-time access to online business information, the ability to generate flexible reports using real-time and historical data and the ability to measure, automate and optimize critical online processes. Our services, accessed primarily by a Web browser, reduce the need for our customers to make upfront investments in technology, implementation services or additional IT personnel, thereby increasing our customers’ flexibility in allocating their IT capital investments.

We market our products and services to sales, marketing and business professionals responsible for online business across a broad range of industries, including: automotive, financial services, media, retail, technology and travel. We currently have over 5,100 customers in 91 countries. Our customers include America Online, British Telecom, Comcast, Disney, eBay, Expedia, Ford Motor Company, Gannett, General Electric, Hewlett-Packard, Microsoft, Nextel, Rakuten, Sony and Telstra. In 2008, our services captured data from approximately 3.7 trillion transactions for our customers.

We were founded in 1996, began offering our on-demand online business optimization services in 1997 and incorporated in 1998 as SuperStats.com, Inc., a Utah corporation. In 1999, we changed our name to MyComputer.com, Inc. and reincorporated in the State of Delaware. We began selling our on-demand online business optimization services to enterprises in 2001. In 2002, we changed our name to Omniture, Inc.
4 OMNITURE ARCHITECTURE

SiteCatalyst is based around a multi-tiered, clustered framework. Each cluster of servers performs a specific task, and adding additional servers increases the capacity of each cluster. Omniture provides complete system redundancy and automatic failover capabilities throughout its entire hosting infrastructure. Redundant systems within each data collection facility ensure optimal performance and reliability. In addition, on-demand bandwidth from nine major backbone providers smooth out traffic spikes and allows Omniture to route around choke points if a given provider experiences traffic congestion or a network failure.

Data collection occurs in Omniture’s multiple data centers across the US. These data centers reside in highly secure environments with fortified external barriers, biometric access controls and key codes at multiple areas, as well as 24x7 video surveillance. These data centers require multiple levels of authentication for entry and provide a highly secure, highly redundant facility to host equipment. Redundant systems in each data collection facility span load balancers, data collection servers, data processing servers and storage arrays, which are backed up daily. This fully redundant network architecture will evolve into fully redundant multi-site data centers to provide greater protection from catastrophic failure.
5 WEBSPHERE PORTAL VISION

WEBSPHERE PORTAL VERSION 6.1: YOUR WORLD. YOUR WAY.
WebSphere Portal Version 6.1 is an enterprise portal solution with the complete portal services necessary to deliver a single point of personalized interaction with applications, content, business processes, and people. The unified user experience can help you improve overall productivity and customer satisfaction. WebSphere Portal rationalizes and simplifies IT infrastructure by delivering a complete set of portal platform services:

» Framework services
» Integration services
» Content services
» Collaboration services

These services can be leveraged by WebSphere Portlet Factory Designer to build role-based, portal applications that can help improve the effectiveness of your organization. And because WebSphere Portal utilizes an SOA, these applications can use existing assets and can be quickly modified to meet changing roles and business conditions.

IBM WebSphere Portal Version 6.1 consists of three offerings:

» IBM WebSphere Portal Server
» IBM WebSphere Portal Enable*
» IBM WebSphere Portal Extend

Key new features

» Live Text tagging presents ‘one-click’ access to relevant supporting information that “pops up” on the page while executing a business process
» Portal REST services further opens the portal platform to composite “mashup” applications with services feeds from other Web applications
» New Client Side Aggregation reduces server-side processing, and dramatically improves end-user performance
» Client Side Feed Consumption provides highly efficient integration of information through feeds (Atom and RSS)
» New portal ‘Site Wizard’ enables self-service creation of independent virtual portals
» New ‘Theme Customizer’ portlet delivers wizard-driven branding and in-place customization
» Updated out-of-the-box Internet and intranet site jumpstart templates offer fast delivery and customization of virtual portal sites
» New ‘One click’ Site Management application simplifies control of staging to production capabilities with rollback and versioning
» Expanded Site Layout support (HTML/PHP), continues to open the platform to additional content sources
» Support for the very latest portlet open standards (JSR286, WSRP 2.0)
» Web Application Integrator provides a method to easily embed existing Web applications in WebSphere portal for greater value.
» New WebSphere Portlet Factory release delivers an easier out-of-the-box experience combined with new Web 2.0 features and support for visual application development of desktop-like Web applications.
Key benefits

» Deliver exceptional Web experiences - Take advantage of new, nimble Web 2.0 technologies and philosophies that put new business models in reach
» Extend your business assets - Create and deploy custom-branded, market-driven solutions comprised of existing and net-new business assets, and re-purpose and reuse as appropriate.
» Run your business efficiently - Built on WebSphere software so that enterprise-class applications, processes and transactions can reside on a proven, reliable, scalable and high-performance foundation.
» Grow as you go - “Snap on” business-specific capabilities that speed time to value and allow you to pursue new market opportunities – all while reducing the cost of deploying portals

6 WEBSHERE PORTAL ARCHITECTURE

WebSphere Portal is a framework—including a runtime server, services, tools, and many other features—that you can use to integrate your enterprise into a single, customizable interface called a portal. An enterprise portal combines components, applications, processes, and content from a wide variety of sources into a unified presentation, which your users can access from a wide variety of devices.

You can customize the portal based on user or job roles, security needs, device settings, personal preferences, and administrative settings. You can also define workflows to support your business processes. You can manage your portal’s content using IBM’s Web Content Management, which is integrated with WebSphere Portal. Figure 1 shows an example company portal.

Figure 1. A company portal
While WebSphere Portal binds your work environment into a cohesive interface, it also provides services to enhance the user experience so that the unified interface is much richer than if you were using the individual components.

For example, it provides single sign-on services so that, once users are logged into your portal, they can access all the underlying applications without having to re-enter user credentials (such as userids and passwords). You can plug in the look-and-feel for your portal’s pages using customizable themes. Using the collaboration services API, you can enable users to easily engage peers to expedite work processes. Using cooperative portlets, applications can exchange information, either automatically or with user control. These are just a few examples of the ways you can easily extend your portal environment and optimize your users’ experience with it.

WebSphere Portal is a core part of IBM Workplace. Numerous other related products, including WebSphere Voice and the WebSphere Everyplace products, work with WebSphere Portal to enable users to access applications running on virtually any operating system. Users can access the portal from all types of devices, such as Web browsers, rich clients, mobile phones, and PDAs.

7 STEPS TO IMPLEMENT
The most important aspect of the implementation is to clearly outline your business objective prior to adding any code to your site. Are you a retailer who wants to track sales? If so, how are you going to track your products? What are the various methods that products are found? What are the sales by individual product categories? What are the sales by Browse Category? If you host a large corporate intranet your questions may be similar, but you may also want to understand how content is found. Does that happen through search, navigation, or some other tool? In addition, where is the search happening? Are your visitors navigating in three levels deep and still not finding the content? If so, you might want to add or clarify your navigation elements. This integration is designed to answers the following business questions.

» What pages/site sections receive the most views?
» What is the affinity between pages and site sections?
» What content drives further site consumption?
» What pages/site sections exits and entries?

7.1 PAGE & CONTENT IDENTIFICATION
Implementing a solid page name and site section framework is perhaps the most important element of your site. Without this framework you can still track revenue and featured content views with great accuracy, but until you can clearly understand how that content or those products were found there is very little you can do to actually optimize your site. This framework allows you to make the distinction between interesting and actionable data. Data that is simply “nice to know” provides very little value. To that end, this integration provides a clear page name and site section tracking out of the box. In addition the integration provides hooks in which you can add page level or JavaScript level event interactions.

The key aspects of page naming is to understand from anywhere in the reporting interface what page the name actually represents on the site. This mean that the page must provide the necessary context, be clear and concise. This integration utilizes many of the elements already in the portal to put together a page name context be leverage the breadcrumb or site navigation elements.
As you can see by having a clear concise and contextual page naming structure, we can quickly and easily see how people are moving through the site. You can easily see what pages are drawing visitors into the site and what pages are causing people to exit.

The second element of page naming is the site section. If page name is the most granular, site section is the highest level of aggregation. Often site sections map to your top level navigation. While there are some use cases around the need to look at pathing at a very granular level, more often there is a need to understand how visitors are moving through your site at the highest level. And to take it a step further, it may be of even greater importance to understand how much time is spent on each site section.

The channel variable is the intended variable for tracking Site Sections. While any traffic variable can be configured to behave like the pageName and channel variables, s.pageName and s.channel are the variables configured out of the box for this purpose and tend to be the most commonly used.
7.2 OMNITURE REMOTE CODE FILE
In order to integrate your WebSphere Portal site with SiteCatalyst, you must obtain two JavaScript libraries from your Omniture Account Manager. First you will need the standard remote code file (s_code.js). If you are a current SiteCatalyst customer you may obtain this from the Admin Console by selecting the Code Manager as shown below.

After you retrieve the two javascript libraries mentioned above, you will need to reference the analytics file from the Omniture remote code file. The code line listed below can be added anywhere to the file as long as the instance of the object (s) is available. This means the first line where you can add the code is after `var s = s_gi(s_account)`, but you can easily add these lines to the end.

```javascript
//analytics library
dojo.require('com.omniture.analytics');
//create an instance of the OMTR class and pass it the ‘s’ instance
var portalConfig = new com.omniture.analytics(s);
//call the tracking beacon
portalConfig.track();
```

After you completed this, you will need to place the remote code file in the application path such that you can call it from the root WebSphere Portal template. These instructions assume that you are placing the remote code file within the theme directory of the virtual portal instance (/themes/html/Portal/js). You can then include the file in the Default.jsp of your Portal application (/themes/html/Portal/ Default.jsp). Remember the remote script reference must be included between the body tags. In the instance of these instructions the reference was:

```html
<script type="text/javascript" src="/wps/themes/html/Portal/js/s_code.js"></script>
```
Before you reload your pages to look for the image request, you need to include the analytics library within your directory structure. It’s important that this reference is accurate or the remote code file will not be able to find the analytics library. Navigate from your themes folder into the dojo/portal_dojo/com directory. Within this directory you will find the JavaScript libraries under the com.ibm.* namespace. Here we need to create a folder called “Omniture” into which we will put the analytics.js file. The final file path will be /themes/dojo/portal_dojo/com/Omniture/analytics.js. Now you may reload your portal pages and start seeing the image request.

7.4 VALIDATION
Validation and testing are used to ensure data reporting accuracy. The JavaScript-based debugger delivered by Omniture allows you to view the parameters sent in an image request. The debugger supports Microsoft Internet Explorer, Mozilla Firefox, and other Web browsers.

Setting up the Debugger
Follow the steps below to set up the JavaScript Debugger.

1. Open a browser window.
2. Go to any URL, for example, www.omniture.com.
3. In the browser window, click Favorites.
4. Click Add to Favorites.
5. Type the name of the favorite as JavaScript Debugger or some other unique name that will help you identify it.
6. Click Favorites again.
7. Right-click the JavaScript Debugger favorite you just created.
8. Click Properties.
9. Delete all text from the URL field of the Properties window.
10. Paste the following text into the URL field of the Properties window.

```
javascript:void(window.open(%22%22,%22stats_debugger%22,%22width=600,height=600,location=0,menubar=0,status=1,toolbar=0,resizable=1,scrollbars=1%22).document.write(%22<script language=%22JavaScript%22 src=%22https://sitecatalyst.omniture.com/sc_tools/stats_debugger.html%22></%22+%22script>%22 + %22<script language=%22JavaScript%22>window.focus();</script>%22));
```

7.5 ALTERNATE DEBUGGER VERSIONS
In addition to the JavaScript based debugger delivered from Omniture you may use any number of tools that will filter the image request. Some of the more popular tools are Firebug, HttpWatch, Fiddler, Charles, and any number of other tools. Packet monitors provide excellent insight into the success of a SiteCatalyst implementation. Like the Debugger, a packet monitor shows what data parameters are being passed in an image request; however, packet monitors add the ability to view non-page view (custom link, download link, and exit link) image requests, as well as image requests using implementation methods other than JavaScript, including ActionSource and hard-coded image requests.

Additionally, in very rare cases, the Debugger will report an image request although no request is actually made. Using a packet monitor is a great way to ensure that an image request is actually being sent to Omniture servers successfully. While

**NOTE:** Add-ons will sometimes cause issues with the JavaScript Debugger, specifically Adblocker Plus, which will cause the Debugger window to display with a blank, white screen. To resolve this problem, disable the add-on when you want to use the Debugger, and then enable it again when you are done using the Debugger.
Omniture does not provide an official packet monitor, you can find a wide range of them on the Internet. Some packet monitors, such as Tamper Data for Firefox or HTTPWatch for Internet Explorer, operate as browser plug-ins, while others, such as Wireshark or Charles, are standalone applications. Please consult the user manuals for the packet monitor of your choice to ensure that it is configured correctly to capture data on the Omniture image request.

### 7.6 VARIABLES & QUERY STRING PARAMETERS

The following table displays the mapping between the JavaScript variable and the query string parameter in the query string of the image request.

<table>
<thead>
<tr>
<th>JavaScript Variable</th>
<th>Query String Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>pageTitle</td>
<td>pageTitle</td>
</tr>
<tr>
<td>server</td>
<td>server</td>
</tr>
<tr>
<td>pageType</td>
<td>pageType</td>
</tr>
<tr>
<td>channel</td>
<td>ch</td>
</tr>
<tr>
<td>prop1 - prop50</td>
<td>c1 - c50</td>
</tr>
<tr>
<td>hier1 - hier5</td>
<td>h1 - h5</td>
</tr>
<tr>
<td>campaign</td>
<td>v0</td>
</tr>
<tr>
<td>state</td>
<td>state</td>
</tr>
<tr>
<td>zip</td>
<td>zip</td>
</tr>
<tr>
<td>events</td>
<td>events</td>
</tr>
<tr>
<td>products</td>
<td>products</td>
</tr>
<tr>
<td>purchaseID</td>
<td>purchaseID</td>
</tr>
<tr>
<td>eVar1 - eVar50</td>
<td>v1 - v50</td>
</tr>
<tr>
<td>charset</td>
<td>ce</td>
</tr>
<tr>
<td>currencyCode</td>
<td>cc</td>
</tr>
<tr>
<td>visitorNamespace</td>
<td>Ns</td>
</tr>
<tr>
<td>Referring URL</td>
<td>R</td>
</tr>
<tr>
<td>Current URL</td>
<td>g</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>t</td>
<td>Browser time information “DAY/MONTH/YEAR HOUR:MIN:SEC WEEKDAY/TIMEZONEOFFSET”</td>
</tr>
<tr>
<td>s</td>
<td>Screen resolution (Width x height)</td>
</tr>
<tr>
<td>c</td>
<td>Screen color depth (8, 16, 32, etc.)</td>
</tr>
<tr>
<td>j</td>
<td>JavaScript version (1.0, 1.2, 1.3, etc.)</td>
</tr>
<tr>
<td>v</td>
<td>Java enabled (“Y” or “N”)</td>
</tr>
<tr>
<td>k</td>
<td>Cookies supported (“Y” or “N”)</td>
</tr>
<tr>
<td>bw</td>
<td>Browser client window width in pixels</td>
</tr>
<tr>
<td>bh</td>
<td>Browser client window height in pixels</td>
</tr>
<tr>
<td>ct</td>
<td>Connection type (“modem” or “lan”)</td>
</tr>
<tr>
<td>hp</td>
<td>Is current page browser’s home page (“Y” or “N”)</td>
</tr>
<tr>
<td>p</td>
<td>“;” Separated list of Netscape plug-in names</td>
</tr>
<tr>
<td>pid</td>
<td>Page identifier for ClickMap</td>
</tr>
<tr>
<td>pid1t</td>
<td>Page identifier type for ClickMap</td>
</tr>
<tr>
<td>rndh</td>
<td>Identifies when an image request is sent from the JavaScript file</td>
</tr>
<tr>
<td>oid</td>
<td>Object identifier for ClickMap</td>
</tr>
<tr>
<td>dst</td>
<td>Object tag name for ClickMap</td>
</tr>
<tr>
<td>Pe (link_d, link_e, link_o)</td>
<td>s.linkType</td>
</tr>
<tr>
<td>prev1</td>
<td>Link URL</td>
</tr>
<tr>
<td>prev2</td>
<td>s.linkLabel</td>
</tr>
</tbody>
</table>
7.7 IDENTIFYING & SETTING UP CONVERSION VARIABLES

If traffic metrics and variables gauge the health of your site from a page and site sections level, conversion variables do the same by giving you metrics on the users interaction with key components of the site. Events should map directly back to the KPIs you’ve identified for the site. For instance, if the intent of your site is to drive email sign ups, then the act of signing up for an email should be tracked as an event. If you have multiple places to sign up for email then one event will suffice for tracking the sign up, and an eVar can be used to give dimension and show the page name that drove the sign up.

As we have demonstrated, it is possible to track variables other than traffic with this integration. By editing the _eventRegistry variable found in analytics.js you can add listeners to specific buttons and links on the site. For instance, say I wanted to fire event1 for the close button shown below.

I could very easily do this by listing adding the following section to the _eventRegistry variable:

```javascript
{
    tag : 'button',
    attribute : ['value','close'],
    events : 'event1',
    linkType : 'o',
    linkName : 'Close',
    linkTrackEvents : 'event1',
    eVar1 : '$pageName',
    linkTrackVars  : 'events,eVar1'
}
```

The format for this variable is a standard JSON object. In fact, _eventRegistry is an array of JSON object. Each object represents another DOM element that will be tracked with a custom link on the onClick event.

In the example above we would be attaching a listener to the onClick event of the close button. The first name/value pair is tag and button. This indicated that the HTML tag type is button. In other words, the page source looks something like this `<button ....> </button>`. The second name / value pair is attribute. In this instance we are looking at the attribute value and attaching the listener when the value equals close. This is important because without this data point we would be tracking all the buttons in the same way. Rather than tracking all the buttons in the same way we want to track the close button to event1, the save button to event, and so on.
The remaining values would be the variables set in custom link request. If the custom link function that we want to use is:

```javascript
Function() {
    s.events='event1';
    s.eVar1=s.pageName';
    s.linkTrackEvents='event1';
    s.linkTrackVars='events,eVar1';
    s.tl(true, 'o', 'Close');
}
```

We would then need to make sure that set the follow name / value pairs. Events and eVar1 are obvious. You simple replace the equals sign with a colon. linktrackEvents and linkTrackVars are necessary since this is a custom link and we don’t want to register this as a page view.

The parameters of the s.tl() function call we will replace with linkType and linkName. There are three main types of custom links – exit, download, and custom. If we wanted to record an exit link we would use ‘e’, a download link we would use ‘d’, and a custom link we would use ‘o’. Most if not all of what we want to track will be custom links. The linkName is the equivalent of the last parameter of the function call. This is the value that will appear in you custom, exit or download links report. In this case we will be using “Close”.

If you want to dynamically track a variable that will be set by some other code or is being set by the analytics.js such as pageName then you simply prefix the string with the dollar sign. So for instance if you used the follow code:

```javascript
eVar1:'pageName'
eVar1 would equal the string “pageName”, whereas if you used this code:
eVar1:'$pageName'
eVar1 would equal the value of the pageName as set in the code. This way you dynamically build your listener calls based on other variables.