A Tag Management Systems Primer
Emergent tagging tools allow nontechnical resources to more effectively manage JavaScripts used by ad measurement and serving systems.

Executive Summary
The proliferation of third-party tags used by Web sites has resulted in a burdensome reliance on already-stretched-thin IT resources. With the emergence of tag management systems (TMS), site managers can now accelerate updates of site code by empowering nontechnical resources to deploy tagging via intuitive, user-friendly interfaces.

TMS tools allow for the management of JavaScript tagging typically associated with measurement and ad serving, without the need to access a site's entire source code. This is accomplished by permitting any selected internal or external company resource to access third-party tag source code. As a result, tagging modifications are decoupled from IT and its dependence on site update cycles.

Advantages of Tag Management Systems
Significant benefits can be achieved via proper use of tag management. Its ability to resolve entrenched challenges that restrict the flexibility of Web analytics and marketing optimization can include:

- **Page speed optimization:** By compressing the size of third-party tags, TMS tools speed page downloading by decreasing page weight.
- **Puts marketers/business in control of third-party tagging:** With user “permissioning,” access can be limited to specific tags within a site’s source code.
- **Reduces IT dependency:** Less dependency on IT resources to update and maintain tags creates more of a “self-service” environment. Also, these tools decouple tag maintenance from IT bandwidth and code release cycles.
- **Intuitive user interface:** Simplifies tag management by leveraging tag libraries and menu options to maintain tagging.

Tagging Challenges
While tag management solutions greatly optimize third-party tags used on organizations’ Web sites, they come with their own set of challenges:

- **Effective tag deployment requires IT and consulting resources:** TMS implementations typically require external expertise.
- **Tags create vendor lock-in:** Once implementation is completed across all the pages it can be challenging to switch vendors.
- **Tag deployment rarely works perfectly at first:** There is always a defect or variable that was missed; moreover, data collection is an ongoing process that increases deployment time.
- **Emerging platform challenges:** New and non-
JavaScript-based platforms such as Adobe Flash, Microsoft Silverlight and the mobile platform require tags that use proprietary languages.

Tag Management Features
With tag management technology still nascent, it is important to ensure the selected solution supports key functionalities, including:

- **Complex/emerging technology compatibility:** TMS tools should have the capability to support JavaScript tags, rich media applications, Flash and mobile scripts.
- **Vendor template support:** The ability to handle preconfigured third-party vendor templates and create custom templates for specific scenarios.
- **Scope management:** Flexibility to control deployment of tags including domain, path, file and URL query parameters.
- **Rule management:** The ability to create, modify, duplicate, activate and deactivate rules, compare rule versions, view version history and create rule dependencies and conditional loading.
- **Code deployment management:** Ability to support multiple deployment environments such as development, QA and production.
- **Security management:** Role-based access with specific, configurable functionality for different types of users.
- **Error management:** The ability to track tag errors on the page and notify support team.
- **Support and services:** Ongoing vendor support, technical documentation and online knowledge repositories.

Types of TMS Architecture
While there are many features and functionalities across the different tag management vendors, there are three primary types of TMS architecture: client-side conditionals, server-side conditionals and the server-to-server approach. Each comes with varying degrees of complexity in how tags are created, loaded and executed. Which TMS structure works best for your organization will depend on the functionality of your site, the structure of your organization and your budget.

**Client-Side Conditionals**
With client-side conditionals, the rules are deployed within the JavaScript file that is downloaded from the TMS servers to the client-side browser. This file is cached for subsequent page loads, reducing the need for communication between browser and server. File size increases as rules are added, which can result in increased page weight and decreased site speed (See Figure 1.)

**Server-Side Conditionals**
In this model, conditional logic is processed by the TMS server. Once a small JavaScript file is downloaded from the TMS server, a dynamic request is generated and returned to the TMS server. Based on the tag rules created within the interface, only the necessary vendor code is then loaded into the browser. Subsequently, tags are

**Client-Side Conditionals**

![Diagram of Client-Side Conditionals](image)

1. Request from browser.
2. Client-side tag rules are downloaded and cached in the browser for subsequent page loads. The initial large file can be followed by multiple smaller requests.
3. Tags are executed in the browser and requests containing tracking data are sent to various vendors.

Figure 1
**Server-Side Conditionals**

executed within the browser and data is forwarded to the respective vendors (See Figure 2.)

**Server-to-Server Approach**

In addition to server-side conditionals, cloud connectivity with selected partners allows for data to be communicated directly between the TMS server and vendor servers. This reduces the number of requests fired from the browser, where integration is an option (See Figure 3).

While there are some performance advantages to this approach, there are potential issues that should be considered. For instance, a lack of vendor support and issues around visitor ID cookie sharing are common with the server-to-server model. Additionally, data contained in the server-side calls can be difficult to validate and will not be seen using a standard browser-based debugging tool.

**Server-to-Server Approach**
Pricing Models
When weighing tag management vendors, it is important to consider the pricing model that fits best with your site type and amount of traffic.

While most TMS providers charge on a server call basis (similar to Web analytics vendors), other cost models include per visit, per domain and by the number of vendor tag templates.

Many tag management providers may also levy implementation and consulting fees for proper configuration and end-user training. Make sure to weigh the total cost of implementation with the vendor you consider.

Best Practices
As enterprise Web sites evolve, new tags are added and existing tags are modified on a continuous basis, it is not possible to deliver 100% error-free tagging. By adhering to tag management best practices, errors can be substantially reduced.

Standard Naming Convention
Having an enterprise-wide standard naming convention creates the foundation for a robust and intuitive TMS implementation. Large organizations may have multiple Web sites across dozens of countries in multiple languages, each with its own unique vendor tags configuration, QA and development environments. Architects and developers should create the foundation for a uniform TMS environment by utilizing an enterprise standard naming convention.

For example:
&lt;Marketing Vendor tag&gt;&lt;Country&gt;&lt;Partner sites&gt;&lt;Environment&gt;&lt;Functionality name&gt;

An organization using SiteCatalyst and Double-Click vendor tags within the U.S. and Canada can have rules such as:
“SC-US-Student Loan-QA-Apply for loan (or)
DBL-CA-Weekly Deal-PROD-Registration”

Tag Administration
Vendor tags within a TMS are managed using administrative tools. Most solutions deploy the tags within the cloud, allowing an administrator to enable, disable and archive rules using an intuitive user interface. It is important to implement uniform processes for managing templates, rules, deployment and users.

Page Dependencies
As a Web site goes into maintenance mode, site administrators may inadvertently alter page elements that impact tag functionality. It is best practice to share page elements that have tag dependencies to the platform team. Make sure to implement procedures to communicate tag/page interdependencies between the TMS manager and IT teams.

Tag, You’re It
Tag management systems provide a welcome alternative to the inefficient processes and tagging constraints of today’s complex Web sites. By providing a consolidated approach to tag administration, a TMS can ease the burden faced by IT staff and assist nontechnical resources in meeting the digital measurement requirements of the business.

Organizations should do their due diligence in the discovery and evaluation of the various tag management vendors and implementation specialists in the market. By fully and candidly exploring challenges stakeholders face related to Web site code management, organizations will be in a better position to determine which TMS solution will best serve their needs.

Quick Take
A Word on Content Management Systems
Though somewhat limited when compared with standalone tag management solutions, some content management systems (CMS) are integrated with Web analytics tools and can be used to push tracking tags to the Web page. Adobe CQ, for example, has integration with Adobe SiteCatalyst. Check with your CMS vendor for more information.
References


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