Original Article

Web services and DAM – The time has come ...

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ABSTRACT An appeal to the Digital Asset Management (DAM) marketplace to integrate web services APIs into the core of DAM solutions to meet user and application demands.

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NEED FOR WEB SERVICES

For many of us who use, configure or develop Digital Asset Management (DAM) solutions, we often ask the question, why are systems not more ubiquitous throughout the enterprise? Why is DAM not more essential to media producers, content creators and marketing communications than file systems? DAM has reached an apex of maturity in its life cycle. Users are able to reliably search, browse and retrieve files. ‘Cybrarians’ tag files and create associations between files. Systems automatically generate renditions and interpret parsed data from embedded eXtensible Meta Data Platform and International Press Telecommunications Council (XMP and IPTC) headers. If we look back into the history of the industry, we recall the evolution of systems from client/server applications, to the introduction of desktop publishing plug-ins, to robust, centralized web applications. Various DAM vendors have broken off into various niches, focused on video, print production or web publishing. Some have specific workflow concepts, which, although robust, fail to meet the broad needs of many organizations. This in itself is not the fault of product managers within the DAM industry. There are simply too many use cases and

exceptions to create a product that universally meets the needs of business from a workflow perspective. There is such a cornucopia of Product Lifecycle Management (PLMs), digital printing platforms, media composition tools, authoring applications, workflow systems, web content management solutions that a single DAM would never meet a meaningful fraction of the needs. This is why so many companies have multiple DAMs or at least wish that they had not settled for one.

I for one will argue that systems are not simple to access from the place where people are doing their work. DAMs are often over-engineered, but are rarely seamlessly integrated into the primary tools that most users work in. Occasionally, we see Single Sign-On integration via Lightweight Directory Access Protocol (LDAP)/Active Directory and rarely do we see a DAM deployed as an iFrame. What the market needs is a secure generation of functions or paths to virtual folders in the form of URL strings that enable users to search, browse, view and retrieve assets from their core applications as an embedded widget, palette, applet, servlet, Silverlight™ rich Internet application or Adobe™ AIR™ component. Most of us are familiar with mash-ups? Why hasn’t this

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technology made its way into everyday DAM? Should we be able to share out virtual collections to partner extranets? Why can't we share searches directly to creative team publishing applications? Should SAP have references to final packaging files? Why can't compliance staff initiate marketing claims searches from a docket?

IS DAM WORKFLOW?

DAM by its nature has workflow. Ingestion is automated. Files are transformed. Files are routed for the purpose of tagging and applying various forms of metadata by staff. Files are routed as necessary to approvers. As there are specific elements of workflow required to describe files and apply permissions, the tendency to burden DAM with the 'workflow solution' moniker has spawned numerous points of view. The philosophical battle around DAM's place in the IT portfolio isn't trivial. For the sake of argument, let us assume there are two camps: One that believes that DAM is essential to business and one that believes that it is a secondary or tertiary business system. The hardcore proponents say, 'Yes, we have permissions, rules, virtual folders, the ability to route files to users and often there are client applications that integrate directly with publishing systems ... can't you see DAM is a necessary component within the enterprise'. The opposing camp says, 'DAM is a nice point solution. It's a digital version of the dusty archive, used by a few who understand the taxonomy which is unfortunate because there is rich data waiting to be re-used and re-released to generate real ROI'. I would argue that embracing the latter does not marginalize DAM, presuming that the necessary information can be retrieved and used by the people or systems that need it. Building workflow into DAM has only exacerbated the fact that the workflow built into these products is so underwhelming when one looks at the broad needs in the market. Workflow upon workflow creates a collision of rules, permissions, rights and routing.

Just as a news subscription needs to be delivered to multiple premises and tenants, so do assets need to be delivered to many applications.

In the DAM industry, we often debate about 'Best Practices' for operator interaction with

systems or the best approach to creating taxonomies. There is a place for normalized operations for typical DAM administrator roles (cybrarians, data accountants and so on), but we often forget that DAM technology must be integrated into a broader platform for innovation to drive competitive advantage. If this is to be realized, DAM solutions must fit into core applications and investments. The organization that can communicate more effectively, efficiently, cost-effectively and rapidly in an integrated manner than the competition is more likely to win (presuming the patent playing field is reasonably level).

WEB CONTENT MANAGEMENT (WCM) INTEGRATION – A (GREAT) ONE-TRICK PONY

Integrating DAM into web content management is an ideal manifestation of web services integration. Through a unified interface, an author can search and select images from the repository to be published through the web document framework. Placeholders can be defined and powerful image processing engines can fit qualifying images, logos and/or video with a high degree of automation. Metadata can be used during rules processing to publish appropriate images on demand. This level of automation benefits many high volume publishers who rely on the Internet as a means of communication, but do the same tools support workflows for Open Prepress Interface or PDF Image Replacement? No. The success of one workflow concept fails when applied to different purposes.

ASSEMBLY IN CONTEXT

What has been forgotten is that files need to be retrieved in context for the specific use case at hand. A product engineer doing ideation in Maya or CAD has different needs than a sales representative assembling PowerPoint, just as much as Prepress Automation system that needs to assemble finished files for a step and repeat pattern has with an online brochure builder that serves up Flash-compatible images for an a consumer car shopping web site.

Oddly, most DAM vendors can only attempt to support a few key workflows without laborious intermediate steps of downloading binary files to a desktop or server folder when

assembling or retrieving the file. Often, users have to select the type of transformation they require before downloading. I've never seen a DAM that was automatically media aware based on the target for assembly by a user or an application.

The key is to deliver the functions that DAM is great at within the tools that people already know how to use or into systems that are designed for a specific process.

BEYOND PLUG-INS

Looking back at the early desktop publishing market, plug-ins were fantastic time savers for graphic artists working on LAN. Single files and whole job folders could readily be searched and retrieved for users to drag and drop files into the layout. The plug-in model told us that we can be efficient when we were authoring so long as the operating system, application versions and network connection worked reliably. The concept lost focus when the industry began to use more freelancers outside the corporate WAN and broader cross-media publishing concepts diminished certain forms of desktop publishing. Security and networks became complex; but worse, EVERYONE became a publisher. The key in today's workflow is to get DAM into the tools that authors, reviewers and researchers are using.

As DAM vendors often only try to serve a single market or attempt to develop a constrained workflow concept, they risk being marginalized by open source commodity DAMs thrown into a core application (Office, CAD, video authoring, desktop publishing, web content management ... the list goes on) or worse put into business systems, such as supply chain management that have inherent weaknesses in professional publishing.

DISTRIBUTED MODELS

The energy put into rigid workflow models has hurt the industry. We haven't focused enough on search, discovery and discreet automation to enable this form of information assembly into one that is readily usable by more applications. Wouldn't it be more convenient to have a widget within your application or service object in a business system that would enable essential operations such as search, retrieval and transformation without having to work

outside the core application? A legal person reviewing for compliance only needs the resolution required to examine a claim while working on a docket in Word. A designer who has properly prepared their page shouldn't have to alter the placed image with a box for resolution. A customer service staffer should be able to query a PDF manual within their Customer Relationship Management (CRM) interface. A salesperson should be able to drag images from the corporate library from a palette into a PowerPoint proposal. SAP should be able to search and retrieve product images to display with the Bill of Materials interface.

The logistics of DAM demands greater focus from the industry. Delivery on demand or rules-based preprocessing for large catalogs will help make DAM an essential part of working.

ASSETS INTO WORK IN PROGRESS (WIPs)

Most of workflow focuses on managing process with a beginning and an end. Unfortunately, most DAM solutions focus on how a file created to an end will be reused anew. Readers of this publication realize that reuse reaps Return on Investment (ROI) results. Archives are not solely for research. Making use of effort that we have already invested in is a wise business decision. Too often as we cycle through asset retrieval through the publishing process do we consider how we can leverage the history of final document components as we generate versions, renditions and variants (Does the lingua franca of DAM need to be refined?) to create new assets, valuable data which we lose at the file and application level containing an awareness of how the original asset was harnessed. What was edited? What was the resolution needed? What was excerpted? What are the resource files in a document? Where do we point to find the original file (securely)? Unfortunately, the weakness of most DAMs in aiding assembly for Work-in-Progress projects has created a chasm in understanding user needs, behavior and decision making. During creative phases, we look at files as random selects. What looks good? During research, we wonder, how was this file used? Did it work? Are there problems? When assembling files for publication, we ask if the files are mechanically ready. Will they fit in the layout space? Do they need to be

transformed for the destination media? When reusing files, we ask whether the documents can be reproduced readily for the intended purpose.

The state of files, whether they be a version, rendition or variant in the creative production cycle is a critical point of definition within a workflow context. At times, the current DAM technology simply doesn't provide enough options or routes for all the potential use cases.

BROAD USE CASES VERSUS SINGULAR POINT SOLUTIONS

Owing to the situational aspects of desktop publishing and the plethora of workflow that can be encountered, DAM solutions must be integrateable with a variety of technologies. Organizations want to assemble a variety of off-the-shelf solutions (Extranets, Intranets, Catalog/Master Data Management applications, Product Lifecycle Management, Customer Relationship Management, Point of Sale systems, Marketing Resource Management, Editorial & Publishing Systems, Layout Applications, Press Production Solutions, Composition Engines, Web Content Management Solutions and so on) to meet the unique go-to-market process of that organization. Owing to the range of current investments, which may not be fully depreciated, most customers would be well served to be surveyed on their significant legacy investments. How often do DAM vendors ask about where the largest IT investments are made? Do those same users interact with other business systems? Do they have to authenticate multiple times from various workflow steps to retrieve or review assets? Too many times, DAMs are sitting in a silo by themselves or loosely integrated with an Intranet, Channel Extranet or publishing application. The reach of DAM into the enterprise is simply too thin based on how broad numbers of users interact with systems day to day. More often than not, casual users who need access to assets often have forgotten their credentials or simply don't know which of the several archives has the information that they want. Search is not enabled across the enterprise to enable fast retrieval. Many DAM vendors have simply forgotten that this was the first value

proposition, 'You will save X in labor for expensive people who need to find Y files multiplied out on an annual basis'. We must return to that fundamental problem or the promises that the DAM industry has made or the value proposition is simply moot.

THE ONE FLYER – IS TEXT AN ASSET?

A side debate emerging in the industry is the confluence of Enterprise Content Management, Document Management, WCM and DAM. Many DAM vendors treat text as metadata. Documents as a whole have become assets (containing content that can be readily searched by tools such as a Google appliance or a Lucene search engine). Several incredibly strong DAM solutions have atomized tagged, embedded text into XML and extracted search facets using linguistic technologies to automatically classify information based on styles, patterns of speech and controlled taxonomies. As headlines, taglines, articles, promotional copy, product descriptions, technical tables, phone numbers, addresses and so on require reuse, my suggestion is, 'Yes', text is an asset inasmuch as a JPEG, PSD or CAD file. Where text is originated, aggregated, assembled, published and stored is just as confounding as there are workflows. I would suggest that without a strong web services infrastructure, DAM would be marginalized to being a file bucket. Text relates to assets. Let's think of a simple ad for a car. The page is laid out with a lovely image of a vehicle, the brand mark, the tagline, the descriptive copy, a price and the ever so lengthy disclaimer. Versions of various media elements exist on the brand web site, the dealer extranet, syndicated consumer web sites and the employee Intranet. Isn't this an opportunity for the reuse of work made once, but delivered often?

If DAM is about search and retrieval for reuse, I would argue that text has more value than binary files alone because of its pervasiveness.

NEED FOR STANDARDS

In many industries, standards have existed for quite some time. EDI enabled efficient procurement for just-in-time manufacturing. JDF is beginning to make an impact on print

manufacturing. IPTC and Dublin Core do provide some elements of useable standards, which can be embedded into documents. NewsML provides classification for articles.

Part of what the industry must address is controlled taxonomies based on cluster classifications along with purpose-based utilization. Possibly, the need for topic maps or deeper ontologies will be needed to align definitions across workflow and business systems. Most DAM clients have opted for bespoke categorization systems. Having ready-made 'punch outs' that can be used to define files based on file strings, types or folder organization would solve a lot of fat fingering for customers, but would also lend itself to integration through a compatible architecture. It is likely that industry interest groups will need to define their logical structures as a sub-group to a standards body that oversees concepts for access, security and conveyance.

With the core foundation of definition defined, subscription architecture can be addressed. Enabling access through standard web calls have been devised using typical techniques, primarily around getting thumbnails or enabling access to a point solution, but the extent has been limited. Publishing services can be enabled so that subscribers can gain knowledge of the library. Standard Simple Object Access Protocol (SOAP) sets for NET or Java platforms can be deployed as client and server objects. The approach to the subscriber model should be open, so that purpose-built DAMs (such as those for video management, web content management or print publishing) can live alongside one another. Roles and permissions can be aligned against Active Directory, LDAP or Radius Server entities.

PUTS AND GETS FOR BIG BINARIES

A key element of standardization is transport. How are files placed on server directories? How do users access reference files within an authoring tool? APIs must address requesting and delivering Binary Large Objects efficiently across networks with complex topology. There have been several stop/starts in Peer-to-Peer technology, but most of this requires a thick client that does not integrate well with other systems. Agreeing on transport protocols is another topic of discussion.

Many corporate networks block Transmission Control Protocol/Internet Protocol (TCP/IP) and more efficient sub-sets, such as UDT. SmartFTP tools have some promise. HTTP and HTTPS are relatively easy to deploy as web services, although not necessarily as fast from a port optimization perspective.

Auditing of delivery and utilization will be important in a world that is ever more concerned (rather obsessed) with compliance and risk mitigation. Network engineering cannot be overlooked.

WHO'S CALLING WHOM?

A rule of thumb that many of my peers use for developing an adapter, connector or similar integration API is US\$60 000. That's simply too high to be pervasive. DAMs should come with ready-made web service integration modules that deliver a wide variety of inbound and outbound services as a core value-added module. The API frameworks should be made freely available to commercial software developers, integrators and developers. If the industry is to remain both viable and innovative, it must avoid marginalization owing to high budgets for integration. One would argue that business models must be realigned to be 'sticky'. This means that DAM vendors must find ways to get their solutions vendors integrated with as many systems as possible, either by broad-based used case or industry vertical. The reward for a supply chain view is increased longevity for maintenance revenue, ability to deploy value-added modules for new license origination revenue and mitigating the risk of disintermediation. Workflow and desktop publishing vendors are less likely to build DAM into their point solution product of a said vendor's product is embedded as a web service within multiple applications throughout an enterprise. Lower cost client add-ins, plug-ins and other tools will help increase the footprint and utilization of a DAM technology. Ready-made widgets, adapters, connectors and so on should be available on the menu at comparatively low costs.

SECURITY VERSUS UTILITY

Most DAMs rely on their own security models, which are eminently more complete than will be found in a corporate directory group

structure. This has led most vendors to simply argue their case, that users must be registered within their own domains, which makes maintenance an administrator's headache that doesn't add much value at the end of the day. DAM vendors need to do a better job in expressing the core application functionality and security model to IT peers in a succinct fashion, along with a method for integrating the functional aspects of the system into pre-existing intranet or extranet systems. Admittedly, most corporate IT or supporting service organizations simply want to get integration projects off their punch list. They have neither the time nor reason to care about the wonderful features of a said vendors' DAM. They should keep integration simple and straightforward within the confines of a standard and a typical IT workflow concept.

NETWORK FRAGILITY – AN ISSUE IN SOME PLACES

The web services approach makes sense in WAN-oriented marketplaces. Unfortunately, media delivery is not always reliable in all markets, including the rapidly growing Brazil, Russia, India and China countries. Europe, Middle East Africa and much of Latin

America have challenges in providing reliable bandwidth to corporate and consumer accounts. Over-reliance on web services may create challenges for network engineers who are trying to support newer digital delivery models. Networks may be throttled, ports may be blocked, lines may be cut, governments might take a hard line or simply old circuits cannot push the volume through. Careful consideration must be made of the user base to assess reliable access on a session-by-session basis.

NICHE POINT SOLUTION TO THE COMMUNICATIONS ENGINE

Is the notion of DAM stale? Does the re-engineered future require a new definition? If true web services are enabled, are we creating a new form of 'Communication Engine' that delivers for users and systems based on their needs, purely on demand through simple protocols. Embracing web services will reap new business rewards for vendors and enable those who have staked a claim in this industry. Delivering media and content to more users through more channels will disintermediate industry stagnation and drive more value for users.