

white paper

EndPlay's Architecture:

*Delivering Unprecedented Extensibility for
Today's and Tomorrow's Web Properties*



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Executive Summary

In order for today's enterprise and media websites to reach their engagement and monetization potential, they're going to have to undergo a major transformation. Why? Because sophisticated consumers are demanding entirely new levels of site interactivity and customized content. And this demand is overwhelming for the capabilities of today's fast-aging and decentralized Web Content Management (WCM) toolsets and technology.

There is a steadily growing need to deliver tailored content to users becoming accustomed to interacting with the Web in ways never imagined just a few short years ago. Unless Web properties develop the ability to coherently package, render and deliver media-rich, highly personalized content to an increasingly mobile user community, they run the risk of losing audience share and face a corresponding decline in valuation.

Organizations that continue to implement fragmented and outdated WCM tools are seriously disadvantaged when it comes to meeting user expectations. That's because legacy WCM tools suffer from inefficient content-creation workflows, poorly designed user interfaces, and decoupled asset management. Each of these deficiencies hampers the ability to optimize cross-channel user experiences that are vital to elevating site engagement.

On the flip side, those sites that satisfy the personalized content needs of today's discriminating audiences will enjoy higher visitor return rates and generous referrals that will attract even more visitors. These sites will become sources of lucrative distribution and monetization through exponential growth in site traffic generated by loyalty-inspired referrals.

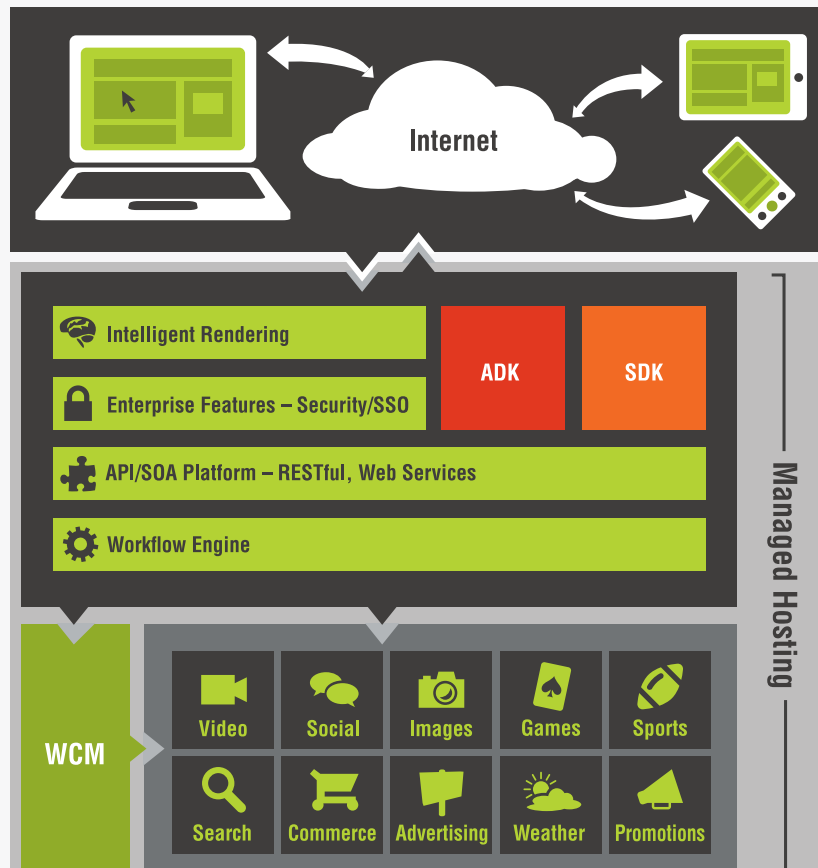
Web property owners and publishers face a dilemma that inhibits optimal site engagement and monetization. At issue: (1) the toll exacted by complexities associated with fragmented WCM systems and (2) to what extent this becomes a distraction to the core business of engaging and monetizing audiences.

There is clearly a tremendous need for a new architectural approach to WCM. Next-generation WCM architectures must deliver an inherent flexibility and extensibility to keep pace with the torrid rate of change in Web technologies and constantly evolving user preferences and expectations. EndPlay is delivering this next-generation WCM architecture today.

"The EndPlay WCM platform gives our internal site owners the ability to change the look or functionality of the site in real time. If there is a breaking news story or special event we want to cover we can respond instantly with changes to our content and presentation."

Rob Richter, SVP Digital, LIN Media

The EndPlay™ Architecture



SDK - Software Development Kit
 ADK - Application Development Kit
 WCM - Web Content Management
 SOA - Service Oriented Architecture
 SSO - Single Sign On

The EndPlay
 WCM architecture.

EndPlay's Next-Generation WCM Architecture: A World Apart

EndPlay's architecture marks a major departure from the antiquated, decentralized "point-product" approach of legacy WCM systems. At the heart of the cloud-based EndPlay platform is a foundation of tightly integrated technologies that manage, track, update, and deliver contextualized content – reliably and securely. The platform leverages a world-class data center (SuperNAP) that delivers 100-percent uptime guarantees, "five-nines" connectivity assurances, 24/7 live support and full redundancy through database clustering.

Moreover, while EndPlay's core WCM versioning and rollback capabilities meet or exceed those offered by standalone commercial and open-source alternatives, its built-in extensions provide a marked differentiation from competitive offerings. These extensions include critical enterprise security features and a key EndPlay concept called *Intelligent Rendering* (described on page 5) – all of which sit atop a powerful workflow engine that enables clients to manage their content publication needs in alignment with their business processes.

And because the EndPlay platform leverages a Service-Oriented Architecture (SOA) to deliver its Web services, integration with enterprise resource planning (ERP) and other third-party systems is greatly simplified. The end result: a next-generation WCM solution that meets client objectives today – and delivers an extensible, secure, enterprise-class platform for future business continuity and investment protection.

Unique Attributes of the EndPlay Architecture

Intelligent Rendering (IR)

This core element of the EndPlay platform enables content to be generated from and distributed to any device across a wide array of data channels, including 3G, 4G, Wi-Fi and broadband. Users are provided with the content they request and Web publishers enjoy greater opportunities for monetization — all based on a precise understanding of the content type and the user device by which data is being accessed. Intelligent Rendering is a fundamentally different approach relative to existing WCM systems that remain reliant on third-party providers to support full, mobile site rendering.

IR removes the technical limitations associated with solutions that require workarounds to compensate for shortcomings, such as the lack of Flash video support. It supports video and all rich media on smartphones, tablets and other devices such as iPhones, Androids, Blackberrys, iPads, Mac OS X, PCs, and other Web browsers, including those with Adobe Flash video support and those without. In addition, IR includes HTML5 capabilities, which is especially important for mobile content rendering.

IR also supports various video-streaming technologies in their appropriate formats, including RTMP, RTSP, and HLS, as required by specific devices. This enables clients to reach end users and customers, anywhere, any time, on any device. The EndPlay platform supports highly flexible display options easily controlled by site managers, designers or user inputs. This includes a single sign-on (SSO) option that allows users to be identified via explicit and implicit settings.

What's more, IR enables users to easily personalize their site experience with various settings that may include special needs, such as sight or hearing-impairment options, or requests for alternative information, alerts and opt-ins. The display of content, as well as overall page layouts, can be customized for specific users based on group memberships.

Key user characteristics, such as location, language preferences, currencies and tax rates, represent clear and tangible value to the site owner. This local-awareness is yet another dimension of information delivered by IR. By analyzing the context in which content is being viewed, EndPlay takes into account the content relationships, monetization requirements and form factors to deliver optimized display.

EndPlay clients generate more than 750 million page views per month today, operating in nine of the top ten designated market areas (DMAs) and 15 of the top 20.

EndPlay metrics

Social, Local, Mobile Capabilities

Web properties must accommodate their users preferred means of engagement. Therefore, the ability to connect with audiences through social, local, and mobile dimensions – a.k.a. *SoLoMo* – is essential. This requires engagement via locally focused social networks and mobile access from anywhere.

EndPlay's platform addresses SoLoMo with its built-in social networking connectivity and capabilities. This provides native rating or "liking" capabilities for stories and articles, as well as blogging and commenting from within the EndPlay system as a means of connecting with other users through popular social media like Facebook and Twitter.

The platform also provides local market capabilities with built-in and flexible user-registration features to identify each user's location and interests. As such, establishing new partnerships with highly targeted online and mobile advertising solutions that cater to individual user needs can be easily justified and validated. This further serves to personalize the user's experience and monetize it with local offers. Known also as *hyperlocal*, this level of access refers to sites that are oriented to a well-defined community-scale area with a sharp focus on the concerns of its residents.

Mobile rendering, an essential SoLoMo capability, is driven by EndPlay's breakthrough IR technology. This enables rich content, such as video, to be published to any mobile device, taking into account the device's display capability. This represents a key technical achievement in support of the "One Web" goal to make the same information available in the same representation, regardless of device.

In contrast to competing WCM alternatives that attempt to "bolt on" SoLoMo capabilities as an afterthought or require the involvement of a third-party, EndPlay has designed this critical functionality directly into the platform.

Enterprise-level Security

Mindful of the enormous asset value inherent in Web properties, the EndPlay platform delivers comprehensive, enterprise-class security.

EndPlay's security features provide granular control over all user roles and permissions. By layering the permissioning management on top of the entire WCM ecosystem, developers gain complete control over which internal user(s) have access to each piece of the entire stack.

User and workflow management capabilities centralize users across all Web properties for easier single-tab management. And site administrators can add/edit/disable users for multiple Web properties from a single "pane of glass" to enable granular permissioning.

"WCM is (now) about leveraging content to achieve business goals, such as increased traffic, improved conversion rates, and/or better customer self-service...it has become part of the customer-experience ecosystem...Customer experience drives the WCM spend."

Stephen Powers, Forrester, May 18, 2011

Another key attribute of the EndPlay platform allows users to belong to multiple groups within the organization, with built-in flexibility that permits (1) functional and hierarchical roles for users and (2) appropriate permissions that map to each role's responsibilities and expectations. As an example: an art director who may also participate on the executive team can have permissions similar to other designers within the organization in addition to permissions that map to other executive-team members.

Controlling access for content contributors and end-users, SSO enables internal contributors, such as journalists and editors, to add and manage content. It also supports powerful end-user engagement via flexible user registration. Such registration, whether directly through EndPlay or by logging in with a personal Facebook or Google account, permits all users to contribute rich media content and engage in social interaction with others on the site.

Simplifying the identification and registration process encourages more users to interact with the client's site, leading to more robust end-user engagement and monetization opportunities. By driving up page views, "uniques" (number of unique visitors), return visitors, and time-on-site, clients are better positioned to market their sites to advertisers with verifiable metrics.

Software Development Kit (SDK) and Application Development Kit (ADK)

EndPlay's SDK enables customized presentation and connectivity to back-end application extensions. The SDK equips developers, HTML-scripters and designers to customize the look, feel and layout of the user experience for each device.

Unlike systems that call for the vendor to integrate new capabilities (typically a lengthy process), EndPlay's platform requires no changes for extensions and customization. An extensibility layer enables iterative changes to the look and feel of a website and supports calls for application programming interfaces (APIs).

All changes occur outside of the platform using well-defined presentation description specifications. To quickly and easily modify a site's front-end, WCM users can leverage the SDK that enables content editors to modify the site's templates and page layout, and upload them to a repository for access by all users of the system.

EndPlay APIs play a key role in the platform's extensibility. Decoupled, they are not dependent on changes in the core platform. New objects can be created to provide interesting capabilities such as the ability to access customer information from a company consumer relationship management (CRM) system or select stories to feed to a news production system. These plug-in modules, certified by EndPlay, extend the site presentation and may be easily reused as needed. Each of these modules are developed through APIs and designed as modular components operating independently. They connect to the platform as plug-ins and are hosted in and supported by EndPlay's world-class data center.

The SDK equips users without coding experience to design and build customized look-and-feel templates for a whole site or for individual pages. Iterative modifications to look-and-feel can be made with ease. Themes specify the modules that are used on each page or collection of pages, along with describing the backgrounds, site branding, and other stylistic elements desired. Layouts provide the additional capability to change the grid patterns of various pages.

Together these support optimal advertising placements while accommodating changes to the flow of an article. In addition, a drag-and-drop feature can quickly and easily move, add, or delete modules on each page.

By building deeply integrated Application Modules into the platform, the ADK enables clients to extend their website's footprint within the EndPlay WCM. Built by the client, partners or EndPlay Client Services, these modules run in parallel with the core WCM platform by leveraging EndPlay's SOA.

Customized and personalized for individual users or specific groups, presentations can be tailored to deliver a more engaging end-user experience. The result is a new generation of enablement for clients to further differentiate themselves in their respective markets. As users demand additional capabilities for accessing, viewing and interacting with multi-media content with greater frequency, the ability to immediately integrate new features into an EndPlay site ensures an ongoing competitive advantage for clients. Extending new functionality is easily accomplished using well-defined application and repository industry standards including JSR-170, JSR-283, and JSR-286, which can be leveraged by the client, partners, or EndPlay Client Services.

Integrated Workflow

Unlike the majority of existing WCM systems, EndPlay provides a powerful workflow engine that supports any business logic. The EndPlay engine can accommodate simple or complex workflows, no matter what business process is implemented by the client. This includes routing to individuals and groups, approval cycles, work queues and timeouts.

The workflow engine enables clients to define, execute and enforce all steps necessary to publish and distribute content by layering the functionality of user control on top of the WCM ecosystem. In turn, this provides developers with control over which internal users are able to access each piece of the entire stack.

Certified-partner Ecosystem

EndPlay leverages third-party development and partner innovation, enabling tight integration of important capabilities, such as live streaming video, advertising integration and gaming engines, into its core WCM solution. But where other vendors may offer third-party solutions, EndPlay goes a step further by providing partners with comprehensive training on its platform and requiring certification for any third-party application or capability before it is accepted into the EndPlay ecosystem. The flexibility provided by this ecosystem enhances client productivity and virtually eliminates wait-time for changes in core functionality to enhance or integrate important new features.

Certification, hosting and management of partner solutions ensure the highest level of integration and functionality possible with third-party solutions and partners. All ecosystem partners are EndPlay-certified and must follow published compliance guidelines for building application modules.

Summary

Web properties are in dire need of a radical transformation. They must become part of their audiences' social, video-rich, customized, on-demand life – seamlessly integrated into the ever-evolving devices on which that audience expects and demands on-the-go website access.

Responding to this need, EndPlay's new WCM architecture enables personalized content to be "intelligently rendered" to extend audience engagement, deepen loyalty and, above all, monetize assets and protect the growing value of online properties.



Endplay media clients operate in nine of the top ten designated market areas (DMAs) and 15 of the top 20.

EndPlay metrics

About EndPlay

EndPlay is a leading software-as-a-service (SaaS) provider of Web content management (WCM) solutions to enterprise customers in media, entertainment and education. The company's Intelligent Rendering technology is at the core of its evolving architecture and platform. Its Intelligent Composition technology provides the ability to generate and distribute compelling content from and to virtually any user device. Its Intelligent Monetization platform enables customers to generate a variety of revenue opportunities through an enhanced user experience.

EndPlay serves over 750 million page views per month, making it one of the top 50 Web properties in the U.S. based on traffic volume. In the media marketplace, EndPlay customers access local markets with 53% of U.S. households, reaching an unduplicated 15% of the U.S. Internet population and operating in 15 of the top 20 designated market areas (DMA) in the United States.

EndPlay delivers 24/7 customer service and is expanding its geographic reach into Europe and Asia, while extending its technical capabilities and product portfolio across a diverse range of industry segments.

EndPlay is headquartered in Los Angeles, Calif., with offices in Florida and New Jersey.

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