The Social Layer

HOW THE RISE OF WEB-ORIENTED ARCHITECTURE IS CHANGING ENTERPRISE IT

ReadWriteWeb

Written by Christopher Lynch
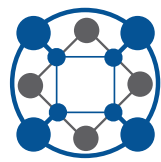*Edited by Alex Williams*

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Socialtext is pleased to sponsor this ReadWriteWeb report because it spotlights an emerging IT trend we can deliver on. The report shows how companies can build an enterprise architecture that surfaces key events from traditional systems of record inside of social applications, so that employees across the enterprise can use that information to have open discussions and to collaborate and take action to improve their core business processes. Enterprise IT can easily perform this integration by embracing Open Web standards built on open APIs, a trend this paper covers in detail. Though the paper is not product specific, we do have an offering called Socialtext Connect that enables this integration.

Socialtext Connect: Integrating Traditional Apps With Enterprise Social Software

The problem

Traditional systems of record (i.e. CRM, ERP) that businesses have relied on for years to perform key business processes have created information silos inside companies. Employees who lack access to a particular line of business system miss out on critical information and events happening there that could help them execute key business process, support colleagues and give them greater context and awareness for how they drive new opportunities and projects and serve customers.

Solution

Socialtext Connect is a technology that enables these integrations in the enterprise by building a "social layer" in the enterprise architecture using open Web standards. Connect works for integrating both traditional on-premise as well as cloud-based enterprise applications to social applications used enterprise-wide. Connect leverages the fast innovation taking place on the consumer Web by incorporating established and emerging Web standards, including Twitter Annotations, Google OpenSocial and activitystrea.ms (which Facebook's News Feed was built on).

Benefits

Elimination of information silos: Employees across the enterprise can have access to relevant information from systems they either never had access to or had difficulty using , which helps them make better decisions when managing projects, pursuing new opportunities or serving customers.

Make business processes more flexible: Traditional systems of record are good at carrying out a predefined, rigid set of business processes. But when an exception to those business processes happens — a common, everyday occurrence — people must step in and manage it. With Socialtext Connect, those exceptions can be surfaced as an event inside an enterprise activity stream. There, employees can discuss, collaborate, and take action on that event to satisfy business goals, customer needs and key projects and initiatives.

Better context and awareness: By having real-time access to relevant events being carried out by key business systems and colleagues across the enterprise, employees make better decisions, serve customers more efficiently, and stay in sync as they drive new business opportunities.

For a demonstration of Socialtext Connect, contact **sales@socialtext.com.**

Accounting Consultancy Hayes Knight Utilizes Socialtext Connect To Serve Customers Faster

By Christopher Lynch

With the recent launch of Socialtext Connect, Socialtext customers have begun surfacing events from other critical business applications (CRM, ERP, etc.) inside of Socialtext Signals and Activity Streams. This gives employees the ability to see relevant work their colleagues do in other systems, engage in conversations around those events, and take action on them.

One great example is Hayes Knight, an Australian accounting and consulting firm. Hayes Knight uses Socialtext to share knowledge and provide its clients with the best and most up to date information about tax and accounting issues. Hayes Knight utilized Socialtext Connect to trigger a microblogging message when critical actions occur inside of Salesforce.com.

Hayes Knight's knowledge management company, Knowledge Shop, provides a web-based member service subscribed to by 500 accounting firms and the thousands of accountants who work for them. It serves as a place for members to ask questions about accounting issues and get access to all kinds of tax and accounting information that experts at Knowledge Shop deal with everyday. The questions range from general accounting questions, to more complex tax advice issues.

The customer service representatives for Knowledge Shop use Salesforce.com to manage membership information, seminar registrations, and to assign and track questions for Knowledge Shop advisers. When a rep enters a question into Salesforce.com from a Knowledge Shop member, the service rep can push that question into Socialtext Signals with the click of a button. Even though the question is addressed to a specific tax adviser, Hayes Knight finds value in letting others see the questions being asked.

Then the Knowledge Shop adviser documents answers in Socialtext Workspaces, for current and future use. Once they're completed, using a customized button inside Socialtext, they can send the proper answer back to Salesforce.com for processing.

Hayes Knight CTO Jack Pedzikiewicz used Socialtext Connect to perform the integration. The ReST API within Socialtext Connect allows Socialtext customers to take events from a variety of other enterprise systems and surface them inside of Signals. Jack says he wants the advisers working in Socialtext because the software has deep collaboration features that allow them to create, share and capture knowledge –– something they wouldn't get if they worked in Salesforce.com.

"Signals allows us to respond faster," Jack told me recently in a video chat. "The speed with which we're answering questions has been cut in half, and is a full 7–8 minutes faster on average. The wonderful thing is, as we capture these great answers inside of Socialtext workspaces, we also cut back on repetition where questions cover the same issue and build best of breed responses and knowledge on key issues of importance. It allows us to serve our customers faster and more consistently."

We're always looking for more great uses of Socialtext Connect to share. Please feel free to send me yours. Customers or business partners interested in joining our Socialtext Developer community, where practitioners can learn how to get the most from Socialtext Connect and share best practices, please contact us at **socialdev@socialtext.com**.

*Originally posted on **August 30, 2010** at http://www.socialtext.com/blog/2010/08/accounting-consultancy-hayes-knight-utilizes-socialtext-connect-to-serve-customers-faster/*

Introduction

During what's become widely known as the Web 2.0 movement, we saw the emergence of consumer applications and services like Facebook, Google, Twitter and Wikipedia. These services made it easier to share information in real time and connect with friends, family and experts. Large ecosystems of companies emerged to build services to complement these applications and websites, generating billions in venture capital, advertising and subscription revenue.

As these services became a staple of the consumer Web, enterprise software vendors built secure applications that mirrored the social dynamics of these technologies, making it easier for employees to share knowledge and expertise, and connect with colleagues. This is giving way to what's known as a "social layer" in the enterprise architecture. A social layer enables employees to access information from a variety of enterprise applications and colleagues across organizational silos. In an open — yet secure — environment built on microblogging and activity streams, employees discuss, collaborate and take action on the real-time information being pumped into the social layer to serve customers better and drive new business opportunities.

Companies' embracing of social software represents a direct response to the problem enterprises have grappled with for decades: information silos, caused by both people and systems. Social applications such as wikis, blogs and microblogging — which make it easy to create and share content — help break down knowledge silos caused by people and organizational charts. But the issue of system-based silos remains a big one that must be solved by IT and business leaders together.

Today, employees across the enterprise miss out on valuable information that resides in another system across their company that could help them do their jobs better. So while your sales department might have full access to a CRM system, for example, someone in marketing or operations might not be aware of an important event occurring in that system. The consequence? They spend on average a day a week (eight working hours) looking for the right people and information to do their job and serve customers.[1]

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1   Business Value Whitepaper at Socialtext: http://www.socialtext.com/products/wp_businessvalue.php

This problem of information silos has been exacerbated by complex enterprise architectures. For a long time, companies have been hamstrung by clunky, proprietary development languages and complex application programming interfaces (APIs). This has stifled innovation, caused costly and complex integrations, and slowed IT development cycles.

As companies build their social layer to break down information silos, IT will have to decide what architectural standards to embrace — and it's here where enterprises should once again take a cue from the consumer Web. The success and very existence of Twitter, Facebook and Wikipedia has less to do with any one application or business model itself; it had everything to do with the "open Web" — the standards that allow Web services and applications to talk with each other easily and securely. Based on a simple adherence to the HTTP protocol that provides the backbone of the World Wide Web, open Web standards have enabled consumer technology to flourish, as evidenced by the rich content you see in a Facebook News Feed. This paper will lay out how enterprises can embrace a similar architecture to build their social layer.

The rise of scripting languages, open frameworks and the "view source" culture

The rise of the open Web has made computing more accessible to millions of people, and its effects on the enterprise world have begun to be felt. With a simple click of the mouse, anyone can see the HTML of a Web page and how the bits and pieces of it were constructed. They can copy and paste that code into another Web page or blog and modify it as they see fit. The "view source" culture is alive and well, turning everyday people into amateur programmers. Even college students in non-science concentrations now see basic HTML in their curriculum.

On the development side, the rise of dynamic scripting languages like Javascript have allowed people to enrich Web pages and applications with less heavy lifting. By 2008, after Facebook and Twitter had surged in popularity, the rise of these scripting languages had already been firmly established.

*   According to Evans Data's Global Development Survey in 2008, almost 70% of developers used JavaScript in some form, with 15% more planning to adopt it.[2] PHP, another dynamic scripting language used for Web pages on Facebook, was already being utilized by more than a third of developers.

*   By 2009, Ruby, the object-oriented scripting language that the open source Ruby on Rails Web framework is written in, found popularity as well (Twitter runs on RoR), with a 40% increase in developer usage of Ruby.[3]

*   The rise of cloud computing also played a role, as developers saw easy ways to host their applications and integrate them with others. After the launch of the Google App Engine, for instance, the Python scripting language saw a 45% increase in use.[4]

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2   PHP, JavaScript, Ruby, Perl, Python, and Tcl Today: The State of the Scripting Universe http://www.cio.com/article/446829

3   Ruby Use Jumps Forty Percent in North America, New Evans Data Development Survey http://www.evansdata.com/press/viewRelease.php?pressID=155

4   New Survey Shows Python Use Has Risen 45% Since Google App Engine Debuted. http://www.evansdata.com/press/viewRelease.php?pressID=162

Suddenly, in the enterprise, the technologies powering the open Web reminded us that the complexity of software development and architectural frameworks that facilitate the integration of disparate applications need not be so high. The stack-based development models built on Java and .Net languages — which remained a staple in the enterprise architecture — put unnecessary requirements on how you could integrate applications, unlike the ease of open Web architectures and dynamic programming languages that allowed you to point data at anything with "HTTP" in the address. This phenomenon explains why you can see such diverse content from all around the Web seamlessly integrated into Facebook and Twitter homepages.

As the open Web has thrived, developers' skills and focus have began to shift toward dynamic languages that adhere to these more open standards and Web-based architectural frameworks. Traditional enterprise languages and frameworks have been disrupted. In its latest State of the Computer Book Market, O'Reilly found that between 2003 and 2008, Java-related books saw a 50% decrease in sales; .Net languages also experienced a sharp decline between 2007 and 2008.[5]

Experts say that the openness of dynamic languages — and the ease and speed with which developers can change and create code within them — is having huge effects on the enterprise space, especially as it relates to integration and the pace of innovation. Three year development cycles will give way to weekly iterations, benefiting enterprises and their vendors alike. This will be vital as companies look to integrate disparate applications into the social layer.

"The dynamic languages are becoming more accepted," Jeff Hobbs, director of languages and Tcl tech lead at ActiveState Software, told CIO magazine.[6] "This is in part through more acceptance of open-source software, which all the dominant dynamic languages are (versus Java and .Net, which are questionably open in their process and/or sources)."

Earlier this year, Jeffrey Hammond, a research analyst focusing on software development for Forrester Research, wrote that developer skill sets were evolving to mirror the principles of the open Web and dynamic languages. He concluded that IT managers at big enterprise shops would need to take notice.[7]

"It's also no surprise to see that dynamic languages such as Ruby, Python, PHP, and JavaScript are proving most popular with developers in the 45-and-under cohort," Hammond wrote. "The implications? As the development staff at a shop turns over, the new generation will push to adopt these dynamic languages. IT managers must ensure that processes and application life-cycle management tools can handle the changes that these new languages bring to the development shop."

5   State of the Computer Book Market 2008, part 4 — The Languages http://radar.oreilly.com/2009/02/state-of-the-computer-book-mar-22.html
6   PHP, JavaScript, Ruby, Perl, Python, and Tcl Today: The State of the Scripting Universe http://www.cio.com/article/446829
7   What Developers Think http://www.drdobbs.com/architecture-and-design/222301141

REST and the Enterprise

The emergence of dynamic scripting languages is only part of the story of the open Web's migration into the enterprise; open APIs have played a critical factor in making it easy to integrate applications new and old. In particular, Representational State Transfer (REST) APIs allow you to integrate applications by a simple adherence to the HTTP protocol. Operating under some simple constraints that focus on universal commands (such as "get" or "put" or "delete"), it has dramatically lowered the barriers to integrating disparate apps, and will play a critical role in bringing traditional apps into the social layer.

The upside to REST is its statelessness and some basic constraints that encourage simplicity. As World Wide Web luminary Roy Fielding wrote in his dissertation[8], each request from client to server must contain all of the information necessary to understand the request. The benefit of this constraint, he wrote, lies in "visibility, reliability, and scalability."

Fielding expounded on those three ideas:

- Visibility is improved because a monitoring system does not have to look beyond a single request datum in order to determine the full nature of the request.

- Reliability is improved because it eases the task of recovering from partial failures.

- Scalability is improved because not having to store state between requests allows the server component to quickly free resources, and further simplifies implementation because the server doesn't have to manage resource usage across requests.

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8   Architectural Styles and the Design of Network-based Software Architectures http://www.ics.uci.edu/~fielding/pubs/dissertation/rest_arch_style.htm

Fielding wrote that back in 2000. In the following decade, REST came to dominate the world of APIs, and in particular took a lot of attention away from the stateful SOAP APIs that had characterized many bulky enterprise architectures. According to a survey by Programmable Web, REST comprised 74% of the API protocols and styles, while SOAP claimed a meager 15%.[9]

The prevalence of REST in the development world has naturally been felt in the enterprise, especially as IT departments juggle a variety of applications and databases that have accumulated across their company over the course of multiple years. As enterprise architectures become more decentralized to meet the long list of vendors serving the enterprise world, most developers view SOAP as too complex — or at least too complex as it relates to the effort involved in writing connectors.

Unlike REST, SOAP requires specific toolkits to form requests, and each request sent to a server must be wrapped in its own XML envelope. These request issues soak up developer time, and slow bandwidth — literally. DevX, the developer publication, estimated that a four- or five-digit stock quote in a SOAP response could require more than 10 times as many bytes as would the same response in REST.[10]

In the enterprise, REST is contributing to what Forrester calls "leaner" software development that encourages simple integration points and more agile iteration cycles. "The REST approach to Internet services is a lightweight approach compared with the galaxy of Web services standards anchored by SOAP," says Forrester's Hammond.[11] "Architects debate when and why to use REST and SOAP, but the fact is that REST and the "stateless" application designs it represents are growing in popularity… Part of REST's appeal is that it is simple because it leaves nasty problems like state management for the consuming application to sort out."

9   Open API Madness: The Party Has Just Begun for Cloud Developers http://www.readwriteweb.com/cloud/2010/05/pen-api-madness-the-party-has.php

10 Giving SOAP a REST http://www.devx.com/DevX/Article/8155

11 Lean Software Is Agile, Fit-To-Purpose, And Efficient http://www.forrester.com/rb/Research/lean_software_is_agile,_fit-to-purpose,_and_efficient/q/id/47830/t/2

The Move to the Cloud and a Web-Oriented Architecture

During the past decade, free Web-based services like Gmail have altered people's expectations for the applications they like to use for both their consumer and work lives. The idea of visiting Best Buy to purchase software discs or even Microsoft's website for downloads and upgrades became antiquated, if not inconvenient. People became more selective about installing an application locally, especially if they could easily avoid it. This trend is playing a huge role in bringing the principles of the open Web to the enterprise. The net result is leading to a shift away from stack-based enterprise architectures with stateful integration points that for years made it difficult and expensive to rectify old systems, data and apps with new applications (like social).

Just how much has the cloud affected IT thinking about architectures and strategy? In June, the consulting and market research firm IDC estimated that cloud-based services accounted for $16 billion in global IT spending in 2009 and will rise to $55.5 billion by 2014.[12] As shown in ReadWriteWeb's recent cloud report, companies that have embraced these cloud services experienced faster deployment times and shifted their IT priorities to integrating disparate apps via open APIs.[13]

Meanwhile, these enterprises have taken advantage of fast iteration cycles that happen with cloud-based software, where updates and upgrades happen in weeks instead of years. The SaaS-based subscription model has spurred better alignment between vendors and enterprise customers; if a company is on one-year subscription contracts, vendors are incentivized to deliver faster and more efficiently in response to customer needs in order to win renewals the following year. This represents a much different approach to overselling licenses that get shelved over several year contracts.

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12 IDC: SaaS Momentum Skyrocketing http://www.cio.com/article/600577/
13 The Future of the Cloud http://www.readwriteweb.com/cloud/2010/07/download-our-latest-report-for-free-the-future-of-the-cloud.php

But enterprises that must hold on to on-premises systems won't be left out in the cold.

Hybrid "private clouds" and onsite or virtualized appliances will allow them to realize the benefits of the cloud and build a Web-oriented architecture for the future. At the same time, these deployment methods allow them to meet the security and integration needs of their current legacy systems that have lived behind a firewall for many years and will for some time into the future. Appliances in particular enable companies to hook new cloud-based software into their existing infrastructure, but still receive updates and upgrades remotely from a vendor with little to no effort from IT.

"Appliances continue to be an important deployment option for tasks associated with application integration and infrastructure, Gartner's L. Frank Kenney wrote in the company's 2009 report on Integration and appliances.[14] "Appliances as a deployment option should not be ignored because of the positive impact they can have on implementation times, costs, overall return on investment (ROI) and total cost of ownership (TCO)."

The move to SaaS and the cloud — be it in a pure, hosted form or the hybrid appliance — will enable companies to embrace a Web-oriented architecture that encourages easy integrations between systems old and new.

It will also allow save IT money. By Gartner's estimation, 60% of current IT spend is allocated to infrastructure costs.[15] As that time and money gets freed up, IT and enterprise developers will focus more heavily on building a layer in the enterprise architecture that allows employees to access information from a variety of systems and share it with colleagues to collaborate around key business challenges and solve them faster than competitors.

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14 Key Issues for Integration and Infrastructure Appliances, 2009 (Gartner, password protected). http://www.gartner.com/DisplayDocument?id=931824

15 Shrink Your IT Infrastructure Costs http://www.cio.com/article/603217/Shrink_Your_IT_Infrastructure_Costs

Building the Social Layer in the Enterprise Architecture

The open Web has improved our ability to connect us with relevant people and develop and mash applications by utilizing dynamic scripting languages. Now it's begun tackling another architectural problem we have had for a long time in the enterprise: It allows us to pull information, rather than be pushed with stuff we don't necessarily want to consume.

This "push versus pull" problem was first addressed with the advent of RSS, which emerged as a way to pull information from disparate data sources, rather than having them pushed to us (most commonly by e-mail). With news, for example, people could customize what content they wanted. If you only wanted your politics from The Washington Post and your sports from The Boston Globe, RSS readers made that possible.

More recently, open Web standards and protocols — most notably activitystrea.ms, OpenSocial, and WebHooks — created a more holistic approach to pull because they powerfully combine updates from both people and systems.[16] Facebook and its 500 million users who utilize the Facebook News Feed is the most recognized example to mainstream Web users. When people log on to Facebook, they can see that their friend John "uploaded his photos from his vacation to Thailand" or that "Natalie is now friends with Chris."

The Facebook platform, for instance, allows us to generate updates from actions taken on third-party sites and applications via its platform technology, Facebook Connect. With the proper permissions in place, your friends can write a review on Yelp or comment on a ReadWriteWeb story, and you can see those actions from around the Web flow into your Facebook News Feed, where you can comment on them.

The consequence of this communications medium is helping spur the social layer in the enterprise to break down information silos, which remain a very real problem at companies. Citing recent research, The New York Times recently reported that in 2008, computer users at work change windows or check e-mail or other programs nearly 37 times an hour.[17]

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16 Bringing Open Web Standards Behind the Enterprise Firewall: http://www.socialtext.com/blog/2010/07/socialtext-connect-bringing-open-web-standards-behind-the-enterprise-firewall/
17 Attached to Technology and Paying a Price http://www.nytimes.com/2010/06/07/technology/07brain.html?_r=1

Rather than tab-toggle to various applications all day, employees should be able to select what information from colleagues and systems across the enterprise they want pulled to them, even if they don't reside in the same department or a "power user" of a particular enterprise system. Consequently, enterprises must embrace a new pull model analogous to Facebook's News Feed, allowing them to see that "John edited the Q2 marketing plan" or that "a new record was created in your Oracle CRM system."[18]

With the ability to filter by tags, groups and transaction types, companies know their employees are getting the most relevant information. Because these events and updates surface in a microblogging or activity stream, employees can view, discuss, and take action on critical information, events and processes. The result: Companies can transform core business processes that had previously been walled off by information silos across their company. By injecting activity streams with diverse updates, content and events spanning the entire company and all its systems, employees can collaborate across the enterprise to solve business challenges and tackle new opportunities.

For example, Hayes Knight, an accounting consultancy in Australia, manages customer questions for accountants in a CRM system. Rather than purchase costly licenses for each accountant, they have utilized open, RESTful APIs to surface relevant events from that CRM system inside an enterprise activity stream. There, they answer the question and send it back to the CRM system, where a customer service representative can respond to the client.[19] Another example is a book publisher headquartered in New York. When their enterprise inventory systems sees that the stock of a popular book title reaches a certain level, a microblogging message is sent from the company's ERP system to the relevant team who can then collaboratively decide how to replenish it.

Lee Bryant, a consultant at Headshift, argues that a social layer will let IT do what it does best: fuel new business objectives with the best technology possible, while empowering business users with flexible tools that makes it easier for them to do their jobs better and faster.[20]

"At the base of the enterprise IT stack, we have expensive, slow-moving technology such as document management systems, ERP systems, databases and so on, which we might change every 3-5 years, if at all," Byrant says. "They are good at the heavy lifting and underlying processes that many businesses need, but often very poor at user experience... If IT departments can continue to own and manage underlying enterprise IT platforms, but expose APIs and data, then business users can define, provision and run their own social applications at the top of the stack without having to defer to IT for every decision they make, or work at a slower pace and in a more constrained way than they need... this would be a huge win for all concerned."

18 Making The Case for Enterprise Activity Streams (And Why It's Not Just "Another Tool") http://www.socialtext.com/blog/2010/07/making-the-case-for-enterprise-activity-streams-and-why-its-not-just-another-tool/
19 http://www.socialtext.com/blog/2010/08/accounting-consultancy-hayes-knight-utilizes-socialtext-connect-to-serve-customers-faster/
20 Social layering can help bring IT and the business together http://www.headshift.com/blog/2010/07/social-layering-can-help-bring.php

Conclusion: Bring the Open Web Behind the Firewall

To make the social layer real, enterprise IT must embrace a Web-oriented architecture that makes use of open REST APIs, dynamic scripting languages and more cloud-friendly deployment models. Those who have traditional on-premises systems can realize the same potential by installing an appliance behind the firewall to create their social layer in the enterprise architecture.

Enterprise IT has the opportunity to break down information silos that have prevented employees from a valuable trove of information that was once reserved for the few people who had access to complex, department-specific apps. Social technologies represent the opportunity to surface those in one unified stream, making business processes more flexible, giving the modern employee greater context and awareness of the key forces driving their business. With real-time access to relevant events being carried out by these key business systems and colleagues across the enterprise, employees can pursue new business opportunities faster than their competitors, while serving customers more efficiently than ever before.

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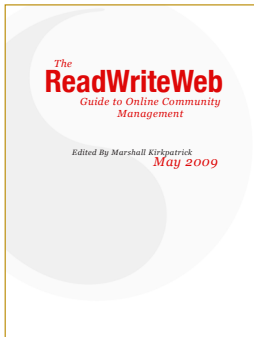
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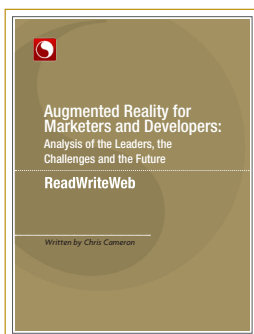
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