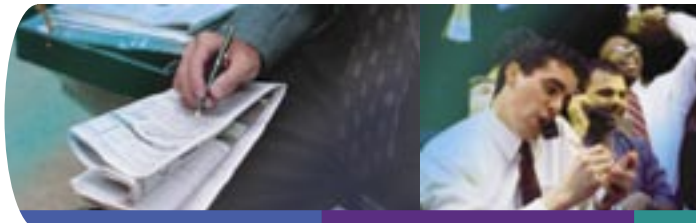


Callidus On-Demand Solutions: The Best of Privacy and High Performance



Executive Summary

Economic pressures, rising information technology (IT) expenditures and a more concentrated focus on core competencies have made Software-as-a-Service (SaaS) implementations increasingly popular. Analysts predict the trend will continue. Today the question is not so much whether to use SaaS but rather what SaaS model to choose from which vendor.

Enterprise incentive management (EIM), well suited for SaaS due to the nature of EIM peak-period business processes, requires a specific technology architecture to be optimally successful. Selecting a vendor with the right SaaS architecture can make the difference between mediocre results and rapid, increasing return on investment (ROI) from EIM.

SaaS architecture factors such as infrastructure sharing, versioning and logical-versus-physical separation of data carry significant impact for EIM. Additional technology-related concerns regarding the mission-critical requirements of EIM involve the following:

- Privacy, security, reliability and high availability
- Performance and scalability
- Compliance
- Configurability
- Analytics and reporting
- Workflow
- Functionality and upgrades
- Optional migration to an in-house implementation

With an approach validated by renowned industry analysts, Callidus On-Demand Solutions supplies the optimal technology architecture that combines the best of the privacy world, including physical separation of data between clients, and the best of the high-performance world, driven by a powerful Grid computing architecture. Callidus Software® Inc. has leveraged and cultivated the ideal SaaS architecture model for EIM and now offers it as a cost-effective, convenient means to deliver optimal value from outsourced incentive compensation management.

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Overview

Today's competitive organization requires the right tool for leveraging enterprise incentive management (EIM) to align incentive compensation with corporate objectives, improve sales performance and payment processes, and increase profitability. More and more companies use Software-as-a-Service (SaaS) delivery for enterprise-class applications such as EIM. Selecting the best SaaS EIM vendor involves evaluation of specific criteria—starting with architecture—to optimize results.

This white paper describes the trend toward increased use of SaaS applications and discusses three popular SaaS infrastructures that enterprises are considering for EIM today. The paper also covers criteria for EIM vendor selection, highlighting the specific ways Callidus On-Demand Solutions brings customer-centric, best-in-class EIM to the marketplace using a SaaS model.

SaaS and Today's Business Imperatives

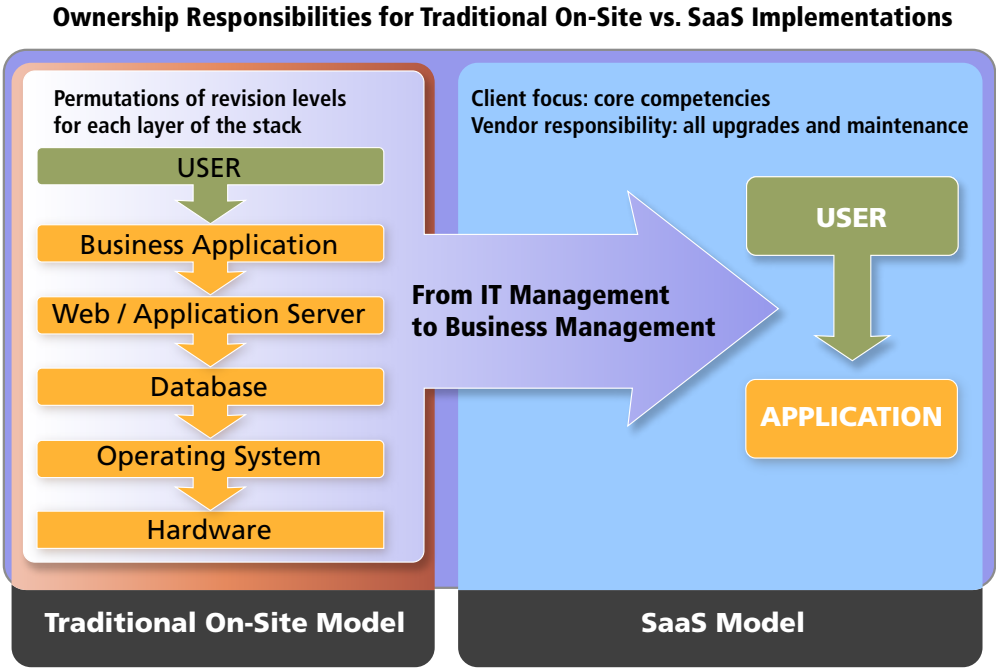
"SaaS applications provide customers with centralized, network-based access to data with less overhead than is possible when using a locally-installed application."¹ Economic pressures, information technology (IT) prioritizing, fierce competition and a heightened emphasis on core competencies—in addition to technology advancements among SaaS models—are making SaaS an increasingly attractive tool for the efficient achievement of business objectives.

SaaS is defined as "software that is owned, delivered and managed remotely by one or more providers. The provider delivers an application based on a single set of common code and data definitions, which are consumed in a one-to-many model by all contracted customers, at any time, on a pay-for-use basis, or as a subscription based on usage metrics."²

Because it enables an organization to outsource an entire software architecture and operations to a remote provider, SaaS is similar to software hosting. Unlike hosting vendors, however, SaaS providers can offer lower price points by using one architecture to serve the processing needs of multiple clients. SaaS vendors can also supplement application-specific expert services that eliminate or significantly lessen an organization's requirements for IT personnel, business staff and hardware.

The Increasing Popularity of SaaS Models

While in-house software applications are designed to enhance organizational efficiencies and effectiveness, these same applications can become counterproductive due to significant costs of ownership. Because of the large portion of IT bandwidth allocated for managing software alone, SaaS is an increasingly attractive option when applied to well defined tasks and business processes that can be performed externally and integrated into the enterprise.



SaaS exchanges complexity for predictability, enabling enterprises to circumvent the bulk of a business process’s application management activities and focus resources on core competencies instead.

“Today’s economic and competitive pressures make nearly any form of outsourcing fair game. Many companies now consider various IT functions and business applications commodities and not core competencies. This has made SaaS, essentially an outsourced application management business, more attractive today than ASPs and hosting services of the past.”³

As the numbers of SaaS deployments expand in the marketplace, many analysts forecast a strong upward trend in outsourced applications to cover areas outside organizations’ core competencies. According to Gartner, Inc., “By 2010, 30 percent of software revenue will be derived from software delivered via SAAS models (0.8 probability).”⁴

A November 2005 Business Technographics survey performed by Forrester Research asked firms, “How important are the following when considering adopting software-as-a-service?” For respondents answering “Very Important,” the top four factors from organizations in North America were as follows:

- 71 percent mentioned application availability and reliability
- 45 percent mentioned fast deployment times
- 35 percent mentioned flexible consumption
- 32 percent mentioned simplified pricing models⁵

The large number respondents who considered availability and reliability very important suggests there should be no compromise on system availability at the expense of faster deployments, consumption flexibility and more simplified delivery models. EIM in particular demands high availability because it is mission critical, requiring maximum uptime and reliability.

The Goal: Technology that Optimizes Results

As SaaS gains momentum, the issue of whether to use a SaaS application might very well become a question as to which SaaS model to choose from the available vendors. Organizations evaluating SaaS models have likely already concluded that outsourcing best suits their business strategy. The goal is optimal results from the best vendor at the best price.

When it comes to EIM delivered in a SaaS model, the issue many companies face in the selection process is choosing a vendor with a state-of-the-art, efficient technology architecture that effectively addresses issues specific to EIM business processes. To shed light on the technical aspect of selecting SaaS for EIM, the following section provides an overview of several popular SaaS architectures offered by EIM vendors.

SaaS Technology for EIM

Not every technology is best suited for EIM. For ideal results, organizations seeking an SaaS EIM implementation should start with a basic understanding of EIM and the various SaaS technology infrastructures on the market. Selecting the ideal SaaS infrastructure model should involve careful consideration of privacy, security, scalability, performance and application complexity—all critical factors for EIM. As a general rule, the less complex the application, the less robust it is. Privacy, security and functionality levels also decline with decreasing complexity.

This section explores advantages and disadvantages of three infrastructure models identified by analysts: managed hosting service; the multitenant/single-version model; and the multitenant/multiversion, separate database instance model.⁶

Managed Hosting Service: Secure, but Cost-Prohibitive

A managed hosting service does not meet the strict definition of SaaS because it employs a hosting model,⁷ but in practice it functions very similarly to SaaS. A managed hosting service vendor uses a fully dedicated system in which both hardware and software are assigned to a single client.

That client usually benefits from superior security and privacy protection, but as Gartner states, a managed hosting service “will have the highest theoretical costs because there is the least amount of cost sharing across users.”⁸ Because a dedicated system is expensive for a vendor to administrate, it is nearly impossible not to pass costs on to the client. Whether paying up front for hardware or not, the client—the only one using the infrastructure—covers operational fees and equipment amortization.

Those implementing an EIM application via managed hosting also lack the advantage of Grid computing or its equivalent in terms of speed and efficiency. Currently, no EIM managed hosting service leverages a Grid configuration—and it is Grid that provides the scalable processing power needed for EIM. An EIM system’s efficiency and cost-effectiveness improve with Grid computing in a multitenant infrastructure, but with a managed hosting service, backups, redundancies, co-located hardware and third-party vendor management multiply costs.

Multitenant/Single-Version Model: Economical, but Simple and Vulnerable

A multitenant/single-version model provides SaaS in an infrastructure shared by multiple clients. Only one version of the software is available at a given time, and each client’s database is logically but not physically separated from the others.

Although economical to deliver, the multitenant/single-version model entails a risk due to the vulnerabilities of a single point of failure and logical data separation. Gartner has indicated that “there is a potential increase in security risk because the data is not physically separated, and the application upgrade schedule is the vendor’s schedule, not the user’s.”⁹ The nature of EIM itself dictates the importance of physical separation of data. Due to EIM’s complexities, it is important for clients to have a degree of control over the timing of upgrades.

This model is most appropriate for less complex applications, such as commodity applications or tools, where there are fewer integration and data feed points. It lacks the scalability for enterprise-class applications such as EIM. A bug fix might occur more rapidly for applications requiring little configuration time on the part of the vendor for each client.¹⁰ Therefore, as a general rule this model is less likely to incorporate customer-specific robust EIM features that enhance performance. Because it is a fully shared system, it is prohibitive to migrate the application to an on-site implementation should the client wish to do so. In a multitenant/single-version model, the advantages are mainly on the vendor’s—not the client’s—side.

Multitenant/Multiversion, Separate Database Instance Model: Secure, Version-Controlled

A multitenant/multiversion, separate database instance model provides all the benefits of the other two models—without their drawbacks. In this model, multiple clients share the application execution infrastructure. More than one version of the application software may be available at a given time. The separate database instance results in physical separation of data among the clients.

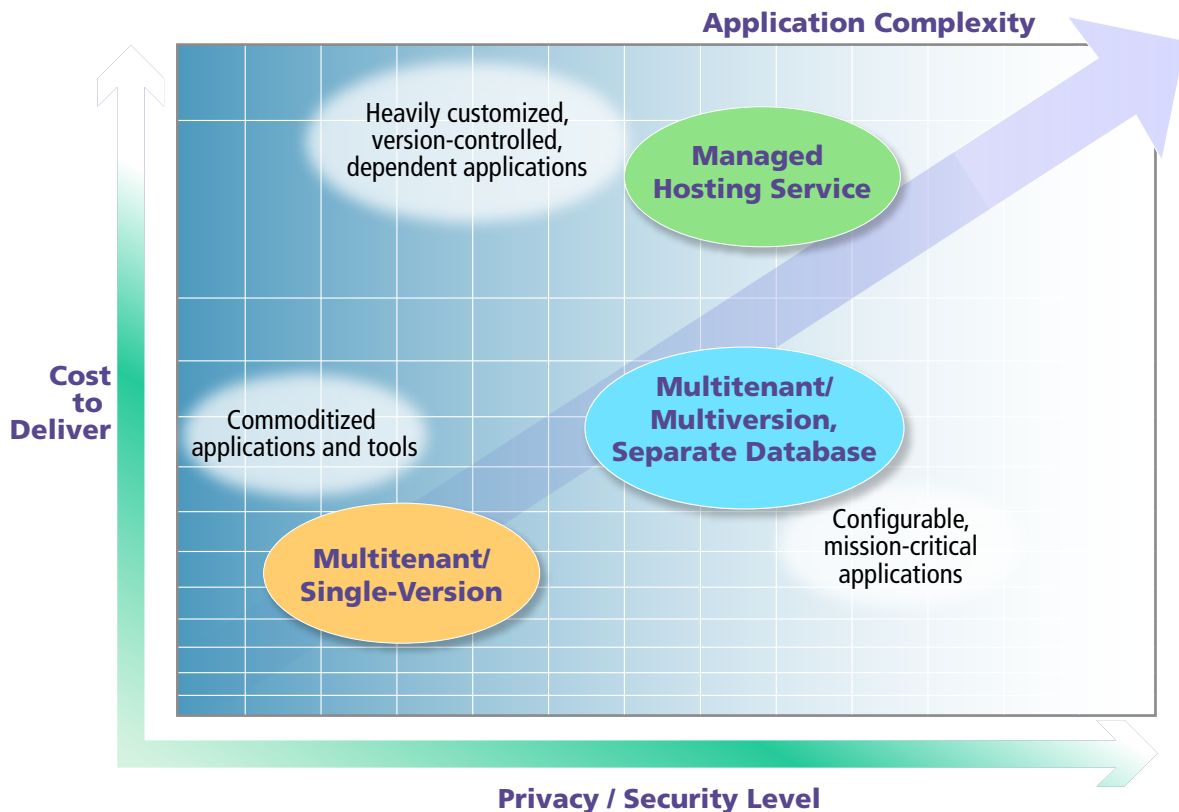
Gartner states that this physical separation lends itself to “improved data privacy” and offers “added perceived data security.”¹¹ In addition, the multitenant environment contributes to a reduction in overall costs—and the ability to support multiple software versions makes upgrades more flexible for clients, who benefit from multiple versioning and the ability to upgrade at their own discretion.¹² Unlike a managed hosting service, there are no prohibitive cost barriers that must be passed on to clients.

Support organizations favor higher application availability, and this SaaS model serves their preference well. Because there is no shared-database infrastructure, data privacy and system availability are not compromised.

The multitenant/multiversion, separate database instance model is well suited for Grid computing, and many vendors using this model choose a Grid infrastructure because it provides the processing power for complex, configurable applications. Grid computing adds all the advantages of speed and accuracy while containing costs for multiple users.

Migration to an in-house implementation is feasible with this model, and due to the nature of EIM, many organizations prefer to have the flexibility of a migration option. Whether or not migration is a possibility depends on the vendor.

One of the newer SaaS models, the multitenant/multiversion, separate database instance model provides the best of the privacy/security and scalability/performance worlds. It is ideal for EIM solutions, which involve enough complexity to require advanced privacy and security measures, scalability, speed and configurability. While leveraging standard operating processes, this model combines the privacy benefits of a managed hosting service—without the inherent costs—and the economies of a multitenant/single-version sharing system infrastructure—without the vulnerabilities.



Callidus On-Demand Solutions’ multitenant/multiversion architecture, coupled with physical separation among client databases, provides the ideal balance between cost and privacy for complex, mission-critical applications such as EIM.

Of the three architectures explored here—managed hosting service, the multitenant/single-version model and the multitenant/multiversion, separate database instance model—the multitenant/multiversion, separate database instance model delivers the greatest likelihood of optimal success with EIM. Callidus Software leverages this particular model in Callidus On-Demand Solutions, its answer to enterprise-class EIM in a SaaS implementation. The following section covers additional SaaS application selection factors as they relate to Callidus On-Demand Solutions.

Ideal Architecture, Ideal Vendor

Because individual vendors differ, architecture models are just one aspect organizations should examine prior to selecting a SaaS implementation for EIM. For example, the nature of outsourcing makes trust of paramount importance when choosing a SaaS vendor. “To earn this trust, one of the highest priorities for a prospective SaaS architect is creating a SaaS data architecture that is both robust and secure enough to satisfy tenants or clients who are concerned about surrendering control of vital business data to a third party, while also being efficient and cost-effective to administer and maintain.”¹³

EIM industry leader Callidus Software has carefully examined SaaS market requirements, understands its clients’ needs and values their trust. For the benefit of enterprises seeking to make a SaaS EIM vendor decision, the following are important selection criteria as addressed by Callidus On-Demand Solutions within the multitenant/multiversion, separate database instance model. Analyst firm Gartner has highlighted many of these criteria as critical for evaluation prior to choosing a SaaS vendor.¹⁴

Privacy, Security, Reliability and Availability

Each client’s data is physically separated with Callidus On-Demand Solutions, a must for enforcing maximum data privacy. All clients—particularly the most risk-averse—therefore have less likelihood of data infringement by an unauthorized party when using enterprise-class EIM.

In addition to data privacy, physical separation of data promotes security, reliability and availability. “Security is paramount when outsourcing mission-critical functionality.”¹⁵ Security requirements for back-office financials are more stringent than for front-office, sales-facing applications. The very nature of EIM makes it essential to ensure security, maximize uptime and availability, and eliminate any single points of failure—all of which are aided by physical data separation within Callidus On-Demand Solutions.

The integrity of EIM data records for payment accuracy and consistency is carefully guarded in the system. In the unlikely event that the Grid infrastructure goes down, each client has ready access to its own valuable compensation data stores in their entirety, up-to-date and accurate. Such availability is crucial. As indicated in the Forrester Research statistics cited earlier, clearly organizations place a great deal of value on the kind of high availability embedded within the Callidus On-Demand Solutions architecture provides.

Callidus On-Demand Solutions uses a dedicated SUN®-managed Callidus Grid Compute infrastructure, which provides state-of-the-art Grid computing with the latest, most reliable Sun equipment, data center services and third-party software. Sign-on security is established via clients’ existing network security, such as Lightweight Directory Access Protocol (LDAP) and Active Directory® directory service.

Performance and Scalability

Callidus On-Demand Solutions' Grid computing is the epitome of all EIM application infrastructures, and Callidus Software backs it with its own industry-leading TrueComp® EIM. It is the ideal technology for EIM because it meets and exceeds EIM's unique demands for high-performance and scalability.

With Grid computing's virtually unlimited performance scalability, the number of multitenant SaaS clients sharing the Grid—even during peak times—is not a concern. To further accommodate large processing loads, Callidus Software works with clients to schedule major processing activities like pipeline runs to optimize the scalability and use of the Grid utility. As a result, clients across all industries consistently benefit from Grid computing's speed, power and flexibility and Callidus Software's experience in EIM business process management.

Compliance

Current and future laws and regulations make compliance mandatory, creating a need for sophisticated, up-to-date tracking and reporting. This is particularly true with EIM, where accurate compliance reporting provides an absolutely critical service with the potential to save an organization significant amounts of time and money.

Callidus On-Demand Solutions fully addresses all existing legal and regulatory reporting demands with built-in, automated compliance features and will continue to do so as new requirements come into existence. This includes compliance with the Sarbanes-Oxley Act of 2002 (SOX) as well as certification for the Statement on Auditing Standards No. 70, Service Organizations (SAS 70). Certification requirements are covered through the Sun-managed Callidus Grid Compute Infrastructure alliance with the Raging Wire Data Center.

Configurability

"A well-designed SaaS application is distinguished by three qualities: *scalability, configurability, and multi-tenant efficiency* [italics in original]." ¹⁶ Callidus On-Demand Solutions exemplifies each of these qualities. In particular, its multitenant/multiversion, separate database instance model has built-in configurability based on deep industry knowledge of EIM and an understanding of each client's needs.

The Callidus Professional Services team carefully configures every client's system to accommodate integration points, data feeds and unique, EIM-specific requirements. With built-in integration for all major back-office enterprise resource planning (ERP) application providers, there are few systems Callidus On-Demand Solutions cannot support. Callidus Software's heritage as the leading best-of-breed provider of EIM solutions has provided the knowledge and experience to master a variety of data integration issues.

No expensive custom coding is required. Clients can stage and test their systems for smooth operations prior to deployment—one of the key issues Gartner recommends addressing with a prospective vendor.¹⁷ Clients always sign off on Callidus On-Demand Solutions functionality before the implementation is considered complete.

Analytics and Reporting

TrueInformation® software extends highly scalable reporting capabilities to Sales, Finance and business partners for sales and incentive visibility. Advanced analytic reporting occurs through the Callidus TrueAnalytics™ option where clients can slice and dice sales and incentive information according to products, customers, participants and incentives.

Encompassing multidimensional analyses based on ranking, sorting and filtering, TrueInformation reports are generated quickly via a user-friendly, Web-based point-and-click interface. The scope of reporting can range from granular detail to overviews and summaries.

Workflow

Callidus On-Demand Solutions provides compensation process management and payee administration through its Workflow Solutions option, which includes TrueResolution® software for resolving payment disputes. Workflow Solutions also comes with a choice of the Payee Self-Service or Data Management solution so users can leverage TrueResolution® software effectively.

Functionality and Upgrades

Clients receive the same cutting-edge, profitable EIM functionality with Callidus On-Demand Solutions as with a Callidus Software in-house implementation. Callidus Software serves more Fortune 1000 customers than any other vendor and averages a three-year return on investment (ROI) of 200 percent or more.

The Callidus Professional Services team conducts upgrade procedures within six months after each new software release, and clients can upgrade when they are ready within that timeframe. Upgrades, entirely transparent to end users, occur on a mutually agreeable schedule so they do not interrupt clients' peak processing times or other critical functions. With the complexity of EIM, Callidus Software believes in giving clients individualized attention and not unilaterally controlling versioning and upgrades as is the case with multitenant/single-version models.

Migration Option

Organizations' needs, requirements, management and strategies are all subject to change. If necessary, a client can readily migrate a Callidus On-Demand Solutions SaaS instance to an in-house Callidus Software implementation at any time. Choices such as the migration option provide flexibility to make future adjustments based on inevitable changes in clients' core competencies and operational issues like transaction levels and number of payees.

Feature	Managed Hosting Service	Multitenant / Single-Version SaaS	Multitenant / Multiversion, Separate Database Instance SaaS	Callidus On-Demand Solutions ¹
Shared application execution infrastructure supports cost-effectiveness.	No	Yes	Yes	Yes
Multiple versions of application are available simultaneously.	Yes	No	Yes	Yes
Data is physically separated from other clients.	Yes	No	Yes	Yes
Maximized privacy and security levels safeguard EIM back-office processes.	Yes	No	Yes	Yes
Top-performance Grid computing architecture ensures scalability.	No	Vendor-dependent	Vendor-dependent	Yes
Preproduction and testing environment is available.	Vendor-dependent	Vendor-dependent	Vendor-dependent	Yes
Clients have an option to migrate their implementation on site.	Difficult	Difficult	Vendor-dependent	Yes

¹Callidus On-Demand Solutions leverages a multitenant/multiversion, separate database instance SaaS model (as in the adjacent column), enhanced with customer-centric features that provide flexibility and help ensure profitability from EIM.

Callidus On-Demand Solutions' SaaS architecture is optimized for EIM across numerous customer-satisfaction proof points.

The Callidus On-Demand Solutions Difference

For today's competitive organization seeking to outsource EIM business processes, Callidus On-Demand Solutions provides the ideal SaaS architecture with added features that optimize results from EIM. Now the best in EIM—complete with optional support for business operations—is available in full breadth and depth of functionality for clients who prefer SaaS. (For information about choosing between Callidus On-Demand Solutions and a Callidus Software in-house implementation, please see the white paper Callidus On-Demand Solutions: Enterprise Incentive Management in a Rapidly Deployed, Secure Environment.)

From privacy and security issues to Grid computing power to the option of migrating the entire implementation in-house, Callidus Software has applied its deep industry knowledge and market awareness to development and delivery of its SaaS implementations. Enterprises have complete access to the full suite of products that meet all the expectations set by Callidus Software EIM industry leadership. Callidus On-Demand Solutions clients are empowered with options founded on the ideal SaaS infrastructure for winning EIM in today's dynamic, competitive marketplace.

About Callidus Software

Founded in 1996, Callidus Software (www.callidussoftware.com) is an industry leading Enterprise Incentive Management (EIM) provider to companies across multiple industries. Callidus' EIM systems allow enterprises to develop and manage incentive compensation linked to the achievement of strategic business objectives. Through its TrueComp Grid™ architecture, Callidus delivers the industry's only EIM solution that combines the power and scalability of grid computing with the flexibility of rules-based interface. Customers/partners include 7-Eleven, Accenture, CUNA Mutual, HP, IBM, Phillips Medical Systems, Sprint Nextel, Sun Microsystems, Time Warner Corporation and Wachovia. Callidus is publicly traded on the NASDAQ under the symbol CALD.

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- ⁴ Ben Pring. "Adoption of Software as a Service Is Happening Outside of CRM." Gartner Research, December 16 2005, ID Number G00135551, page 4.
- ⁵ Business Technographics Survey, Forrester Research, Inc., November 2005.
- ⁶ SaaS architectural model nomenclature and definitions sourced from Robert P. Desisto and Raymond Paquet, "How to Evaluate SaaS Architecture Model Choices," Gartner Research, August 16, 2006, ID Number G00141624, pages 2-4.
- ⁷ Robert P. Desisto and Raymond Paquet. "How to Evaluate SaaS Architecture Model Choices." Gartner Research, ID Number G00141624, page 3.
- ⁸ Ibid.
- ⁹ Ibid, page 4.
- ¹⁰ Ibid.
- ¹¹ Ibid.
- ¹² Ibid.
- ¹³ Chong, et al. "Multi-Tenant Data Architecture."
- ¹⁴ Lheureux, et al. "Evaluating Software-as-a-Service Providers: Questions to Ask Potential SaaS providers." Gartner Research.
- ¹⁵ Ibid., page 4.
- ¹⁶ Chong, et al. "Multi-Tenant Data Architecture."
- ¹⁷ Lheureux, et al. "Evaluating Software-as-a-Service Providers: Questions to Ask Potential SaaS providers." Gartner Research, pages 2-3.

Corporate Headquarters

Callidus Software Inc.
160 West Santa Clara Street
15th Floor
San Jose, CA 95113 USA
Tel: (408) 808-6400
Fax: (408) 271-2662
info@callidussoftware.com

UK and European Headquarters

Callidus Software Ltd.
Northfield House
11 Northfield End
Henley on Thames
Oxfordshire RG92JG
United Kingdom
Tel: +44 (0) 1491 845 621
Fax: +44 (0) 1491 575 160

USA Offices

Atlanta, Austin,
Chicago, New York

International Offices

London, Sydney

www.callidussoftware.com