



AberdeenGroup

Services on Demand
for Customer-Base
Growth and Retention

An Executive White Paper

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Services on Demand for Customer-Base Growth and Retention

Preface

The objective of global corporations that undertake e-Marketing initiatives is to cost-effectively grow and retain their customer base. Aberdeen experience demonstrates that this objective is best achieved when the customer drives the business relationship. In customer-centric e-Marketing, customers make known their dynamic needs and preferences in order to define how they will be treated. The response to this customer empowerment is predictably increased business, improved customer loyalty, decreased cost of sales, and the creation of recurring life-cycle value regardless of a customer's changing role in relationship to the enterprise. Toward this end, leading-edge e-Marketers build customer-centric methodologies, not enterprise-centric processes.

However, after nearly half a decade of refining e-Marketing, enterprises still face a daunting obstacle in the effective integration of islands or "silos" of customer information. Lacking this integration — and without dynamic customer profiles that provide a complete view of the customer — selling organizations that seek to exploit the potential of e-Marketing will continue to fall short of their goals.

The light at the end of this e-Marketing tunnel is an evolutionary move from today's applications — legacy and Web-based — to a dynamic Web services environment. In this environment, e-Marketers will be able to present customers with information customized for and compelling to an individual in real time. For example, customers will receive a dynamically generated catalog stocked with merchandise that reflects established and inferred buying preferences. While dynamic Web services are in the early stages of evolution, the building blocks to that future already exist. Therefore, forward-looking e-Marketers are building for that future while exploiting the fundamentals today.

This Aberdeen *Executive White Paper* explores e-Marketing opportunities and trends, while considering the challenges yet to be met. Particular attention is paid to the tension between the opportunity to create customer-centric value and the attendant privacy issues. Examining the impact that "Services on Demand" will have in shaping next-generation e-Marketing, Aberdeen focuses the spotlight on the Sun Open Net Environment (Sun ONE). The Sun Open Network Environment is Sun's vision, architecture, strategy, and platform for delivering services anywhere, at any time, and on any device. It is also a foundation for long-term business agility and e-Marketing gains.

e-Marketing: Opportunities for Services on Demand

The Sun ONE vision is based on "Services on Demand." The Services on Demand concept recognizes that many different types of services are delivered to end-users — from traditional legacy and Web-based applications now evolving to componentized Web services, and, undoubtedly, services of a type currently unimagined.

e-Marketers, traditionally first on the block to exploit technological innovation for market advantage, require an infrastructure that supports traditional and Web-based applications today, but one that also lays a foundation for the Web services of a Services on Demand future. This foundation will not occur spontaneously, nor can it be fashioned in a piecemeal manner. A full end-to-end architecture is required — a requirement that Aberdeen research concludes Sun is well qualified to provide.

e-Marketing applications in the Services on Demand environment promise substantial benefits for customers, trading partners, and the enterprise. In the pursuit of deepening and enlarging the scope of customer relationships, Services on Demand's functional benefits include the following:

- *Single presentation — cross-initiative/cross-channel:* Customer lifecycle management, from prospect acquisition to customer retention, can be accomplished through Web portals that link multiple marketing initiatives across diverse systems. As services become more intelligent, firms will be able to configure cross-enterprise offerings — such as product from company X and services from firm Y — in real time, matched to the prospect's established preferences and purchase behavior.
- *The ability to provide timely and convenient access to customized information:* Convenience is a prerequisite of doing business today. Customers — business and consumer alike — will not tolerate delays or complicated processes. What's more, they increasingly demand control over how they choose to interact with an enterprise. The customer empowerment made possible by flexible Web services creates new value for the customer and addresses the escalating level of customer sophistication.
- *The ability to drive costs down while increasing customer loyalty:* e-Marketing done well can dramatically reduce customer service costs and improve customer satisfaction. For example, a leading financial services firm reports actual costs for a transaction to be 25 cents online and \$25 on the phone. That's \$24.75 that can either be added to or subtracted from the bottom line. Thus, organizations have a great incentive to make online business rewarding to its customers. Services on Demand provide a gem mine of opportunity for customization that creates value and generates repeat business. In this way, enterprises can drive out costs while actually increasing the "personal touch" and customer loyalty.
- *Collaborative use of real-time feedback from customers:* Most enterprises depend on multi-tier distribution channels to sell their goods and services. Services on Demand make it possible to capture electronic customer touch-points throughout the network, to make information avail-

able to all interested parties, and to enable the collaborative use of real-time insight from both partners and customers.

- *The ability to speed time-to-market:* The flexibility and reusability of Web services components allow those positioned for a Services on Demand world to develop and execute e-Marketing initiatives at will. Early adopters will enjoy a dramatic competitive advantage. Conversely, organizations that delay will experience competitive disadvantage as they struggle to catch up technologically and fiscally.

The Evolution of e-Marketing to a Unified Customer View

Increasing competition in a marketplace that is now both physical and virtual has forced companies to reexamine, rewrite, and redeploy much of the business applications infrastructure established over the previous decade. The enterprise has coped with these challenges by rolling out a hybrid approach, integrating legacy applications and databases with Internet and browser-based architectures.

The result of these hybrid and reactive architectures has been mixed. Many enterprises attempting to achieve a single view of their customer relationships — and, in turn, to give their customers a single view of their organization across multiple marketing, sales, and support channels — continue to struggle with inadequate Web site performance, slow or challenging implementations and site maintenance, and an overall rigidity of application and development environments.

These difficulties trace back to the now-dated architectures, development tools, and infrastructures used to develop and support client/server and legacy applications. As a result, the state of current Web services efforts — while affording both enterprises and their customers great advances over last-generation offerings — can be fairly categorized as serviceable, but not optimal, for e-Marketing initiatives.

In order to support the dynamic and demanding e-Business environment, enterprises will progressively adopt a dynamic and robust development framework. In this ideal world, e-Business applications that provide marketing, sales, and support functionality will be based on an infinitely variable framework, in which e-Marketing applications will dynamically assemble to meet the context of a specific transaction, user profile, and customer requirements. This vision calls for a movement that leverages existing enterprise assets to deliver Services on Demand.

The Services on Demand model effectively eliminates the barrier of “siloes” application and information from e-Marketing initiatives because application components — the building blocks of e-Marketing or e-Service applications — are each knowledgeable about the others. Great flexibility and personalization on the fly is accomplished as these components dynamically reassemble themselves based on the functions requested, the end-user’s context, the resources required, and the platforms and bandwidth available at the moment of the request.

This dynamic development and execution environment provides a number of advantages to applications destined for an equally dynamic market environment, including those presented by mobile devices such as personal digital assistants (PDAs) or mobile-telephone-based devices:

- The service point is not fixed, allowing multi-location and multi-device access by end-users (home or office, PC or PDA) and dynamic delivery adaptation to changing resource and application requirements.
- Web browser-based clients and instant messaging can run on devices with limited processing resources (PDAs, cellphones) or low access speeds (wireless, dialup).
- Customized, context-specific services that integrate changing user roles, customer history, application availability, and database functionality.

In an e-Marketing environment where users expect to interact with their supplier of choice regardless of their location or type of device being used to initiate a transaction, the Services on Demand story is both compelling and critical. Table 1 details the benefits of a Web services and Service on Demand approach.

Table 1: Benefits of a Web Services Approach

Feature	Technical Advantages	Business Advantages
<ul style="list-style-type: none"> • Publish features and availability through standard schemas 	<ul style="list-style-type: none"> • Expose business functionality • Hide code-level complexity 	<ul style="list-style-type: none"> • Per-process flexibility to adjust to customer context and changes in business and regulatory environment
<ul style="list-style-type: none"> • Dynamically discover and engage other Web services based on runtime requirements 	<ul style="list-style-type: none"> • Engage only resources required for each transaction • Use existing applications, infrastructure, and hardware without wholesale upgrades 	<ul style="list-style-type: none"> • Customize responses to individual requests; personalization on the fly • Decrease development costs • Improve user service and satisfaction • Present unified view of the enterprise to customers
<ul style="list-style-type: none"> • Element-level, runtime decision-making ability 	<ul style="list-style-type: none"> • Flexibility to adapt to changing network and resource demands and availability 	<ul style="list-style-type: none"> • Decreased operating costs, employing available resources instead of creating new ones
<ul style="list-style-type: none"> • Easily reusable 	<ul style="list-style-type: none"> • High interoperability • Less complex integration 	<ul style="list-style-type: none"> • Simplified development • Speed to market, time to value • Lower cost of development
<ul style="list-style-type: none"> • Based on open Internet standards (e.g., XML, LDAP, SOAP) 	<ul style="list-style-type: none"> • Increase interoperability • Per-element upgrade • Broaden usable resources 	<ul style="list-style-type: none"> • Reduce supplier lock-in • Future-proof current investments • Reduce repair and maintenance time and costs

Source: Aberdeen Group, October 2001

Web Services and Services on Demand: Smart e-Marketing

Is the customer at hand one of your most important, or does this customer tend to kick the tires without placing orders? How would you treat that customer differently in real time? Perhaps a customer has an overdrawn balance, but before you slap him with a hefty fine and a nasty letter, you might want to know that his parents are your biggest depositors.

How useful would it be to know a customer's buying habits and, in real time, present him/her with a catalog that maps exactly to his/her preference? With Services on Demand, Web services employ components with decision-making capabilities to configure themselves at runtime, producing actions that are tailored on a per request basis, consistent with corporate policies and goals.

With Services on Demand, everyone wins. The CEO gets increased flexibility to develop business strategies that shorten the time necessary to capitalize on new opportunities, or react to changing business conditions. The CIO can roll out innovative products more rapidly to outpace less responsive competitors, and reduce operating costs to more easily outsource business processes that are not directly related to the organization's mission.

Developers can focus on features and functions that are core differentiators for their solutions and use Services on Demand to access non-core functions. IT managers can manage, repair, and extend their infrastructures based on business needs, engaging as many or as few services as are required to meet those needs — thus removing the need to install, manage, and pay for large, monolithic applications. And customers win by receiving personalized services in real time, tailored to their exact behaviors and preferences.

Services on Demand at Work: Build for Tomorrow, Benefit Today

Innovation, constant change, and cost-effectiveness — all hallmarks of e-Marketing — are well-matched by the dynamic characteristics of Services on Demand. Aberdeen anticipates a significant uptake of services on demand from enterprises already exploiting the advantages of Web services today. Those advantages act as a preview of coming attractions in the Services on Demand environment. This section considers two such advantages: automation with increased intimacy, and striking a balance between privacy and return on personal data.

Automated e-Marketing — Effectiveness with Intimacy

To date, e-Marketing Web services have offered only a taste of how dynamic, context-specific customer preferences — and the applications that leverage these preferences — can be matched to content, products, and services that create value for customers. Yet automation is not without costs.

Consider the banking industry: As ATMs and cash dispensing machines became successful, banks were able to close branches without negatively affecting cus-

customer service. Yet, in reducing customer interaction with bank staff, banks sacrificed the opportunity to directly explore customer demand for additional or new services. This discovery process — a potential competitive differentiator as well as an opportunity to provide services that evolve with customers' needs — is almost impossible to duplicate in the ATM setting.

Services on Demand will enable enterprises to deploy e-Marketing initiatives that drive down costs via automation while also *improving* the quality of the customer relationship. Data collection and knowledge management are intelligently infused into automation so that customer preferences — not enterprise-centric process automation — drive the definition and deployment of business rules. Just as one-to-one interactions in a physical bank offer bank officials the chance to “bend the rules” to meet a customer's unique preferences or needs, Services on Demand offer e-Marketing programs the chance to create services that increase customer loyalty and long-term lock-in.

Privacy on Demand and Return on Personal Data (ROPD)

Aberdeen sees e-Marketing privacy as a natural beneficiary of Services on Demand in the future. Today, the act of collecting data that documents Web site visitors' online activities — and then using that data to infer preferences and deliver new value tied to those preferences — is viewed by some as an incursion on individual privacy. However, such activity tracking is foundational to effective targeted e-Marketing and streamlined customer services. The proper balance of protecting the interests of all parties involved is emerging as one of the greatest challenges to e-Marketing — and, if addressed equitably, presents a major opportunity to create new value for customers.

In fact, the privacy issue is increasingly viewed as being less about the absolute protection of one's personal data, and more about individuals sharing in the value that is created by the use of this information. e-Marketing has made customers aware of the value of their implicit and explicit data — i.e., clickstream activity and transaction information, respectively. This growing awareness is a call to action for enterprises to treat customers as partners in a business relationship — and to therefore compensate them for the value of the data that enterprises harvest.

Ultimately, both risk and reward are associated with information sharing — so individuals and businesses alike want to be compensated for both. Make no mistake — for some individuals and organizations, total privacy is a cherished right, one to be defended at all costs. These groups will never be inclined to share their data, no matter how much convenience results. However, others will welcome enterprises that invest in the tools and methodologies to create convenience and value — and, in doing so, reinforce the enterprise's role as a trusted agent.

In a Services on Demand environment, organizations will be able to track not only transactions but the data itself. Data will be tracked for flow and usage across transactions, systems, and enterprises. This ability will enable e-Marketers to harvest information with permissions and compensate customers, as well as assure them of its protection. Enterprises that provide this granular level of intelligence will become trusted agents to customers, who in turn will become increasingly loyal and willing to partner in e-Marketing initiatives. The competitive advantages are obvious; but reaping the benefits requires thoughtful preparation today.

The Sun Microsystems Model: No Revolution, Just Cost-Effective Evolution

Sun's definition of Services on Demand is the delivery of services anywhere, at any time, and on any device by leveraging and tying together different technologies, including legacy applications, Web applications, and Web services to address specific business issues. In short, it's a matter of evolution, not revolution.

The Sun Open Net Environment (Sun ONE) is Sun's standards-based software vision, architecture, platform, and expertise for building and deploying Services on Demand. It provides a highly scalable and robust foundation for traditional software applications as well as current Web-based applications; moreover, it lays the foundation for Web services and Services on Demand. Sun ONE comprises four key elements:

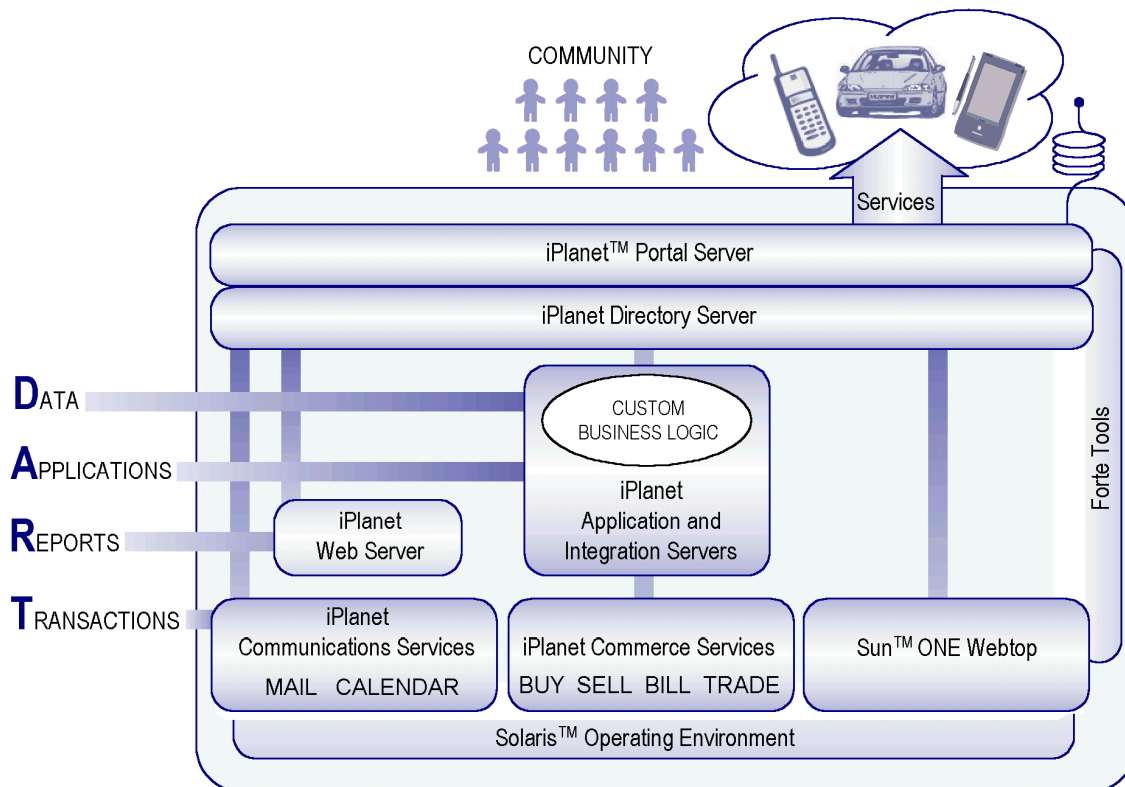
1. *Vision* — a model in which an enterprise's infrastructure is able to provide information, data, and applications to anyone, anytime, anywhere, and on any device;
2. *Architecture* — an open, standards-based, end-to-end software architecture for easy integration today and a solid foundation for future services;
3. *Platform* — an open, easy-to-integrate product portfolio solving immediate business requirements, enabling current and emerging Web services; and
4. *Expertise* — Sun has 20 years of experience in delivering cost-saving, business-ready networked solutions from Sun Professional Services, iForce partners, and SunTone certificated partners and programs.

Sun's vision articulates the business objective of Services on Demand as the ability to build, maintain, grow, and ultimately monetize communities — be they shareholders, customers, suppliers, partners, or employees. The key challenge is to deliver Services on Demand in real time to any target community. Because today's competitive reality demands that quality of service increase while costs simultaneously decrease, services need to be built from information assets that are already common to all organizations — databases, applications, reports, and transactors (i.e., anything that initiates or acts on transactions), hence Sun's "DART" acronym. The Sun ONE platform employs solutions from the Forte, iPlanet, and Solaris

product lines to enable Services on Demand (Figure 1). The Sun ONE platform includes:

- *iPlanet Directory Server* — LDAP-based directory servers that enable user management to create a community with defined profiles, permissions, and policies. It provides a high-speed, scalable, self-replicating, self-synchronizing data structure and leverages multi-master capabilities to provide unified directory services across multiple directories.
- *iPlanet Portal Server* — provides next-generation presentation and interaction, enabling personalization, custom layout, syndicated content, secure remote access, and wireless remote access.
- *iPlanet Web and Application Servers* — enable the delivery of Services on Demand with a highly scalable platform for business logic written in the Java programming language, with hooks to legacy database and applications. Architected for horizontal scalability, the servers are based on Java technology and Java 2 Enterprise Edition (J2EE).

Figure 1: Technologies and Products in the Sun ONE Architecture



Source: Sun Microsystems, October 2001

- *iPlanet Integration Server* — provides service interoperability and application integration with legacy, packaged, or custom systems, as well as new back-office environments. Its workflow-based engine allows a business analyst to pull together workflows from various systems to create services. iPlanet ECXpert allows secure document exchange using EDI and XML. The suite includes EAI Edition, B2B Edition, and iPlanet Message Queue for Java, a message-oriented middleware (MOM) solution.
- *iPlanet Communications Services* — include mail, calendar, and enterprise-class instant messaging.
- *iPlanet Commerce Services Portfolio* — provides services to buy, sell, bill, and trade products and services. Built as Java components running on iPlanet Application Server, they include iPlanet BuyerXpert for E-Procurement, iPlanet SellerXpert for online selling, iPlanet BillerXpert for Internet bill presentment and payment, and iPlanet Market Maker for auctions and exchange-based services.
- *Forte Tools* — enable developers to design, create, and assemble Services on Demand. They include Forte for Java, Forte Developer, and iPlanet Unified Developer Server.
- *Solaris Platform* — Sun Solaris Operating Environment and Sun Cluster provide a high-reliability foundation on which to build and deploy Services on Demand.

Leveraging Sun's Services on Demand Expertise

Sun's extensive installed base with service providers and enterprises has put its services group, its iForce program, and its system integrator partners on the leading edge of experience in Services on Demand development and deployment. Sun experts — in concert with partners such as Accenture, Cap Gemini Ernst & Young, CSC, Deloitte Consulting, EDS, and PricewaterhouseCoopers — assist firms to architect, deploy, and manage an open and scalable Sun ONE product infrastructure for Services on Demand from today's applications and Web services to new kinds of services yet to emerge in the future.

These experts are expanding a "best practices" knowledge base to achieve operational cost efficiencies and speed delivery of new applications. In particular, Sun Services works closely with customers to transfer this knowledge, increasing IT staff proficiency in Services on Demand with solutions that shorten learning cycles. The result is cost-effective development and verification of skills on products and technologies across the Sun ONE platform offering.

The Role of Sun Partners

Sun's open standards framework encourages collaboration with customers and partners. While the Sun ONE platform provides all the tools needed to build Web services, Sun works closely with partners for specific business-level Web services and interoperability support. The SunTone certification program ensures maximum technical interoperability as well as co-marketing and cross-selling opportunities for SunTone partners. For example, Sun enables an enterprise's employees to leverage content management solutions from best-in-class suppliers such as Vignette and Interwoven. The Sun ONE platform also allows integration with existing infrastructure systems, such as Netegrity's user access control or application servers from other suppliers.

Sun's Differentiation in the Web Services Market

Web services is an industry-wide concept — the clear direction in which the technology industry and business requirements are moving. Services on Demand and the Sun ONE platform are Sun's vision for anytime, anywhere access to the best, most appropriate service based on the user, resource, or application context.

Sun's differentiation can be summed up in three concepts:

1. The Sun ONE platform solution is evolutionary, embracing existing systems and ROI models while affording Services on Demand flexibility.
2. The Sun ONE platform is open — a non-negotiable factor for effective delivery of Services on Demand — built on open interfaces and industry standards such as LDAP, J2EE, IMAP4, SOAP, UDDI, and ebXML with a commitment to embrace other standards as they emerge. This open architecture lays a future-proofed foundation that also leverages the past.
3. The Sun ONE platform is easy to integrate. Architected to consist of well-integrated products, the solution also readily accommodates products from other suppliers who also employ open standards.

Sun starts from a powerful base with its commitment to Java technology — now well accepted as an enterprise-application development platform. The Sun ONE vision builds on this platform with proven hardware and infrastructure software from Sun and iPlanet for Web Services and for creating, deploying, and maintaining Services on Demand.

How to Move to Web Services

The process of moving to a Services on Demand architecture and leveraging Web services for e-Marketing initiatives should be straightforward. There are two cases:

1. *New applications* — identify and standardize on one architecture, portal user interface, infrastructure software, and development process; and

2. *Existing applications* — gradually “encapsulate” functions from each application in the Web services infrastructure.

Implementing Web Services

Before choosing an architecture, the enterprise should evaluate the business process and communities to be served by the Web service. Marketing managers and IT architects should work together in this process to identify the new services that are targets of immediate opportunity and that have the greatest potential ROI.

Once the marketing manager identifies applications that would be most useful as Web services, the IT architect can then identify the availability of enterprise DARTs. All through this process, the emphasis is on the business and service level requirements of each community being served.

Next, the company should create the foundation on which to build the Web services. This process involves the following actions:

1. *Standardize on standards*: Select the standards that will be used to communicate within and between the elements (e.g., XML, SOAP, LDAP), and the development tools to create and maintain the Web services.
2. *Directory-enable the Web services elements*: Build a schema for registry development, and then move identity information about the community (user profiles, permissions, and policies); the resources; and application elements (configuration, access, and availability) into the directory.
3. *Define a standard portal interface*: The interface separates front-end format issues from back-end feature/function issues. With a portal interface, customers, partners, and employees can access services via any device that supports a Web browser. The back-end infrastructure can be integrated, updated, and revised without affecting the service level.
4. *Lay the foundation*: Deploy infrastructure elements that support (or plan to support) critical Web services technologies such as XML, SOAP, UDDI, WSDL, ebXML, LDAP, and J2EE.

Field experience has demonstrated that this process — thoughtfully conducted with current and future business conditions in mind — must be enthusiastically supported from the highest levels of an organization. Furthermore, because the quality of this exercise will have direct bearing on an enterprise’s future capabilities, Aberdeen recommends seeking first-rate professional assistance right from the outset. There is too much at stake to risk a false start.

Aberdeen Conclusions

Aberdeen anticipates a strong uptake of Services on Demand for e-Marketing initiatives. Traditionally on the cutting edge of innovative application of technology to task, e-Marketers will be quick to see the implications of this dynamic environment. Particularly compelling are the following:

- *Cost reduction* — the dynamic intelligence of Services on Demand allows e-Marketers to automate an increasingly broad and deep scope of functionality, reaping the cost savings of automation while increasing the effective reach of e-Marketing efforts;
- *Increased revenue* — broadened reach with proactive styling of offers based on accurate customer profiles increases campaign effectiveness;
- *Automation with intimacy* — services on demand enable e-Marketing campaigns to retain or increase the intimacy and value of customer interactions (customer trust and loyalty improve retention);
- *Balance of privacy/value issues* — the ability to track use of data across a chain of transactions lets e-Marketers strike a balance between protecting and rewarding use of customer information; and
- *Competitive agility* — services on demand place e-Marketers in a position to dynamically realign activities and applications to match changing business conditions and objectives.

The Sun ONE vision, architecture, expertise, and platform combine to position Sun as a leader in the move to Services on Demand. With proven products that deliver value today, and a platform that is open for tomorrow's innovations, Sun is a reliable partner for enterprises that view e-Marketing as mission-critical. Aberdeen recommends that such enterprises seek the able assistance of Sun's experts — both Sun PS and partners — to benefit from their years of experience building tomorrow's infrastructure. Aberdeen research suggests that sooner will be better than later.

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Based on a comprehensive analytical framework, Aberdeen provides fresh insights into the future of computing and networking and the implications for users and the industry.

Aberdeen Group performs specific projects for a select group of domestic and international clients requiring strategic and tactical advice and hard answers on how to manage computer and communications technology.