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PIVOTAL®

Electronic Business Relationship Management (eBRM)

eBRM: FUSING CUSTOMER RELATIONSHIP MANAGEMENT, PARTNER RELATIONSHIP MANAGEMENT, AND eCOMMERCE.

PIVOTAL CORPORATION

Business Report

The Internet has emerged as a powerful enabling technology that facilitates the inclusion of business partners and customers in an extended relationship management system.

The new frontier of the relationship management vision, encompassing traditional CRM, eCommerce, partner relationship management and enterprise portals, is called electronic business relationship management (eBRM). This White Paper addresses the emergence of eBRM in general, and Pivotal Corporation's eRelationship™ 2 product offerings in particular.

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HISTORY

Over the past five years a new discipline has emerged that is concerned with improving the effectiveness and efficiency of front-office business operations. This discipline is called customer relationship management (CRM). As the concept of customer relationship management has become more established it has provided a technical and managerial platform from which to advance development of the CRM discipline.

The new frontiers of the CRM vision encompass a concept called electronic business relationship management (eBRM). This White Paper addresses the emergence of eBRM in general, and Pivotal Corporation's eRelationship 2 product offerings in particular.

In order to understand eBRM, a brief review of CRM is necessary.

WHAT IS CRM?

A standard definition of customer relationship management is:

A management discipline utilizing specialized tools, technologies, and techniques to facilitate the operation and improvement of front-office business functions with the intent of optimizing the total value derived through customer relationships.

When customers enter into a relationship with an enterprise they have expectations of specific returned value. They will maintain and extend the relationship only if these expectations are being met. Not only must organizations deliver sufficient value to attract customers, but also they must satisfy customer expectations more completely than their competitors in order to keep them.

To be successful, a business must fulfill the client-vendor relationship throughout the customer lifecycle to ensure their customers, as well as the organization, receive the value expected. As a result, the drive to achieve high-levels of business performance can be reduced to one challenge: efficiently delivering superior customer value.

What does it mean to deliver superior customer value? A typical customer value equation has two dimensions: a benefit dimension and a sacrifice dimension. Customers will establish a relationship with an enterprise that they think has the best ratio of benefits to sacrifice. Within the benefit and sacrifice dimensions of the value equation are various component attributes. Further, each customer may place different levels of importance on the various component attributes. Each customer's unique signature of value preferences is a value profile. Optimizing customer delivered value at a given level of organizational capability means tuning the value equation to match each customer's unique value profile - in other words, personalization.

There are three primary ways to increase customer delivered value:

- Improve the benefits a value proposition delivers.
- Deliver standard benefits to customers at relatively lower levels of sacrifice.
- Tune the value proposition to more closely match the customer's value profile.

Essentially, customer relationship management is using advanced technology and techniques to more effectively establish and maintain win-win customer relationships. This means ensuring that each individual customer receives superior value to generate customer satisfaction and secure greater returns for the organization. It also means ensuring that customer value is delivered efficiently so there is a value surplus left over for the organization's other stakeholders.

While the goal of optimizing business performance is through superior customer relationship management, the practical reality of the business environment has, until recently, prevented a workable solution to the challenges.

MODERN CRM CHALLENGES

Over the years, industrial economies of scale have encouraged one-size-fits-all value propositions. This has produced unintended challenges for today's front-office business functions:

• **RELATIONSHIP TRACKING** Expanding business operations have lead to an increase in the number of customer relationships that require management. This increased number of relationships, combined with the complexity of modern products, has quickly overwhelmed the capacity of front-line service workers to track the status of individual customer relationships.

• **CROSS-FUNCTIONAL WORK COORDINATION** The expanding scale of business has forced many organizations to divide the organization into multiple, hierarchical functions — often referred to as "functional stovepipes." Although this organizational structure facilitates centralized control of the large enterprise, it also breaks previously holistic service processes into a web of disjointed process fragments. The boundaries of these business functions have proven to be a significant barrier to the flow of information required to deliver responsive service.

• **CUSTOMER COMMUNICATION** Today's organizations have also increased in geographic scope. In the past, customers could engage in face-to-face interactions with their vendors; today a vendor's customers may occupy a geographic range that spans the world. In addition, customers interact with the organization through a multitude of communication channels and media. As a result, consolidating and coordinating

the various, disparate customer interaction sources and formats has become a significant challenge.

• **PERSONALIZED VALUE** Due to the large number of relationships to be managed and the finite capacity of scarce front-office workers, organizations often have little or no information regarding the individual value preferences of their customers. This lack of detailed customer information virtually eliminates the possibility of providing a personalized value proposition and customer experience.

The solution to these challenges is Customer Relationship Management Systems.

CUSTOMER RELATIONSHIP MANAGEMENT SYSTEMS

A Customer Relationship Management System (CRMS) is a computing system that automates front-office business functions. CRMS' act as complementary mental assistants by leveraging the power of computer systems to improve an organization's customer delivered value.

By managing the complex logistics of service response activities, a CRMS ensures that customer benefits are delivered reliably. The CRMS also becomes an efficiency multiplier, leveraging the processing power of modern computers to automate front-office work. Through the vast storage capacity of today's computer systems, the CRMS enhances the finite memory of front-office workers, making it possible to maintain intimate relationships with a virtually unlimited number of customers.

Effective customer relationship management encapsulates the following functional areas:

• **UNIFIED CORPORATE MEMORY** A Unified Corporate Memory addresses the need of an organization to "know" its customers and refers to having one common repository for customer relationship contextual information. This repository ensures that all members of an organization know the status of every relationship at any given point in time.

• **PROCESS MANAGEMENT** Process Management technologies are used to design and automate the execution of seamless, cross-functional business processes that ensure a customer request is carried through the organization and processed in an effective manner

• **TRANSACTION MANAGEMENT** Once a significant change in the state of a customer relationship has occurred, whether due to the activities of service personnel or due to outside factors, a change of state should be recorded in the corporate memory. Transaction Management applications facilitate this relationship tracking activity.

• KNOWLEDGE MANAGEMENT Many customer interactions will involve requests for a service response. These requests may vary from requests for product information to requests for proposals to requests for support. The first step in responding to a customer request is always preparing the response. Typically this is a knowledge-based activity and can often be augmented with automated performance aids. Examples of performance aids would be proposal generators, product configurators, marketing encyclopedias and problem resolution systems.

• INTERACTION MANAGEMENT Interaction Management addresses the need of an enterprise to communicate with its customers. In the past many businesses could rely on face-to-face interaction to facilitate communication with their customers. Today, Interaction Management technologies facilitate unified, multi-channel, multi-media communication with customers.

By providing these capabilities in one integrated platform across multiple departments in the modern enterprise, CRM systems provide a unified customer view across business functions.

THE LIMITS OF CRM

While the benefits of a CRMS are now well established, the resulting improvements in internal front-office business operations have exposed other weaknesses in the overall relationship management process. A CRMS vastly improves an organization's ability to deliver exceptional service throughout the customer lifecycle. However, an underlying assumption of the conventional CRMS is that such systems improve the productivity of employee-delivered service. In other words, the conventional CRMS is designed for use by employees and therefore funnels service requests through the employee service channel.

THE EMPLOYEE SERVICE BOTTLENECK

With the increasing throughput of CRM systems, employee resources have become a new limiting factor on service productivity. While it is relatively straightforward to increase the scale and performance of computerized systems, it is a challenge to leverage scarce and expensive employee resources.

Employees are still an organization's most valuable resource. They exhibit unparalleled abilities to personalize customer relationships, to solve unique problems, to react to customer requests, and to engage in rich, beneficial information exchange. However, while employees are unmatched in terms of their service quality abilities, the human service channel also has significant weaknesses.

Due to the scarcity and expense of qualified front-line employees, the human channel is often unresponsive and unavailable when customers require immediate service.

Even in cases where human resources are available, they often are not deployed on particular classes of service requests because they are not cost-effective for low-value service response activities. Also, human nature dictates that the human service channel can be inconsistent and error prone, especially when applied to routine or monotonous service requests.

THE VIRTUAL FRONT-OFFICE

In addition, a large portion of the virtual front-office is not represented by employees at all, but is composed of members of an organization's indirect sales and service channel. A key inhibitor to service productivity is the coordination required between geographically and organizationally distributed members of the demand chain.

A NEW BREED OF CUSTOMER

While corporations have been learning about the inherent bottlenecks in the employee service delivery channel, customers have been discovering the benefits of new service delivery technology. A generation of technology-savvy customers has had its expectations raised by service delivery mechanisms such as ATMs, pump-and-pay gasoline, and self-service banking through the Internet.

These service experiences have given customers new levels of expectation for service responsiveness, service availability, transaction accuracy, and transaction costs. It is still clear that personalized human service is most appropriately applied in high-touch, high-value service scenarios. However, organizations are left in a position where their customer's escalating expectations for routine service access and availability are not being met by current response mechanisms.

THE SOLUTION—ELECTRONIC BUSINESS RELATIONSHIP MANAGEMENT

Electronic business relationship management (eBRM) is emerging as the best way to meet the needs of the new breed of customer. Fusing CRM, eCommerce, and partner relationship management (PRM) technologies, eBRM addresses the limitations of CRM and provides organizations with major benefits, which are made possible by
the Internet.

THE EMERGING INTERNET CHANNEL

The Internet has emerged in recent years as a robust interaction channel. The Internet channel is highly interactive, providing real-time responses to requests made by users. It is also information-rich carrying textual information, rich graphics, sound, and video. Unlike broadcast media, the Internet can be configured to address individual users. The Internet is also highly accessible, providing global coverage through convenient local access points and is a public infrastructure that can be inexpensively leveraged.

As a result, the Internet promises inexpensive, universal interconnection and supports rich interaction between its many users, thus enabling companies to collaborate CRM with direct partner and customer interactions.

ENABLING PARTNER RELATIONSHIP MANAGEMENT (PRM) AND eCOMMERCE

Opportunities often arise at the intersection of an existing business need and a new technology. While it is clear that business partners and customers have always been key participants in front-office processes, it has previously been impractical to connect them to relationship management infrastructures. The Internet now allows organizations to break down the walls of the enterprise to technology-enable their external stakeholders.

PARTNER RELATIONSHIP MANAGEMENT (PRM)

PRM is an emerging discipline that automates the external portion of an organization's virtual front-office — or the partner channel. PRM utilizes technology to improve the productivity and enhance the loyalty of an enterprise's business partners. By extending the organization's CRM capabilities to business partners the benefits of CRM are realized in the indirect channel as well. In addition, by adding support for such activities as marketing funds management, partner training and business planning, the enterprise gains greater mindshare and commitment from their partner community.

eCOMMERCE

The Internet exhibits all of the characteristics required to serve as a customer self-service channel. eCommerce has emerged to exploit the opportunity presented by this new channel termed, "the fourth channel".

Initially, corporate Web sites focused on delivering static marketing content to customers and other external stakeholders. As these sites have become larger, the content made available through them has accumulated and become unwieldy to navigate. To address the challenges of content navigation and targeting, personalization technology has recently been employed. More recently still, eCommerce engines have been used to allow customers to execute product purchases. Commonly these commerce engines are fronted by a product catalog that organizes, personalizes and presents product information to facilitate online purchasing.

If you think of a Web site as a store, web content can be thought of as an online brochure, the Commerce server as an online cash register, and product catalogs as an offline counterpart. In this example, think of a customer walking into a store to shop. As long as the customer is well informed and the product is simple, the store works fine. However, when the situation becomes more complex or the customer is uninformed, the hypothetical store will not function well. The shopper will begin looking

for a sales clerk to answer questions or if they are reporting a problem they will be disappointed to not find a service center. This example represents where many eCommerce Web sites are today.

The Internet represents tremendous potential as an alternative channel for transacting business. However, this potential can only be realized for complex products and average customers if the Web stores support the entire customer lifecycle and are staffed with virtual employees in the form of marketing, sales and support emulation software. Of course even with virtual online employees, complex situations will often require escalation to live interaction with real people through live interaction functionality available in an eBRM system.

THE BENEFITS OF eCOMMERCE

There are two types of benefits of eCommerce:

• **INSIDE-OUT BENEFITS** The new automated self-service systems will process a larger number of service requests per unit of resource consumed, therefore reducing an organization's operating costs. An even greater benefit is derived from the phenomenon called "task displacement". Because many of the service delivery tasks previously performed by the human channel can now be handled more cost-effectively by the self-service channel, a large number of tasks formerly handled by personal service will be handled through automation. These task displacements will make additional front-line team members available to focus on the more challenging and interesting high-value service requests.

• **OUTSIDE-IN BENEFITS** In addition to the cost savings derived from Internet self-service, there are substantial customer satisfaction benefits. Internet customer self-service increases service responsiveness and availability. Further, Internet self-service allows more service to be delivered cost-effectively than was previously possible. This latter effect occurs because the Internet will, through automation, make additional inexpensive service capacity available for use.

Together, these benefits deliver improved customer satisfaction and promise improved market share and profitability to organizations that take advantage of them.

EVALUATING APPROACHES TO eBRM

There are several critical factors to consider in designing an eBRM system:

- User roles
- Content styles
- Functionality
- Integration of eCommerce and CRM
- Application architectures

This section describes these factors, presents alternative approaches, and makes recommendations.

USER ROLES

One of the fundamental rules of good computer systems design is that a system be designed with end-users and their roles firmly in mind. As stated previously, traditional CRM systems are designed from the perspective of the enterprise employee.

The internal user of a CRM application can be classified as a production user. Production users typically use the CRM system as a primary tool in their roles as employees. It is assumed that the user is trained and is highly proficient with the system. This usage scenario focuses on making the system an efficient mechanism for executing well-known transactions. These CRM systems are industrial-strength, no-nonsense tools of the trade.

In comparing this usage scenario to that of external stakeholders, there are two key points to consider. Firstly, employees, partners, and customers have different roles; secondly, they are different types of users. While both internal and external participants in the relationship collaborate in the same processes, they perform different roles at different points in the process, and have different skills and expectations. An eBRM system should acknowledge and empower these vastly different roles and perspectives.

Alternative approaches to user roles can be described as "inside-out eBRM" and "outside-in eBRM:"

• **INSIDE-OUT eBRM** While many CRM vendors have extended their conventional CRM systems to provide access to customers, the interface to many of these systems is just a remake of their internal systems with a Web interface. This functionality, masquerading as customer self-service or partner collaboration applications, is in acutality, a means of facilitating the company's internal processes.

• **OUTSIDE-IN EBRM** Although task displacement of administrative work to customers is a significant benefit of eBRM, Internet self-service systems should focus primarily on automating and facilitating customer and partner work processes. As a by-product of automating these processes, task displacement will often occur naturally. There are a few new software vendors delivering products that represent the outside-in eBRM philosophy.

SUPPORT THE CUSTOMER'S USER ROLE

The benefits of eBRM are realized only if customers and partners use the system. In order to encourage customers and partners to use such a system it must have compelling functionality and personalized content. In addition, while functionality and personalization will attract external stakeholders to the eBRM system, these features will not retain stakeholders if the systems are not universally accessible and not immediately responsive.

Ultimately, outside-in eBRM delivers the most value to customer and partner users.

CONTENT STYLES

Enterprise employees, customers, and partners have different levels of expertise, different roles, and different perspectives. Accordingly, their applications should support different content styles.

Alternative approaches to content styles can be described as transactional and transactive:

• **TRANSACTIONAL CONTENT** This type of content is designed for production-level system users. That is, the current generation of transactional applications requires trained, experienced users who already possess a great deal of contextual information about a company, its products, and the CRM system.

• **TRANSACTIVE CONTENT** This type of content is most appropriate for voluntary system users who may have little existing expertise in the problem domain, and who are not obligated to use the subject system. Voluntary users require both performance support tools to guide their decision making process and transactional capability to execute the resulting transactions. Examples of transactive content are: fact-based information such as price guides, editorial content such as product reviews, decision aids such as marketing product configurators, and filtered news push.

The usage model and experience levels of your eBRM users are the appropriate evaluation criteria to use when selecting the most suitable content style. Given that the customer and partner users of an eBRM system are voluntary users with (potentially) novice-level skills, transactive content is the most appropriate interface content style.

FUNCTIONALITY

Just as employees' roles vary throughout the customer lifecycle, the customer and partner roles also vary within the customer lifecycle. The customer's role includes tasks such as information gathering, shopping, evaluating alternatives, purchasing, self-service support, and providing feedback to the enterprise, while the partner's role mirrors that of the employee throughout the customer lifecycle.

If we are to provide meaningful computerized automation for the customer and partner roles, we must facilitate the primary tasks that these roles encompass. This necessitates pulling together a broad array of technologies and applications to provide the comprehensive functionality that customer and partner users require.

Alternative approaches to providing this functionality are integrating disparate point products and what we call 360° functionality:

• DISPARATE POINT PRODUCTS Just as with any emerging market need, a collection of disparate point applications has arisen to address multiple dimensions of the PRM and eCommerce challenges. These point products vary from enabling technologies to end-user applications that address a subset of the customer lifecycle. An alternative, therefore, for organizations addressing the need to provide comprehensive customer and partner functionality is to purchase a collection of PRM and eCommerce technologies and integrate them in-house.

• 360° FUNCTIONALITY A competing alternative for addressing the PRM and eCommerce opportunities is to purchase a pre-packaged eBRM product suite that includes comprehensive functionality for customers and partners at each stage of the customer lifecycle. This 360° approach provides a user with a holistic experience, ensures seamless business processes, and minimizes the trade-off between best-of-breed functionality and suite integration.

PROVIDE A HOLISTIC USER EXPERIENCE

One of the most important criteria for evaluating alternatives is how the choice affects the user's experience. Ideally, the eBRM system should provide a holistic user experience, approximating the experience of a customer interacting with the corner grocer. The eBRM system should allow the customer to move seamlessly through the stages of the customer lifecycle including buying, usage, and service. In addition, the eBRM system should maintain some degree of user context. Like the grocer, this system should "know" the customer's preferences. It should also allow customers to stop an interaction in mid-process and pick up where they left off at a later point in time.

ENSURE SEAMLESS BUSINESS PROCESSES

In addition to providing the user with a holistic experience, it is also important that the eBRM functionality serve the needs of the enterprise. From the enterprise perspective, it is imperative that the eBRM system carries the user's case seamlessly through the various stages of the front office business processes that are required to service customer requests. If Internet self-service and partner collaboration are to be viable alternatives for service delivery, then an enterprise must be able to depend upon the reliable transfer of a user's request through these business processes in an efficient manner.

MINIMIZE FUNCTIONALITY VS. INTEGRATION TRADE-OFF

Equally important in evaluating alternatives for achieving comprehensive eBRM functionality is the sacrifice required to put the functionality together. The functionality vs. integration trade-off is well known in the computing industry. It is equally well known that what an enterprise really wants is to have its cake and eat it too. That is, an enterprise would love to have comprehensive functionality and seamless integration. The ideal alternative would possess the best overall combination of comprehensive lifecycle functionality and seamless integration.

It is clear that all things being equal, a pre-packaged suite of integrated eBRM applications would provide substantially more value to the business enterprise than a patchwork collection of eBRM point products.

eBRM—INTEGRATING CRM, PRM AND eCOMMERCE SYSTEMS

Customer relationship management is a cooperative exercise and like all relationships, customer relationships have two sides. Conventional CRM is about technology-enabling the enterprise side of the relationship specifically for employees. PRM also enables the enterprise side of a relationship but focuses on the enterprise's virtual employees, or their business partners. Finally, eCommerce is about enabling the customer's side of the relationship.

The benefits of implementing eBRM can be more than the sum of the CRM, PRM and eCommerce parts. In addition to the benefits of integrating fragmented eCommerce technologies and applications to create a comprehensive, integrated eCommerce suite, it is also worth considering the benefits of integrating the PRM and eCommerce systems with the conventional (inside-out) CRM system to create a unified eBRM system.

Alternative approaches to integration are stand-alone eCommerce and unified eBRM:

• **STAND-ALONE eCOMMERCE** Along with the new vendors that have grown up to provide disparate technologies and applications, a small group of software vendors has arisen that have pulled these technologies and applications together into the eCommerce suites we just described as being most desirable. These vendors correctly point out that any eCommerce offering should be designed with the role of the customer or partner user in mind, and that an eCommerce suite should provide content of the style most appropriate for voluntary users. These new eCommerce suite vendors also point out the benefits of an integrated suite of eCommerce functionality over trying to integrate a collection of disparate products. However, these same vendors fail to address the equally important consideration of fully integrated CRM, PRM, and eCommerce.

• **UNIFIED EBRM** Just as it was possible to seamlessly integrate all of the eCRM functionality into a single CRM product offering, it is also possible to provide a unified eBRM product line. These new unified offerings are just starting to emerge from development labs.

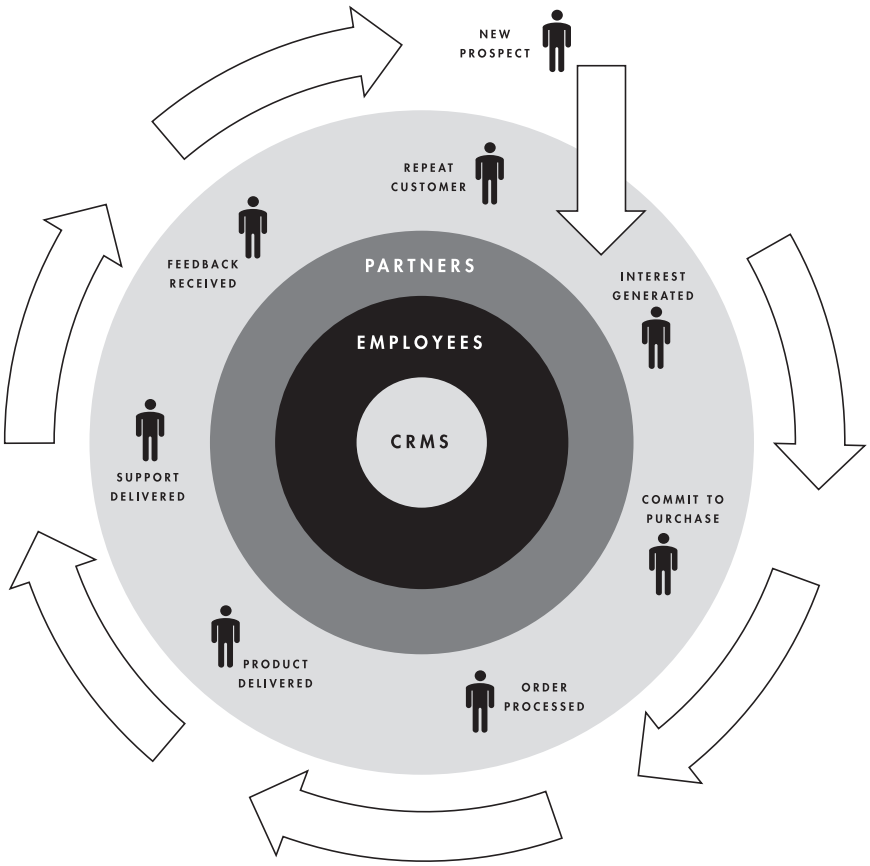

Figure 1. Unified eBRM systems can provide real-time collaboration among stakeholders throughout the customer lifecycle.

ENABLE REAL-TIME COLLABORATION AMONG STAKEHOLDERS

An important consideration when evaluating the alternatives for CRM, PRM, and eCommerce integration is the degree to which each alternative facilitates real-time collaboration between the different stakeholder groups. For example, if a customer requests literature through a Web site, it is important that the request be presented in real-time to the employees or partners who are capable of responding. Conversely, if a partner is assigned a new lead it is desirable that this lead be made immediately accessible to the partner. Only through a "live" integration between all systems can a dependable and timely response be ensured.

PROVIDE FACILITIES FOR CUSTOMERS TO ESCALATE REQUESTS TO THE PERSONAL SERVICE CHANNEL

Indeed, even if service response capabilities are automated, there is a low probability that all requests received through the system will be self-serviceable. The enterprise must provide facilities for customers to escalate their requests directly to the personal service channel. Of course, when a customer interaction makes its way to the personal service channel, the customer's contextual information had better be immediately accessible.

MINIMIZE CRM, PRM, AND eCOMMERCE INTEGRATION EFFORT

It becomes apparent then that integrated systems deliver a level of synergy that is not available through detached systems. There are still a couple of options, however, for achieving eBRM integration. One of these alternatives is to take stand-alone PRM and eCommerce offerings and manually integrate them with a stand-alone CRM product. The other option is to purchase an integrated eBRM offering off the shelf. Important considerations in making this decision are the time and resources required to integrate the systems.

While a new set of outside-in CRM vendors has arisen to fill the gaps left by some traditional CRM vendors, there are also leading CRM vendors that are extending their CRM application offerings to encompass the needs of the extended enterprise. The integrated offerings deliver real-time collaboration and facilitate self-escalation while minimizing the effort and expense of integration. Given the criteria discussed above, it is clear that eBRM must be a set of off-the-shelf extensions and enhancements to the core relationship management system, not separate "islands of automation."

APPLICATION ARCHITECTURES

Earlier in this paper we talked about the Internet as a new technical enabler for customer self-service and partner collaboration. While it is true that the Internet enables a new level of customer and partner participation in the relationship management process, the Internet does have costs. The Internet and its associated application platforms bring to relationship management systems locale independence, platform independence,

and inexpensive network access. However, today's competing Internet application platforms are relatively immature and fragmented technologies.

Practically speaking, this means that application developers using Internet application platform technologies will be forced to invest more time and effort to create working Web applications, and these applications will have less robust performance characteristics. A particularly relevant trade-off is that the current Internet application platforms do not support the functionally rich user interfaces that internal production-class CRM users have come to expect. In short, today we can have the accessibility benefits promised by the Internet, but only at the expense of developing applications on less mature technical platforms, with less robust user interfaces.

Alternative approaches to application architecture are Web-enabled, browser-enhanced, and Web-powered:

• **WEB-ENABLED APPLICATION ARCHITECTURES** The first reaction that client/server application vendors have had to the emergence of the Internet has been to open up their existing products to Internet access. The most direct method for achieving this objective was to put an HTML interface on their existing applications. This approach has been called a Web-enabled (or browser-neutral) architecture to denote the fact that a browser-neutral Web interface was applied to pre-existing client/server applications. The compromise that this approach represents is that it is basically compatible with all clients and browsers, but the user interface and functionality provided are weak. The resultant application is really suitable only for a casual user style of usage.

• **BROWSER-ENHANCED APPLICATION ARCHITECTURES** The browser-enhanced application architecture represents another point on the "client richness vs. platform compatibility" trade-off. This architecture is most appropriate where an application does not have a strict browser neutrality requirement and more functionality is desired in the application than can be achieved using standard HTML. Browser-enhanced applications take advantage of premium technologies built in to the browser to gain more functionality and richness, without requiring custom controls or applets. This approach uses technologies such as scripting and Dynamic HTML.

• **WEB-POWERED APPLICATION ARCHITECTURES** There are certain usage scenarios where Dynamic HTML and scripting do not provide enough functionality for the target application. This subset of applications needs to leverage the capabilities of the operating system and associated virtual machine; they are, therefore, platform dependent. These applications generally make use of either ActiveX or Java components and are called Web-powered applications.

One of our previous recommendations for implementing eBRM was to facilitate unified CRM, PRM, and eCommerce. Any application architecture that we select should satisfy this recommendation. That is, our selected Internet application platform should facilitate the operation of conventional CRM in addition to PRM and eCommerce functionality, all over a unified customer information repository.

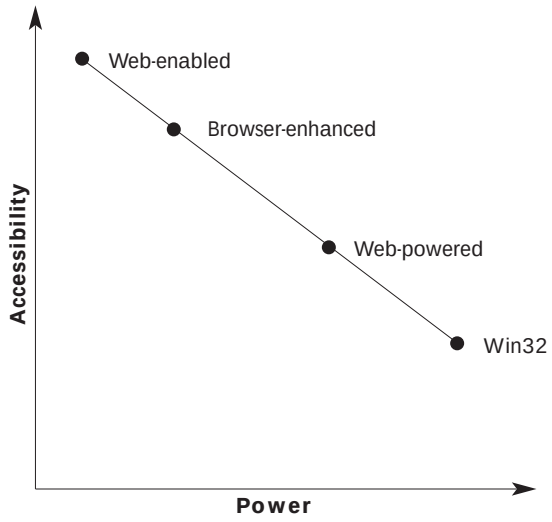

Figure 2. The accessibility versus power trade-off for alternative approaches to application architecture.

ENABLE UNIFIED eBRM

DELIVER ROLE-APPROPRIATE INTERFACES

As we have stated, enterprise employees, partners, and customers have different roles in the overall relationship management process. The application architecture that is used to enable unified eBRM should be capable of presenting the appropriate user interface to each of the participants in the relationship management process. For example, the architecture should support the delivery of a simplified yet broadly accessible interface to customers. We cannot control the computing environment that will be employed by customers and so must provide cross-platform compatibility. However, because the customer is not a production-class user, we will be able to accept the lower levels of user interface richness and functionality that current browser-neutral technologies provide.

Channel partners will have roles similar to enterprise employees but will be voluntary users who must be able to access the CRMS via the Internet (Extranet). Consistent with their role, channel partners should be given access to rich, highly functional interfaces via the Extranet.

Most enterprise employees are production-class users who operate in an environment where the computing platform can be standardized. Rich, highly functional user interfaces should be provided for employees and the enterprise should be prepared to accept constraints on cross-platform compatibility. This situation calls for either a Web-powered or Windows-based solution.

Therefore, the best Internet architecture for today is an innovative architechtural framework from Microsoft:

• **UNIFIED INTERNETWORK ARCHITECTURE** The Microsoft® vision of an InterNetworking application architecture is called Windows® DNA. Windows DNA promises to combine the benefits of the Windows platform and the Internet. These benefits will include the support of application suites that accommodate unified application logic and data while enabling a full range of presentation options—from HTML to native Win32 clients.

Pivotal Corporation has developed a new product offering called Pivotal eRelationship™ *2* that is focused on helping our clients exploit the power of the Internet for an integrated CRM, PRM, and eCommerce system. The Pivotal eRelationship *2* solution fuses an advanced eCommerce server — the Pivotal eRelationship CommerceServer™ — and an intelligent business portal, the Pivotal eRelationship SmartPortal™, with Pivotal's CRM applications to establish the first 100% Web-based platform for electronic business relationship management.

Pivotal eRelationship *2* transforms your corporate Web site into dynamic, one-to-one Internet relationship hubs that allow business-to-business transactions via the Internet to be captured and managed. This solution improves the productivity of employees and partners, cuts communication and transaction costs, and shortens sales cycles.

Through the powerful new Pivotal eRelationship CommerceServer and Pivotal eRelationship SmartPortal, this eBRM solution integrates corporate data, personalized catalogs, online order processing and in-context Internet services to redefine traditional CRM and eCommerce.

Pivotal eRelationship *2* consists of three applications that serve your employees, customers, and partners allowing each group to interact and view relevant information in the format most meaningful to them:

PIVOTAL eRELATIONSHIP INTRAHUB™ An Intranet portal solution for marketing, sales, and customer service employees. Pivotal eRelationship IntraHub automates the front office and gives everyone in an enterprise easy access to information through a personalized SmartPortal. You can connect to both your corporate Intranet

and the Internet, choose from a variety of views, and get relevant, up-to-the-minute information—all without leaving your workspace.

PIVOTAL eRELATIONSHIP PARTNERHUB™ An Extranet solution that uses the power of the Internet for highly personalized, online collaboration with business partners. Resellers, distributors, service providers, and dealers are fully integrated into your eBusiness team. Pivotal eRelationship PartnerHub gives all your valued partners access to front-office functions and information through a self-service web site. Partners can share leads, collaborate on sales opportunities, and stay current with the latest product information and competitive updates.

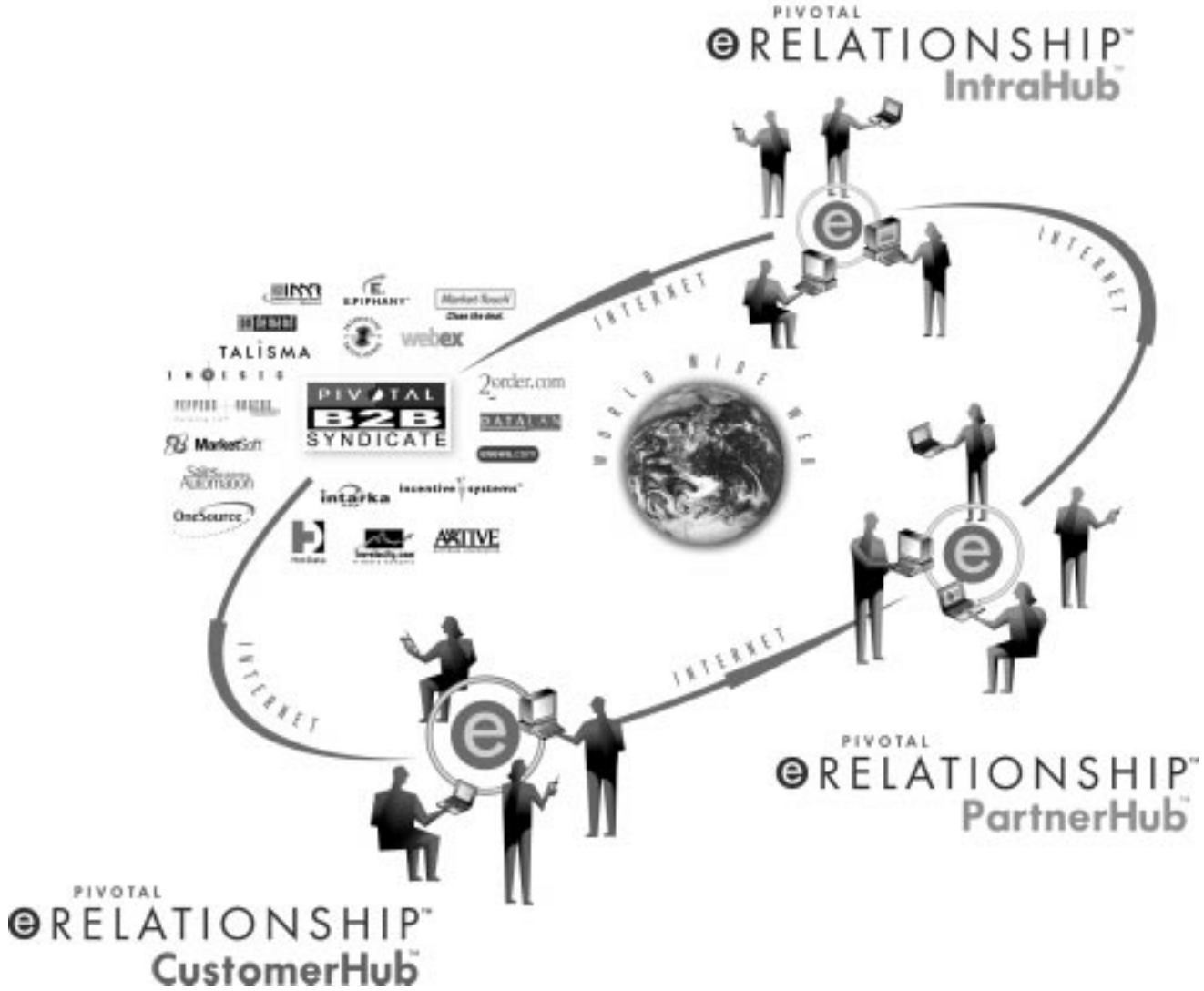

Figure 3. Pivotal Corporation's unified eBRM solution Pivotal eRelationship 2 consists of Pivotal eRelationship IntraHub, Pivotal eRelationship PartnerHub, Pivotal eRelationship CustomerHub, and the Pivotal B2B Syndicate.

PIVOTAL eRELATIONSHIP CUSTOMERHUB™ A personalized Internet solution for establishing secure, one-to-one customer self-service and eCommerce Web sites. Gives customers around the world an easy, secure channel to contact your company, get the information they need on-line, enter their product specifications, place orders, or elevate to front-office staff for personal, one-to-one service.

Customer relationship management (CRM) is about developing win-win customer relationships by effectively managing the value exchange process. Customer Relationship Management Systems leverage the power of computing technology to optimize an organization's customer value exchange. They increase the effectiveness and personalization of customer value delivery, thereby improving customer satisfaction. These systems also improve the efficiency of value delivery processes and, in so doing, reduce operating costs.

SUMMARY

Customer Relationship Management Systems have been widely adopted in the last half-decade. As these systems were adopted a new CRM bottleneck was discovered in the human service channel. This bottleneck derived from the limitations of the human front-line workers and their traditional interaction techniques. The bottleneck inhibited the collaborations between an organization's employees, partners, and customers that were required for optimal customer relationship management.

Simultaneously, a more powerful interaction channel has been emerging in the Internet. This new interaction channel and a new class of applications designed to exploit it, promise to ease the personal service bottleneck and extend the benefits of CRM to customers and partners. Collectively, these electronic extensions to Customer Relationship Management Systems, eCommerce, and Partner Relationship Management are known as Electronic Business Relationship Management (eBRM).

Pivotal eRelationship *2* is focused on helping to exploit the eBRM opportunity. Pivotal eRelationship *2* is composed of three solution suites: Pivotal eRelationship IntraHub, Pivotal eRelationship CustomerHub, and Pivotal eRelationship PartnerHub.

Pivotal eRelationship IntraHub enables your front office to better manage relationships with customers and partners. Employees gain a knowledge-rich relationship portal that packages data from your enterprise and from the Web into relevant information for customer and partner relationship management.

Pivotal eRelationship CustomerHub enables customer self-service through the Internet. This solution enhances customer satisfaction by improving service access, responsiveness, and accuracy, and by lowering costs. Improved customer satisfaction has a positive impact on a company's profits and market share. In addition, by displacing work from the personal service channel to the self-service channel, Pivotal eRelationship CustomerHub reduces operating costs.

Pivotal eRelationship PartnerHub enables channel partner collaboration through the Internet. The channel partner component of Pivotal eRelationship extends the traditional effectiveness, efficiency, and personalization benefits of CRM to the rest of the virtual front-office team. This can provide incremental productivity improvements to mixed channel organizations or enable the use of a Customer Relationship Management System for indirect channel organizations.

Pivotal eRelationship *2* delivers several advantages over other eBRM offerings. Pivotal eRelationship *2* delivers role-appropriate application functionality, including applications that automate customer and partner processes. Pivotal eRelationship *2* provides personalized interfaces that are suitable to the usage styles of customers and partners. The Pivotal eRelationship *2* solution suites offer applications that address multiple touch-points of customer interaction throughout the customer lifecycle. Finally, Pivotal eRelationship *2*'s hybrid application architecture takes optimal advantage of the trade-offs inherent in current application architectures while being positioned to fully exploit the emerging benefits of Windows® DNA.

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