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THE BUSINESS BENEFITS OF INTEGRATION

Integration may be the most cost-effective way for IT to add business value to the enterprise.

Many companies have spent years and countless dollars (for hardware, software, development, and consulting services) developing solutions that solve individual business problems. It's not uncommon to find hundreds of disparate applications running within an organization—in many cases, thousands of separate applications.

Each of those applications was specified, funded, built (or purchased), operated, and maintained out of a specific budget. In most cases, those applications continue to be vital to the operation of a department, and to the business as a whole. Their weakness: because these applications were most often designed and built with a specific need in mind, they don't fit into a broad enterprise IT architecture; in fact, in many cases, no such broad architecture exists. These valuable applications, therefore, have limited interoperability and interapplication communications capabilities, making it difficult to leverage them to add new business value, such as by offering new revenue opportunities, streamlining inefficient or noncompetitive procedures, or reducing costs by exploiting modern technology. Indeed, one often hears that companies carry out procedures in an archaic fashion because "that's how our computer systems work."

Integration can address those challenges by providing new programmatic interfaces to hard-to-extend applications and by enabling existing applications not only to interoperate, but also to be orchestrated through new business logic and process rules. However, many integration projects have business objectives and technical requirements that are ill-defined, leading to frustration on the part of line-of-business managers and technical staff who are unsure of the scope of the project. That's because, frankly, integration (like any IT project) isn't an end in itself; it must serve to make the business more profitable, more competitive, or more efficient, and the value of that greater profitability, competitiveness, and efficiency must be reflected in the requirements and budget for any prospective integration project.

When considering or planning for such a project—or even brainstorming with line-of-business managers or executives about the feasibility of integration—it may be useful to organize the top reasons into three separate categories: Revenue Enhancers, Cost Reducers, and Efficiency Improvers. Each category will have its own set of business and technology requirements and, ultimately, different ownership and funding priorities. While each enterprise will have its own unique reasons for pursuing integration, the list of 10 project imperatives below should serve as a starting point for envisioning the potential for ever-tighter union between disparate data systems, and it should spark a corporate dialogue on the alternatives.

Revenue Enhancers

1. Sell more through suggestive sales techniques.

"Do you want fries with that?" may be a phrase associated with fast food, but it's equally valuable in Web-based sales. Consider a mainframe that contains a database with your current inventory, cost basis for each item, and retail pricing; a J2EE/DB2 back end with customer historical data; and a Microsoft .NET-based e-commerce site with order-processing capabilities. Separately, each solves a key business problem, but traditionally, integration is extremely limited; it's not uncommon to find a daily batch job that uses extract, transform, load (ETL) techniques to populate the Web e-commerce application with the day's offerings.

Tighter integration of the three applications, perhaps through a real-time host gateway and Web services, would allow the e-commerce application to perform value-added analysis with only minimal programming changes. When the customer selects an item for viewing, for example, the e-commerce application might ask the WebSphere or WebLogic application for a list of items that are often purchased at the same time, and present that to the customer. Host integration can provide real-time inventory control and even differential pricing based on current stock levels. Both of these could increase revenue by selling more product and boost margins by raising the profit on popular items.

2. Boost customer retention by turning customer service into self-service.

Expectations are high for Web-based e-commerce and service. Your partners, suppliers, and customers will demand to view all conceivable information about your relationship, such as order history, outstanding balance, payment information, pending transactions, even account basics such as shipping name and address. Not only do they expect to view this information, but they want many of the fields to be modifiable, with instant feedback.

Of course, to your customers or suppliers, the desired interface for managing their account will be a single set of Web screens. To your IT department, that information may be scattered across dozens of different platforms, servers, databases, and applications. If you can't pull the information together, in real time, and then push the changes back out to the originating systems, your customers will be dissatisfied—and will look for a new, more modern vendor. You can bet that your competitors are improving their own customer-service systems. If you can't keep up, your customer retention rate may decline, and this will have a bottom-line impact; if you can transition to self-service customer service, your retention rate should improve.

3. Increase revenue by empowering your own sales and support teams.

Field sales, telemarketers, branch offices—unless your suite of products and services is very simple, your best revenue producers require information. The more information they have quickly, the more responsive they can be to customer needs, and the more likely they will be to get the sale.

Some of that information, of course, may be in the form of downloadable documents and sales presentation material. However, other information may require business logic. Interfaces to back-end systems may allow field sales professionals and their managers to construct customer bids without having a delay of minutes, hours, or days while headquarters “runs the numbers.” Access to real-time inventory and shipping times allows a call-center professional to provide accurate delivery times to a prospective customer.

Similarly, customer satisfaction will be increased if your field sales engineers or technical support personnel have access to all information about the customer's transaction—and can

even provide that same real-time delivery confirmation for spare parts. An informed customer will be more likely to maintain the relationship than one who is kept in the dark.

Cost Reducers

4. Eliminate the cost of storing and managing redundant data.

It is expensive and inefficient to store the same data in multiple databases, yet, unfortunately, that's a common practice. For example, host data for a particular application may be replicated, in whole or in part, on a J2EE or .NET-based system to provide easier programmatic access by modern applications. Not only does the second (or third or fourth) set of data increase corporate hardware, software, and IT administration costs, but it also introduces inefficiencies and risks data corruption.

Consider synchronization: in some situations, enterprises employ costly and complex, real-time sync subsystems that mirror changes in one version of the database with those in another. Such solutions are difficult to maintain. In other cases, the systems are allowed to go out of sync, and then a regular process, such as a nightly or weekly batch transaction, reconciles the changes. The downside there is that one set of data will always be wrong.

A more efficient solution would be to follow the cardinal rule of database design: have only one version of any particular set of data, perhaps on the host only, and use integration technology to provide modern applications with real-time access to that data.

5. Reduce the cost of manual data reentry and report generation.

One telltale indicator of a money-saving, business-streamlining integration opportunity is the presence of a rekeying department, where information from one data system, such as order entry, is manually transferred to another, such as accounting or shipping. Another is a long delay before reports become available on the previous day's business activities, because the data must be manually gathered from numerous sources and either typed into a different system or rolled up into spreadsheets. Despite the advantages of integration, too many organizations rely upon such inefficient manual processes for data transfer between disconnected systems.

The use of integration technology can improve those processes—and, in many cases, that slow, error-prone, expensive activity can be entirely eliminated through automation. This frees those employees to perform tasks that add greater value to your enterprise, thereby improving your corporate productivity. In some cases, the organization may be able to realize hard cost savings by downsizing or eliminating the rekeying department or by terminating contracts with outside firms that were performing those functions.

6. Lower ongoing system administration expenses.

During this era of financial crunches, portions of the IT budget have been placed under pressure, in regard to staffing. That has often resulted in a reduction in the number of mainframe, network, database, Web, and other system administrators. Yet the complexity and number of systems to be administered continues to increase to accommodate new Web-based applications and new demands for broader access to all applications throughout the enterprise and beyond.

Integration systems can prove to be easier to manage, on a day-to-day basis, than individual stand-alone applications. As one example, consider the simple granting of authentication and access to dozens of applications, some on mainframes, some on midrange servers, some on a classic client/server architecture, and others using a Web-based interface on J2EE or .NET. Those applications typically employ separate access-control lists, directory schemes, and other authentication mechanisms. Unified access, through integration, can reduce the complexity of maintenance, improve end-user satisfaction and business productivity, and even improve security.

A separate benefit may be simplified back-end server administration. A challenge for many organizations is that their disparate IT systems must be administered separately. Despite the appeal of tools like Computer Associates Unicenter, Hewlett-Packard OpenView, or IBM Tivoli, management dashboards only have limited visibility into disconnected silos. A successful integration program can extend the reach of administrative tools across silos, reducing duplicated efforts.

Also, by giving such tools broader access to the back-end services, rather than restricting them to individual silos, errors can be detected sooner, root causes identified more quickly, and remedies applied less expensively.

Efficiency Improvers

7. Accelerate application development using modern RAD platforms.

COBOL, CICS, and RPG, oh my. While those languages remain powerful tools for designing host transaction systems, they lack the popular rapid application development (RAD) features found in more modern environments.

Tools such as BEA WebLogic Workshop, Borland JBuilder, IBM WebSphere Studio, and Microsoft Visual Studio .NET offer a significant increase in developer productivity, over host-based tools, when building entirely new applications or extending existing ones through orchestrated business logic. Access to these tool sets, of course, is part of the appeal of the J2EE and .NET platforms.

Note the key word “extending.” It is not necessary, or even desirable in most cases, to forklift legacy mainframe and midrange systems in order to take full advantage of RAD environments and J2EE/.NET deployment. Integration allows those older applications to be readily extended to the Web and other business systems with new functionality—without losing their critical data and business logic—at a fraction of the cost of replacing the old technology or revamping the mainframe/midrange systems to work in the modern world.

8. Control and simplify business processes via workflow.

It’s an axiom that the number of policies that define business processes is exponentially related to three factors: the number of employees, the number of customers, and the number of years of operation. Increase any of these, and more rules must be determined, written down, and too-often ignored.

While simple rules for handling normal transactions can be memorized by employees and managers, exceptional cases, and those that encompass multiple departments, are harder to enforce. Worse, companies may end up adhering to policies that no longer apply, or may be unable to make important new

policies due to the complexities of automating the procedures—an important issue when self-service systems are being constructed.

Integration allows existing systems to be added into a business process control system or workflow engine. Integrated systems have access to a broader array of data, programmatic business logic, and user interfaces than existing stand-alone silos, so the scope of workflow using that integration can be broad. Furthermore, integration solutions exist in the white space between applications and, therefore, are the ideal location for tying applications into workflow systems, without the expense and risk of modifying legacy applications to incorporate workflow or business-process functions.

9. Efficiently incorporate modern security programs.

The global events of the past few years have raised awareness of the need to protect our data systems against unauthorized access. Many organizations have failed to respond adequately to these new challenges, relying upon simple ad hoc security arrangements (a firewall here, some encryption there) that provide inadequate access controls for critical data and application resources.

An integration solution can offer a more unified and secure interface than an individual application's own access control lists and separate security schemes by leveraging an enterprise's modern access-control infrastructure, such as Microsoft Active Directory.

Consider the ease with which a Web-based application running on .NET can be tied to an organization's Active Directory single sign-on system, as opposed to the complexity of tying an existing iSeries application's terminal into that corporate authentication database.

Similarly, funneling external access to host applications via a modern integration solution is both more flexible and more secure than "going direct." These issues are becoming more important to the enterprise, incidentally, due to the privacy regulations in the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and the Sarbanes-Oxley Act of 2002. An integrated solution is easier to bring into compliance with those laws.

Future Planning

10. Lay an architectural framework that will provide the enterprise with greater agility.

It is often difficult to justify funding for infrastructure projects—yet the demands on enterprise IT departments will inexorably increase to accommodate new business opportunities and challenges.

Meeting those challenges will be faster and easier if IT can build upon a solid foundation of integration. Consider XML-based Web services, which provide a powerful platform-neutral interface for extending applications to the Web, to other applications, and to outside partners and customers. Indeed, integration provides a strong and secure platform for both exposing and consuming Web services with legacy applications, and it can also provide an orchestration layer for managing Web services from newer software. Even organizations that have not made the move to Web services can benefit from planning for their eventual adoption.

Similarly, the concept of a services-oriented architecture, or SOA, is an emerging technology model that allows for a more highly automated, scalable, and responsive data center. In this environment, adding and extending new applications can be as simple as adding new Web services functionality to a managed SOA fabric. Integration allows all legacy applications—mainframe, midrange, UNIX, Microsoft Windows, Java—to participate in an SOA as first-class citizens.

As IT and corporate management prepare their budgets and investment priorities, an investment in extending existing applications via integration should be carefully considered; the return on investment may be sooner than you think.

Alan Zeichick is principal technology analyst at Camden Associates, which specializes in networking, application development, and security technology. Camden Associates is based near San Francisco.