

# Beyond "Build vs. Buy": Winning at E-Business through Reliable End-to-End Integration

**W H I T E P A P E R**

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## 1. EXECUTIVE SUMMARY

In a business-technology environment of constant and ongoing transformation, not only do business systems need to change and evolve; decision-making perspectives do, as well. Where once the main decision for executives seeking an e-business solution was whether to build or buy, the critical issue today is finding the fastest path to fluid integration of key business processes and enterprise business systems.

*"In the next phase of e-business, 'customers want one vendor to provide all the pieces that make automated buying and selling of direct goods seamless, linking transactions to order fulfillment, manufacturing supply chains, inventory replenishment, and transportation,' said AMR Research analyst Pierre Michelle. 'Customers don't want to deal with the hassle of integrating all the disparate software pieces, costing them millions of dollars and years of work.'" ("Making it All Work," Information Week<sup>1</sup>)*

No longer are the choices for enterprise e-business solutions limited to:

- A) buying more than is needed and living with a "closed" system in order to minimize surprises, time to market, and the lack of reliable support; and
- B) building a system from scratch in order to achieve a custom solution, while surrendering to the variables of time and budget—with no guarantee of ultimate functionality, scalability, interoperability or support.

Today it's possible to find an e-business solution that offers the best of both worlds. The best "buy" provides all the functionality that's needed to be competitive today without requiring a business to buy more than necessary. The right system for e-business now comprises:

- **the right technology**, offering performance, scalability, open standards and security, along with support for major industry standards like Java, Enterprise Java Beans (EJB), JavaScript, XML, XSL, X-WAP, CORBA and COM. It also leaves room for programmers to leverage existing resources.
- **the right system for e-business**, enabling best practices, rapid integration through fewer "moving parts" or variables, and 24-hour, 7-day customer service; this system is modular, distributed, and absolutely reliable.
- **the right company for now and the long run**, focused on solving business problems, with a proven record of engineering excellence, with a proven, sizable customer base and the ability to guarantee comprehensive future customization to fit unique and changing business conditions.

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<sup>1</sup> Information Week: <http://www.informationweek.com/790/sstechno.htm>

## 2. INTRODUCTION

As IT systems age, the Internet matures, and behemoth computing companies are left in the dust, one problem remains constant: how to find an IT solution that directly contributes to the larger mission of the enterprise -- and fast. This eternal quest has been framed in different language over the decades, but none so persistent as "build or buy?"

The classic build-or-buy struggle has been ongoing for 25 years and is now expressed through three approaches:

- **Development suites** allow IT departments to build whatever they need without the requiring that they buy more than they need. Key challenges lie in the time and money required to build, test, and troubleshoot new systems while ensuring interoperability, scalability and security. Further, the true and total cost of the application may be difficult to calculate accurately.
- **Point solutions** focus on one specific problem each, so in order to address larger business problems for the enterprise, additional functionality must often be added by stitching together multiple point solutions and/or development suites. Meanwhile, IT departments can find themselves left alone without support for custom integrations between changing versions of software. Support from vendors is a vital consideration when mission-critical operations are on the line.
- **Packaged solutions** seek to meet business challenges through software that addresses complete business problems. These end-to-end systems facilitate integration with existing mission-critical system investments and business-process modeling. These solutions are fully tested in real-world settings, undergo constant improvement, and are backed by 24-hour, 7-day support.

Though all three of these approaches are very different and have their own advantages and disadvantages, at the center of all three are the following issues:

1. Openness
2. Best-of-breed
3. Scalability
4. Time to market

This paper will discuss these decision points and also the fundamental importance of something even more critical to e-business success: ease of integration. As Joshua Walker of TechRankings® noted in his paper, "Commerce Platforms" (November 2000), it's important to "Buy for the life of the site -- not its birth." That means bringing in tested functionality demanded by e-business customers today, while ensuring that the supporting vendor and the next generation of that system will be available -- and work with other key enterprise systems -- tomorrow.

The fact is that "buy" no longer means "one size fits all." A genuine solution can and should provide a number of key advantages for the organization seeking to increase its agility through e-business:

- **Enterprise-ready technology:** Without the right foundation, no e-business system is stable. The success of a system is dependent on its ability to solve a business problem while simultaneously ensuring unrivaled scalability and performance, foolproof security, and open enterprise standards to facilitate content exchange and integration with existing business-critical applications.
- **Enterprise-worthy functionality and support:** E-business waits for no one. The right system is an enterprise-grade, modular, stable, distributed, end-to-end solution that can be immediately rolled out onto the Web platform. It offers the high-quality experience customers seek, facilitates best practices, has been stringently tested, simplifies enterprise application integration, and enables facile evolution as enterprise needs change.
- **Stable, partnership-oriented vendor:** Real solutions solve problems now and later. This is made possible by working with a committed vendor with a proven record of working with its customers to meet their goals. No solution is complete without full support from knowledgeable representatives that is available 24 hours a day and seven days a week.

### 3. OPEN SYSTEMS: PATHWAY TO FREEDOM?

The open-systems issue is often the first to be addressed in the evaluation of potential e-business systems. Open standards do offer the possibility to more easily extend individual systems and combine disparate systems. However, when an open standards-based system leaves many business problems unsolved, its very openness can appear more like open air. Some leave room for a variety of options that must be carefully evaluated as to safety, security and straightforward integration but provide no upfront solutions.

It's also important to note that many otherwise open solutions are coupled with a specific application server. This can neutralize the advantage of being free from proprietary architectures, as any additional point solutions required will need to operate with that same application server.

Development suites promise any IT group the ability to build tailored systems for each situation, thereby leaving the door open to freedom of choice in the future. However, it's noteworthy that the organization is vulnerable to development time and expense factors that can be prohibitive when attempting to bring a finished product to market.

End-to-end systems based on proven enterprise architecture are the fruit of hundreds of hours of testing, tuning and perfecting. We at BroadVision have done this in concert with more than 1000 customers whose applications must operate on a massive scale. Scalability, industrial-strength reliability, and functionality have been gained through years of experience. Our focus is always on solving a business problem for the customer.

The practical meaning of openness for the enterprise is the ease with which a system can be:

- extended by modifying existing objects or by adding new objects and components
- integrated with external systems

Beyond simplistic issues of language and application-server choice, five key levels of extensibility exist:

- 1) Look and feel, ease of navigation
- 2) Business logic
- 3) Business components
- 4) Enterprise application integration (EAI)
- 5) Content exchange

In the heat of implementation, these are the measures by which the practical openness of an approach must be judged.

At the business level, key considerations in the purchase of any solution should be:

- whether it reliably solves a business problem today
- whether it is architected to readily integrate with existing systems
- whether the vendor will ensure its efficacy at solving that business problem tomorrow

### **Real World: Avairl Chooses Ready-to-Deploy System**

As one of the largest independent distributors of aviation and marine parts, Avairl needed a way to bring their \$368 million business onto the Web. Craig Betteridge, Director of Development and e-Commerce, looked at "build" options from IBM and Microsoft, while also considering "buy" solutions from Siebel and BroadVision. What he got with BroadVision was the best of both worlds.

"We chose BroadVision because they're a one-stop shop and offer involvement from strategy to deployment to go live and succeed with full accountability," Betteridge reported. In their attempt to be the first to market with a fully functioning e-business system, Avairl needed to be able to leverage not only their existing ERP system, but also the technical staff resources on hand. Of special appeal were BroadVision's e-business APIs, strong linear scalability, and solid professional services and support.

BroadVision's professional interactions with Avairl's team helped make the project a success in a very short time. Betteridge concluded by saying, "Buying a solution saved significant time, money, and frustration, and helped Avairl to build a dynamic, informative site due for launch in the New Year. This is an exciting way to kick off a new fiscal year."

#### 4. THE REALITY OF PLUG AND PLAY

The promise of plug and play for the enterprise has been that, through an alliance with a specific application server, the enterprise will have the freedom to choose best-of-breed applications from expert vendors, with the assurance that each application will be easily installed and work cooperatively with other plug-and-play software.

This ideal has not yet been realized. One of the major reasons for this underperformance is that most complex aspects of an enterprise e-business application don't reside at the level of the application server, but rather one layer below. This lower layer includes:

- 1) Data repository
- 2) Data models, such as the definition of a user profile, purchase order, or product
- 3) Business logic, such as the workflow of a shopping cart for an order-entry application

Whether they're related to enterprise resource management or to higher-level business functionality, these e-business objects are critical and complex, often 10-100 times more complex than the underlying application server. And the standard for the technology used to program that layer has never been a matter of agreement.

In reality, the application server or "plumbing" of an e-business system is the smallest system cost, yet it is often the subject of intense, unmerited focus. The real challenges of an e-business solution are:

- ensuring that all databases are consistent
- mapping the meanings of all data models across these objects
- encoding a precise translation from rules and operations in real business operations to underlying business objects

Meeting these challenges is absolutely vital when starting from scratch or choosing parts of solutions from vendors who use different databases and differing business logic. An end-to-end e-business application ensures a consistent underlying data repository, a common data model, and streamlined business logic. BroadVision provides this through its support for CORBA, COM, XML, LDAP, and enterprise databases like Oracle, Sybase, Informix, and Microsoft SQL Server.

## Real World: Ourhouse.com Takes Action in Competition with Market Heavyweights

Ace Hardware's online business spin-off is Ourhouse.com, providing expertise and equipment to homeowners and renters working on home-improvement projects. With heavy competition from warehouse-style rivals The Home Depot and Lowe's, Ourhouse.com needed an easily navigable, information-rich site that would set it apart.

"Building a site from the ground up was not an option for us," remarked Tim Britmore, Director of Ourhouse.com. What was needed was a maintainable solution that would help build long-term customer relationships and could be deployed very rapidly, offering:

- a strong commerce engine
- ease of integration
- a strong, flexible foundation of pre-built applications
- order-management and product-catalog logic for a faster start
- straightforward content management

Britmore noted, "Sites built from scratch can turn into the legacy systems of tomorrow." In addition, there's always the risk of losing focus on business objectives. Rather than taking those chances, Ourhouse.com chose BroadVision and was able to go live in a short period of time with full functionality. Britmore and his team are confident that there will be no need to reinvent the system in the future and that integration will be easily managed.

## 5. SCALABILITY AND PERFORMANCE: PRACTICAL DEFINITIONS

The terms performance and scalability are often used interchangeably, when they are actually two different concepts. Both are of utmost significance for an enterprise e-business system, and the two are related. Here are their definitions:

**Scalability:** the ability of a system with multiple available processors to call as many of those processors into service as necessary when system load increases, as well as the ability of that system to be expanded

**Performance:** the ability to effectively increase throughput as needed on a single CPU in response to increased system load

Very often those making IT buying decisions do so with a heavy emphasis on scalability and performance, and rightly so. Many times in technology-evaluation situations, the word scalability is used when performance is the real issue. It's important to note that performance benchmarks on individual applications or on the underlying plumbing of a system are irrelevant if the overall system doesn't scale.

Further, linear scalability and geometric scalability are two different things:

**Linear scalability:** the ability to increase system resources by adding CPUs, with each CPU adding a linear increase in capacity

**Geometric scalability:** the ability of a system to increase system resources by calling upon a complex array of additional resources—typically less efficient than linear scalability

Linear scalability is essential because, without it, the cost of hardware required to ensure scalability becomes prohibitive. BroadVision is the only system with definite proof of linear scalability, and it scales in four dimensions, across:

- 1) Multiple threads within the same process
- 2) Multiple processes/CPU's within the same machine
- 3) Multiple machines (load balancing)
- 4) Multiple tiers of machines

Building scalability into end-to-end solutions is much more straightforward than when dealing with systems made with a patchwork of different applications or those built from scratch.

### **Real World: The Proof of Linear Scalability at Sun Labs**

BroadVision performed a major performance test at Sun Labs in March 2000 in a realistic end-to-end system scenario. Sun used the BroadVision system on three different machines: the low-end E450, the midrange E4500, and the high-end E6500, with practically identical results on all three systems.

BroadVision was able to scale from two to twenty-four CPUs with a convincing linear behavior and average throughput rate of 50 pages per second.

The end result was that Sun agreed to partner with BroadVision in developing the new J2EE standard for e-business applications and provided a significant investment for joint development.

## 6. EASING INTEGRATION AND SPEEDING TIME TO MARKET

Stated simply, integration can make or break an implementation. Back-end and legacy systems in most enterprises not only represent considerable investments, but are responsible for mission-critical aspects of daily business.

The difficulty of troubleshooting an integration is multiplied when numerous solutions and vendors are involved, not all of whom provide 24-hour-a-day, 7-day-a-week support. All too often, the focus turns to solving technical problems and moves away from a tightly aligned answer to the original business problem.

By approaching an e-business system as a time-critical, feature-rich solution that must be flexible enough to change in the future, a vendor offers customers the real prize: faster time to market and freedom to evolve. The BroadVision approach is proven to move customers further down the e-business path while requiring less construction.

## 7. CONSIDERING THE TOTAL COST OF APPLICATION

Anyone considering an e-business system is likely to be concerned with budgetary implications for obvious reasons. Unfortunately, it's easy to factor in the up-front costs of tools, applications, and systems without considering the total cost of implementing an application.

The total cost of an application consists of four basic elements:

- 1) **"Plumbing" or application-server costs:** typically 5% of the total
- 2) **Scoped-out functionality:** about 35% of the total cost
- 3) **Unplanned functionality:** up to 50% of the total cost
- 4) **Integration:** about 10% of the cost and a high percentage of the time

All too often, as the unplanned functionality of a system increases, its performance has a correlating decrease. To address this shortcoming, some vendors suggest eliminating functionality. While this may have been an acceptable alternative in the early days of e-business, it is no longer viable, given concerns with quality of service, customer satisfaction, and reduction of churn.

*"The problem is that customers don't have robust, interoperable software suites for end-to-end E-commerce from a single vendor, and they have to cobble together solutions from different vendors,' which is a costly and slow process, says Laurie Orlov, research director for E-business applications at Forrester Research."<sup>2</sup>*

Don Flores, CIO of CompuCom Systems, recently remarked, "I buy rather than build every chance I get. Technology changes too rapidly and the market is too uncertain to plan and never fully execute. A web site is a work in progress; you are always and changing and improving it. Buying a solution gives you a steady foundation from which to grow as well as easily adapt to changing customer demands and changing business models."

Once functionality has been purged from an e-business system, it is likely to be gone forever. Therefore, the significance of making performance and functionality prime components of an e-business system from the beginning is clear. And that's eminently possible with an end-to-end system designed to offer those fundamentals from the start.

When an e-business solution doesn't address these principles organically, the development process and performance tuning are unending. Additional hardware resources, development dollars, and precious time must be added to the project, affecting the organization's ability to reach the market in a timely fashion. When all is said and done, such delays mean business must be put on hold.

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<sup>2</sup> Ibid.

## 8. THE BROADVISION PHILOSOPHY

After many years of fruitful working partnerships with customers, BroadVision's approach is simply to solve business problems. The company provides a complete line of Internet software, products, and services for enabling large-scale e-business.

As an e-business solutions provider, BroadVision has been on the forefront of the industry in identifying and addressing critical needs that have a direct impact on our customers' e-businesses:

- **Standards:** BroadVision endorses and supports enterprise standards, such as Java, Enterprise JavaBeans, J2EE, XML, and XSL and believes the real issue is the ability to provide mission-critical functionality with unmatched reliability and support on a timeline that helps organizations get up and running swiftly.
- **Open Systems:** BroadVision offers more options for extensibility than any other vendor:
  - **Look and feel, navigation:** BroadVision supports Extended Style Language (XSL), Java Script (JSP), Active Server Pages (ASP), and Java Server Pages (JSP) (6.0).
  - **Lightweight components:** BroadVision supports both Java and C++.
  - **Heavyweight components:** BroadVision provides support for Enterprise Java Beans (EJB), CORBA, and COM.
  - **Enterprise Application Integration:** BroadVision offers support for NEON, STC, TIBX, and VITR.
  - **Content exchange:** Broadvision supports XML.

BroadVision's solution provides the comprehensive e-business functionality that customers demand, which helps promote highly desirable, ongoing, self-service relationships with online customers. The BroadVision system is the only one proven to provide true linear scalability and superb performance in a realistic benchmark of an end-to-end system. Its total cost of ownership is highly compelling, delivering the benefits of both building and buying.

## 9. SUMMARY

In the rush to establish e-business leadership, it's critically important to focus on the real issues of end-to-end functionality, integration and support. No longer are the choices limited to toolkits, mix-and-match systems, or "closed" packaged applications.

Today's enterprise needs an end-to-end solution fast, and it can't accept the risks of uncertain performance, integration, or functionality in the rush to market.

*Analysts believe that the Java approach to software development is creating a stir in the market. Mike Gilpin, vice president and research leader of application development at Giga Information Group (GIGX), explains that the rich solutions offered by BroadVision are more sophisticated and much more developed than those of companies offering emerging component-based servers.<sup>3</sup> (Business 2.0, September 2000)*

BroadVision provides a complete e-business solution that addresses not only the traditional concerns of the enterprise, but new ones born of the Internet age, as well. By avoiding the shortcomings of old-fashioned build and buy approaches, BroadVision is delivering maximum functionality, premium integration capabilities, and the engineering excellence the enterprise demands.

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<sup>3</sup> "BroadVision Faces Competition," Business 2.0, September 2000, page 55.

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