



HURWITZ
& ASSOCIATES

The Integration Imperative

*The ISV Business Opportunities of
Pervasive's Integration Products*

Overview and Summary

The application software market is mature and most of the business applications that an organization needs are already deployed. The major area from which business benefit will now come is through building on this foundation and the major requirement for most IT organizations now is integration.

As new application installs become less common, the following factors become increasingly important for commercial software developers(ISV's) in order to gain competitive advantage:

- Ease and speed of migration from older versions or from displaced competitor applications.
- The ease and speed of interoperability with customers' existing apps and infrastructure.
- Flexibility and functionality to interface with new or other applications.

This white paper discusses the issues surrounding application integration and the relevance of Pervasive's integration products to today's commercial software developer (ISV) customers. In summary the paper makes the following points:

- Integration is no longer an option. It has become an imperative. The dominant trend among ISVs is toward delivering software integration through the addition of new product components.
- Pervasive's family of integration products: Pervasive Data Migrator, Pervasive Data Integrator and Pervasive Business Integrator are aimed squarely at addressing this integration issues. The product family provides extensive data integration capability and also a comprehensive interface to messaging systems and a variety of other software to enable the real-time passing of data and event driven interactions between applications.
- In providing these products, Pervasive enables the embedding of these software components within ISV application packages, so that they can be delivered as part of the general capabilities of the applications package. It will also allow the ISV to apply its own brand to these components or simply resell them or, if desired, refer sales directly to Pervasive.
- Pervasive's Integration products can add value to ISV applications and create additional revenue. The opportunities are:
 - ISVs will no longer to lose precious R&D resources to customer implementation projects
 - The ability to expand an application's capabilities.
 - The ability to deliver more automated deployments and migrations of applications.
 - New revenue opportunity from consultancy and the sale of other software components.
 - The ability to reduce developer and customer costs through improved productivity.
 - Increased customer loyalty through providing a wider and more comprehensive set of products and services
- The time has come to abandon old labor intensive integration methods as they deliver little customer benefit and ISV profit margins can no longer tolerate the costs.

“Integration is no longer an option.”

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The World of Inflexibility

Integration has become the major imperative for the IT industry. It has been enabled by the dramatic expansion of computer networking, which took off like a rocket with the growth of the Internet. Networking brought together a multitude of separate computer environments that were managed in separate ways and ran separate applications. At the same time, applications proliferated and data volumes exploded.

However, many of the business opportunities that this has created have yet to be realized for lack of integration. Much improved knowledge of customers would be possible if the disparate pools of customer data could be accessed. Faster responses to customer requests would be possible if the data interchange technology were in place. Automated interactions within distribution networks and supply chains would be possible, if the applications were capable of it.

Indeed there is no shortage of opportunities for IT to make a difference to the business. We run more applications than ever before and we store more data than ever before and yet only a small part of the business benefits that could be delivered have been delivered.

The Age of the Silo Application

The major problem that has emerged from the proliferation of networking and the dramatic rate of technology change is summed up by the word “silo”.

When older applications were built, they were designed for much more limited environments than the ones that now prevail. In most cases, they were not designed for large-scale networking. In addition, they weren’t designed to integrate with other applications, they weren’t designed to integrate with business intelligence applications or messaging systems such as email, and they weren’t designed to share their data.

In short, they were built as “silos” with little attention given to the idea that they might one day need to integrate or interoperate with anything else.

Through the 1990s the applications trend was towards comprehensive “ERP” application packages, which had “end-to-end” areas of application, with SAP being the dominant product. However such solutions were expensive, slow to implement and unsuitable for the SMB market.

Even in the large corporate market, ERP suites did not completely solve the application integration issue, because many application areas were too niche for ERP to address and new application areas naturally arose with the advent of the Internet; customer relationship management, sourcing and supply chain management to mention just a few.

Thus the problem of application integration persists for all organizations that use IT. Its prominence is reflected in industry surveys. For example, Morgan Stanley’s survey of Fortune 1000 IT executives for 2003 again found application integration to be the area with the highest priority amongst CIOs – as it had the year before.

The CIO’s office is not the only executive layer impacted by integration problems. CFO IT Magazine’s Summer 2004 survey revealed that 74% of CFOs indicated that integration with existing systems was the greatest barrier to implementing new technology.

The fact that the IT integration issue has caught the attention of the CFO should be no surprise, given the ever growing importance of IT in almost all business processes. That integration is now frequently identified as a barrier highlights both a business opportunity and an urgent need to address the issue.

The reality is that most organizations, large and small, find themselves with some level of application integration between their business applications but also suffer an “integration” gap caused by silo applications and an overall silo architecture. This gap impacts the efficiency of business at many points in the organization, but also highlights areas where greater business efficiency can be achieved.

Why Does This Matter?

The prime role of business applications is to automate business processes and make them easier to manage. The problem with silo applications is that they limit the possibility of automation between applications. The applications themselves may be excellent for what they do, but they are inflexible – difficult and expensive to change. They put a brake on further automation.

One of the characteristics of the remorseless march of technology is that the pioneering technology of yesterday usually becomes the expected capability of today and the commodity capability of tomorrow. This is true of applications too. The innovative business application eventually becomes an application that most companies have implemented, and finally becomes a standard part of every business that it applies to.

Financials, HR, Payroll, Manufacturing, Warehousing and many other application areas are covered by a plethora of application packages that competently address the fundamental business processes involved. The problems lie at the edges of such applications – in their integration with other systems; in-house developed systems or web based systems or workflow systems or business intelligence systems or messaging systems or whatever.

This is reflected in software development statistics. The Gartner Group, for example, estimates that corporate developers spend 65 percent of their effort building bridges between applications.

What Are The Solutions?

For most business applications, rebuilding the application itself to remove the limitations it imposes is not a viable option (unless it is the only option). However, there are other solutions, that divide neatly into three possibilities:

- Integrate at the front end via portal technology
- Integrate directly via process-to-process interfaces
- Integrate by passing data.

All of these approaches are valid in some circumstances and none will provide a perfect solution.

The portal idea makes it possible to blend user access to different applications and in limited circumstances it may be possible to pass data from one application to another through the portal, but it leaves the data of the two (or more applications) trapped in the silo and thus is a weak solution.

The second option is the most complex. Currently this is driven by the idea of service oriented architectures (SOA) but in many instances it involves significant re-writing of the applications and it will not solve the data integration problem in a timely, cost-effective manner.

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The most effective solution to integration problems is the last of the three. It requires a highly effective data interchange capability, but where such technology is used it can achieve a number of important goals:

- a) If applied simply between two applications it can enable the true sharing and synchronization of any data that both applications use.
- b) If applied in a comprehensive manner it can become a platform for the synchronization of data that is common to multiple applications.
- c) It offers a natural capability for integrating Business Intelligence applications with other business applications
- d) It can provide a general capability for data exchange and thus can support new applications that “talk XML”.

The ISV Imperative

An ISV’s business depends for the most part on adding further value to the applications that they already deliver to their customers. Thus the trend in the applications market today, toward application integration, provides both a threat and an opportunity to ISVs.

The threat is that their customer base will wither. If their applications are seen as inflexible and incapable of adding much further value then they will be sidelined – and ultimately they will be replaced. Alternatively if their products are seen as foundations that enable application integration, the advantage is that they will put pressure on their competitors and expand their market share. If the ISV’s products are not seen to be part of the solution they will inevitably be seen as part of the problem.

The behavior of SAP, the dominant applications company, provides a guide as to how the ISV market is developing. SAP has moved along the path of application integration in two ways. It introduced CRM and Supply Chain applications as quickly as it could once these markets became active – extending the area of business applications it covered.

However, it also extended the business value it delivers by introducing its SAP Business Warehouse product prior to 2000, following it in 2001 with NetWeaver, its “integration platform”. All of these initiatives proved to be successful efforts to extend the business value SAP could deliver beyond the extensive application areas it had covered. It is now in the process of moving down market to address the small and medium business market.

SAP drove a trend that is still in progress and will continue, as its direct competitors follow in its wake, either through their own technology or through business alliances with other software vendors.

We expect this continuing trend to reach all areas of the ISV market, from the larger ISV customers to the small and from broad areas of applications through to niche application areas. For the ISVs, application integration is now becoming an imperative. ISVs that fail to provide it will instead provide openings for competitors.

Pervasive Integration

Pervasive Software's business is in enabling both the software developer and the IT organization with data infrastructure solutions. Its recent strategy has also been based on extending value beyond its core data management technology into the area of application integration. Particularly important in this was its acquisition of Data Junction and its subsequent release of Pervasive Data Migrator, Pervasive Data Integrator and Pervasive Business Integrator. These three products are particularly important for Pervasive's ISV customer base, as all of them empower the ISV in a substantive way through the application of a common architecture and intuitive design.

Pervasive Data Migrator

Data Migrator is designed for fast "one-time" data migrations and conversions. It has an intuitive interface that allows a developer to quickly analyze and proactively specify a complex data migration or conversion. It includes expression builders for defining complex transformations and it can work from structured or unstructured data schemas. You simply specify the sources of data and the targets, and then set it running.

It comes with an automation kit that includes an SDK and it has an open repository, so data migration designs can be stored and reused. It also includes connectors for more than 160 different types of data sources or targets and a fully comprehensive ETL (Extract, Transform and Load) capability – which can claim to be among the best in the industry.

It has a number of obvious areas of use from creating test data and upgrading applications to migrating from one application to another. It thus has a particular capability for ISVs as it can be used to create embeddable, Windows-based migration engines for distribution to customer sites.

For ISVs the ability to fully or partially automate the migration from a competitor's product to their own product is a powerful offering.

Pervasive Data Integrator

Building on the Data Migrator, Pervasive Data Integrator provides a versatile data loading and data exchange infrastructure for enterprise wide applications. It has particular relevance for Business Intelligence applications, but provides a generic capability that can be used to assist the integration of data between many combinations of applications.

Data Integrator embodies all the capabilities of Data Migrator, but adds:

- A schedulable engine for data collection and data replication with full ETL capabilities
- A distributable architecture
- Bulk loading capabilities

This adds up to a full and comprehensive solution for data integration, which can be deployed as a natural data integration layer to any collection of applications using any of the 160+ plus data sources that the underlying technology supports.

On the one hand, it can provide a foundation for enterprise wide Business Intelligence and on the other it can be deployed so that it provides a continuous data extraction, cleansing, and standardization service between all applications. This service can either be regularly scheduled or run in a real-time event driven way.

Pervasive Business Integrator

At the top of the product stack, Pervasive Business Integrator embodies the full data exchange functionality of Pervasive Data Integrator, but adds messaging interfaces to a host of messaging products and provides specific interfaces to many mainstream back-office applications. The goal of Pervasive Business Integrator is to provide even wider integration capabilities aimed at integration on the business level rather than just the application level.

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Technically this means that it offers support for message queues (i.e. Message Oriented Middleware such as IBM’s MQSeries), and other queues such as email queues and FTP queues. It supports a host of messaging standards, such as SOAP and WSDL through a set of standards based schemas and it has built-in connectivity to many mainstream applications such as software from SAP, salesforce.com and Remedy. The underlying data exchange engines can run as an operating system service to provide real-time response to messages and messaging events and they can be distributed across a network. Additionally, it provides out-of-the box support for many business interchange standards including HIPAA, EDI, EDIFACT and Swift B2Bi.

The Application Integration Dynamic

In summary, Pervasive is providing a suite of products, with three flavors of sophistication, that specifically focus on application integration and which are likely to be particularly attractive to the ISV. Pervasive provides the means to embed these products in an ISV’s application solution to provide an on-going integration capability that will appear to be – and indeed will be, an inherent part of the ISV’s application. Indeed Pervasive has chosen to be very flexible as to how ISVs can make Pervasive’s integration products part of their business model. The ISV can choose to brand the Pervasive components itself or resell them under the Pervasive brand or simply refer sales opportunities directly to Pervasive.

The Pay Off For The ISV

In review, trends in the application market show that the major focus of ISVs, large and small, is turning to application integration, because that is the area that has the greatest potential for delivering value – by removing the barriers between applications.

Pervasive’s integration products focus on adding value to applications in a way that can boost the ISV’s revenues from existing customers and make its products more attractive in competitive situations. The business opportunities are:

Deployments and Migrations

Pervasive’s Data Migrator has been specifically designed to allow ISV’s to deploy systems and application upgrades quickly and in a highly automated fashion. Application deployment and migration is often an important part of an ISV’s competitive edge. Quick application deployments with minimal disruption generate customer confidence and customer satisfaction. The ability to offer and deliver speed and efficiency in this can be a differentiator and deal winner.

Expanding Application Capability

Pervasive is providing an integration platform that can be used in a multitude of ways. One possibility is to build an out-of-the-box automated reporting and Business Intelligence capability for an ISV’s applications. This could give create the opportunity for the ISV to provide consultancy assistance to expand the capability across the customer’s enterprise. Another possibility is the provision of out-of-the-box integration to applications commonly provided by other vendors within the customer’s enterprise.

The business integration capabilities of these products will allow the ISV to expand its product portfolio and offer a more comprehensive business solution either through partnerships or through incrementally expanding the product portfolio into areas where data integration has previously proved to be a barrier. These solutions empower the ISV to focus on its core applications products rather than devoting effort and R&D resources to solving customer’s integration problems.

Much depends upon the business philosophy and priorities of the ISV and the business needs of their customers, but the bottom line is that Pervasive's integration products can significantly increase the relevance of the ISV's solutions without placing much demand on the ISV's effort and resources.

New Revenue Opportunities

While Pervasive integration components can be embedded to provide customer specific capabilities, ISVs will also be able to sell them directly as third party components for use by the customer. Clearly, this will have its greatest relevance in sites where customers retain their own development staff.

Apart from the revenue opportunity of winning the sale, there are specific consultancy opportunities that could naturally arise from providing this integration technology. Most ISVs already garner significant consultancy revenues from their customers, by specializing the application packages that they deliver to provide a closer business fit. Pervasive's integration components open up whole new areas where such specialization can be provided; creating an opportunity for the ISV to expand the services it delivers and increase its skills in understanding and enabling key aspects of the customers' business.

Cost Reduction

The integration tools that Pervasive provides are, additionally, productivity aids in many aspects of software development work. The swift integration and data exchange capabilities delivered to the application environment can also be leveraged by developers to create and manage test databases and test harnesses and to prototype the linking of application components.

Given the extent to which application development usually involves "application bridging" activity there is significant scope for reducing application development and maintenance costs through the application of these tools. The labor saved by Pervasive's integration tools means that the ISV can focus on creating customer value elsewhere.

Customer Loyalty

Customer loyalty is an important issue for ISVs, particularly because of the rise in competitive pressure brought about by the integration of computer networks. As we have already pointed out, it is only the applications that deliver business benefit directly, all other technology simply supports this. Traditionally ISVs have been the primary deliverers of business value to their customers. Now that integration has become a major business issue for most companies, the ability to deliver application and business integration could easily become the determining factor in a customer account.

Businesses will undoubtedly buy application integration, but who will they buy it from? The ISV that dominates in providing this benefit is likely to become the ISV that dominates the customer account.

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This paper was created for Pervasive Software by Robin Bloor and edited by Carol Baroudi of Hurwitz & Associates, a research, analysis and strategic advisory company serving the IT industry.

Robin Bloor is a Partner in Hurwitz Associates and also founder and Chief Research Analyst of Bloor Research, one of the Europe's leading IT analyst and consultancy organization distributing research and analysis to IT user and vendor organizations throughout the world. Contact him at robin.bloor@hurwitzassociates.com.

*Carol Baroudi is also a partner in Hurwitz Associates. Her more than 20 years IT industry experience include her role as VP, Emerging Technologies, at Hurwitz Group, her co-authorship of the best-selling Internet book of all time – *The Internet For Dummies*, information architecture, management consulting and software development. Contact her at carol.baroudi@hurwitzassociates.com.*