

Agresso – VITA vs SOA

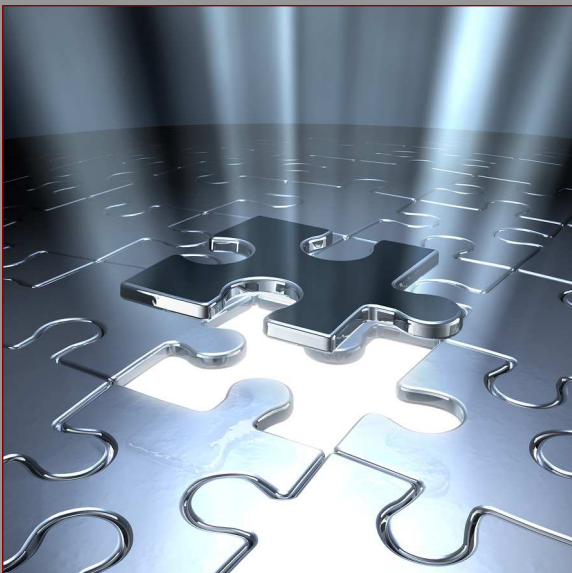
An Analysis of ERP architectural strategies

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October 30, 2009

Compares and contrasts the VITA and SOA architectures as well as the underlying architectures of traditional ERP solutions

This paper provides an analysis that aids in the understanding of the unique value proposition that Agresso brings to the market with its VITA architecture.



Agresso sponsored this study and analysis. This document exclusively reflects the analysis and opinions of Robert Frances Group (RFG), who has final control of its content.

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Executive Summary

Companies and their business environments exist in constant change. New acquisitions, divestitures, geo-political shifts, regulations, and reorganizations occur on a continual basis and a corporate ERP system needs to be able to rapidly adjust to this changing world. As a result, ERP solutions require constant annual resource investments over an extended period in order to reflect the altered states. In fact, the total annual maintenance and support costs can exceed the initial purchase costs. However, Agresso Business World is designed for businesses living in change (BLINC) and can, therefore, be rapidly modified by users (not programmers) to meet the requirements of the day.

Agresso Business World can handle change because Agresso's VITA architecture is unique in the ERP world in that change was an architectural and design requirement from the very beginning – before a line of code was written. The Agresso development team constructed the VITA architecture using the following business requirements:

- Agility
- Cost
- Productivity
- Real-time decision-making analytics
- Simplicity and extensibility
- Speed to market
- User control of change management

On the other hand, other ERP solutions were purpose-built to solve unique individual enterprise resource planning problems and then expanded and modified to support additional use cases. That is, most new ERP components and features of other solutions were designed for specific corporation use cases and then "generalized" for use by others through custom projects and product reengineering. That is why companies have to spend more on installation services and ongoing maintenance and support for most ERP packages than they do for the actual license fees. Moreover, because of the architecture and development methodology employed, the various package products from an ERP vendor do not always integrate well and may require separate instances of the databases. In many cases the individual packages actually hang together through the use of internal software interfaces or, what some call, adapters.

In fact, the service-oriented architecture (SOA) construct as it exists today is nothing more than a set of principles and interface adapters that enable disparate, disjointed applications to work together. It is not truly an architecture but a framework, in that the software components that interoperate together may or may not have a common architecture. SOA, therefore, is a means by which business intelligence, ERP, and other application packages communicate with one another and support business needs. Agresso also supports SOA interfaces so that external SOA-enabled application plug-ins can communicate and provide application services.

RFG believes Agresso's VITA architecture brings a unique value proposition to businesses and corporate executives that is unmatched in the ERP world. It enables executives to become operational faster, more economically, and without a large staff of consultants and programmers. Furthermore, business people can be self-sufficient in its use and modification, allowing companies to respond almost instantaneously to changing business needs without the overhead and delay injected by programmers and

other IT staff. These factors should make Agresso' ERP solution the preferred choice amongst organizations that are constantly changing to meet shifting business and environmental requirements.

VITA Architecture

Agresso recognized that businesses evolve and are not static. The company approached its architecture analysis from the business viewpoint, acknowledging that business processes and organizations are ever-changing. Therefore, it assumed the information desired by users will change, and even morph, as the company and environment shifts to meet the new needs of the business. Thus, it was imperative that the VITA architecture be inherently agile to allow for constantly changing business requirements.

The concept of an agile architecture implies that as businesses adjust to changes in the environment – such as mergers and acquisitions, business model changes, growth or expansion into new markets, new or revised regulatory requirements, and reorganizations or restructurings – the system has to be flexible enough to accommodate these transformations. From a system perspective, this means that the system must be designed to allow for user modifications to business processes and rules, algorithms, analytics, chart of accounts, information models and structures, privacy and security, reports, and user permissions.

Business changes	System impacts on agility requirements
Mergers and acquisitions	Business algorithms and rules
Business model changes	Business processes and workflows
Expansion into new markets	Chart of accounts
Growth	Analytics and reports
New/revised regulatory requirements	Information models and structures
Reorganizations	Privacy and security
Restructuring	User permissions

Hence, the VITA architecture was created to satisfy the need for business flexibility, extensibility, policy- and role-based processes, user-defined procedure (task and approval) flows, analytics, and reports, and scalability. The architecture is delivery-driven and dynamic, not data-driven or static. That is, it is designed around the theory of delivering the desired information to users in whatever format required. In other words, the architecture is built around the concept of capturing, collecting, and storing data and metadata in a manner that allows these elements to be processed, transformed and presented to users in a form that satisfies users' evolving business and information requirements.

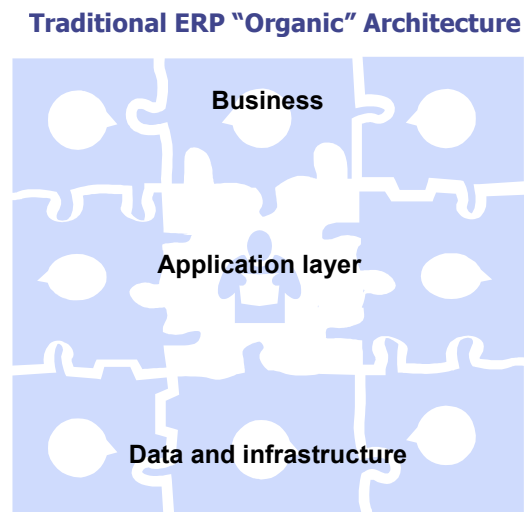
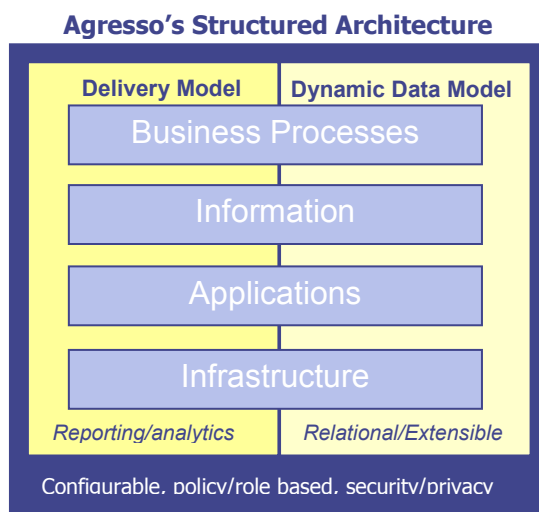
This model is unique in the world of ERP systems in that it is built from the business processes on down, from the results backwards, and incorporates the flexibility commonly used in relational database models. The VITA architectural concept demanded information had to be stored in a relational model so that it can be extracted to meet the informational requirements of different users addressing different

components of the business process. It also implies that the data and metadata are independent of the application that may have created it. Information belongs to the enterprise, must have integrity across the enterprise, and cannot be locked into line of business (LOB) or application appearances. In this way, it can be used, modified, and/or extended by any of the other applications that have a need for the data, and corporate or LOB executives can extract the information they need to predict or respond to market demands.

Furthermore, Agresso uses a single data model for its business logic, data dictionary, information delivery, and process flow across all its applications – business process automation, field services and asset management, financial management, HR, payroll, procurement, project costing and billing, and reporting and analytics. This consistency and cohesiveness enables Agresso applications to seamlessly work with one another and adapt to change without customization or programming modification. Instead it is configurable by the user and users can make "drag and drop" changes to the business views or processes. Thus, whenever a user modifies or creates new information delivery views or processes, or even expands a record format to accommodate new business needs or modifies data attributes, these changes automatically flow across all the VITA applications.

Another powerful component of the VITA architecture is the application design. Applications are stateless, which means that each transaction is independent and unrelated to the previous transaction. In addition, it is Web-based and works with the portal standards in the market. As such, there is no data or metadata embedded in the application or client system making the system highly scalable and, since it supports multiple browsers, it is platform independent for end-users.

Furthermore, Agresso Business World supports multiple databases (Oracle Database and Microsoft SQL Server) and operating system environments (Database server and end-user clients). It accommodates the common standards for application interfaces, integration, and interoperability. Thus, using SOA interfaces non-Agresso applications and BLINC plug-ins can interoperate with Agresso applications.



Other ERP Architectures

The traditional model for development of ERP applications is not conducive to information sharing or changes in a company's business model. RFG refers to this as the static, snapshot development model, which fails to support business change easily. This is how it works. The major ERP vendors develop each new application in conjunction with a particular customer and design the application to meet that customer's unique set of requirements. Additionally, in order to create a cohesive whole ERP package for the user, the vendor provides, at customer expense, services to modify the existing applications so that the package integrates and functions in the current environment. Furthermore, each time the customer wants to make changes, additional services have to be provided to rewrite the code for the new requirements.

These purpose-built "organically grown" ERP applications are then sold to other enterprises under the guise of being a generalized ERP solution. The reality is that significant services were and are required to get these applications to satisfy the requirements of each customer that buys it. In each instance the vendor is modifying code to meet user business processes and other requirements, and to integrate components that are not standards based. Over time adapters are built so that varying components can more easily interface with one another. But just as with the original code, adapters imply that information must be reformatted before it can be shared with other packaged applications from the same vendor.

This application logic also applies to the business processes and databases. That is, the applications are functionally transaction/process oriented rather than information/information flow oriented. Thus, they need to be modified each time users changed business processes. Similarly, the databases are structured to satisfy a unique set of relational requirements. Whenever there is a need to modify the database structures, the application code, data and metadata must change. This rigidity is good if processes and information is fixed. But when companies undergo change in their business model, are impacted by government regulations, or need to address changing customer demands, then this tight coupling of application code, data, metadata, and processes restricts a firm's ability to respond to the new environment.

Service-Oriented Architecture

SOA provides a set of principles for governing concepts and changes, and thereby packages functionality as interoperable services. This allows different applications locally or across a network to service one another through the exchange of data. These services should be viewed as semantically and technically interconnected but not logically connected. That is, they are loosely coupled services and have minimum affinity for one another. For example, one can now take pictures with a camera and download them to one's computer. The sending and receiving systems were designed for different purposes and have different independent architectures. However, common service

architectures and data formats exist so that digital cameras can exchange data with personal computers.

Originally, ERP application providers adopted the SOA constructs so that their applications could communicate with other applications. This enabled the ERP applications to extend their reach into application areas that they did not initially support, such as business intelligence. Agresso was amongst those vendors that adopted this approach to interconnecting to external applications. The success of this interconnect methodology led traditional ERP vendors to recognize the adoption of the SOA framework internally could solve their architectural interconnect problem and allow them to become more agile while avoiding a complete rewrite of the applications. Thus, they have begun the process of adopting it internally as the common interface concept for interconnectivity. This shift will solve the problem of interconnect adapters but still leaves the various ERP applications loosely connected. That is, SOA only partially integrates the applications. Furthermore, it should be noted that this conversion process to SOA and better component integration is not complete and will be ongoing for the next few years.

Most importantly, there is a key design point that is not fixed by the adoption of SOA as the internal interconnect architecture. While connectivity is greatly improved, the modules remain loosely integrated. That is, changes to data, metadata, processes, or workflows in one application are not propagated to the other applications provided by the ERP vendor. Moreover, because the applications are not written so that users can make the changes via user interfaces, it requires a significant amount of IT resources to design, write, and test the changes before they can be put into production. Thus, a SOA architected ERP solution does not mean it is agile and adaptable to ever-changing business needs.

VITA and SOA

The VITA architecture, on the other hand, provides a tight integration of the Agresso business processes, data and metadata. As a result, changes ripple through all the relevant components automatically. Because this is built into the software model, Agresso users can input their modifications directly and the system will automatically propagate the changes throughout the system. All this is done online and the desired results can be obtained immediately.

Conversely, in a conventional or SOA-based ERP environment the applications, business processes, and data are not tightly integrated or easily modifiable by users. Therefore, it is necessary for highly trained IT staff to modify the appropriate elements to ensure all the modifications are made. This can take time – sometime months – to implement so that IT can ensure all the necessary changes were made and that all system components will work as expected once the modifications are brought on line.

Similarly, Agresso applications use SOA to extend functionality to other non-Agresso developed applications. This comes in two forms – BLINC plug-in applications that are specifically designed to work with Agresso applications, and non-Agresso applications.

Use of SOA enables the Agresso Business World applications to interconnect with other applications using a common data exchange methodology. As with any other SOA interconnect, the applications are loosely coupled. Thus, changes in one of the applications or in the Agresso applications do not propagate across the SOA boundary and must be manually made. This is a major distinction between SOA and VITA architectures and should not be undervalued.

To reiterate, the Agresso applications developed with the VITA architecture are designed to ensure business changes can be performed by users and changes need only be made once – automatically propagated across the product line to all VITA applications. However, BLINC plug-ins are not so privileged and like non-Agresso applications, they need to be independently modified. Hence, SOA nicely integrates BLINC plug-ins with the Agresso applications but fails to solve the update propagation requirement.

The Business Value of VITA

Executives, users, and IT professionals have been indoctrinated into believing that business applications are complex and a challenge to install and change; and therefore require vast amounts of expensive specially-trained professional services to design, install, and maintain them. For the most part, unfortunately, this belief is a true fact. But this need not be the case.

The Agresso Business World application suites are the exception. The VITA architecture redefines how executives and users can employ business tools like ERP. It addresses the critical requirements that business and IT executives must meet in today's turbulent times:

- Agility
- Cost
- Productivity
- Real-time decision-making analytics
- Simplicity and extensibility
- Speed to market
- User control of change management

The VITA architecture enables businesses to respond rapidly to constant economic twists and turns, competitive actions, customer demands, government edicts, and acquisition/divestiture portfolio opportunities.

Finance and marketing executives can explore "what if" possibilities using real-time information and make better informed decisions because the decision support system and analytical tools use the same underlying data that drives the daily operations. Plus the simplicity of the tools enables these users to create and experiment with new business worlds and processes without IT assistance or delays.

Corporate executives can execute changes in business processes or restructure organizations without having to wait for IT staff to design, code, test, and regression test application changes. This enables executives to leap onto business opportunities when

the company is ready, not when IT authorizes the change. This speed to market shortens the timeline before the results appear in the top and bottom line financials.

Other business changes, such as regulatory or tax modifications, can be acted upon immediately by qualified business staffers that know the details and ripple effects of the revisions and can ensure the application or process flow adjustments are done correctly. This user capability reduces the potential for error, fines, or failures that can cost the company in added delays, penalties, revenues, or resources to fix the flaws and the cascading impacts that may have arisen. Moreover, users can determine when and how changes get implemented rather than going through a rigid, expensive IT procedure for application of changes. As a result business deadlines are never missed.

Additionally, the VITA architecture automatically propagates changes throughout the entire system. There never need be a concern over ensuring all interrelated changes are applied. This innate intelligence reduces the costs of making adjustments, enhancements, and updates.

On the IT front, the Agresso Business World application suite proves to be a least cost solution. It can be implemented without a host of professional consulting services, which can run up to four times the cost of the software for some other ERP solutions. It can be installed and put into production more quickly at lower cost. Moreover, the annual operating expense is a fraction of that borne by users of traditional ERP systems. This not only improves costs, but improves productivity and allows IT organizations to devote scarce resources to other applications and activities.

Not only does Agresso offer ERP application simplicity but its use of BLINC plug-ins and SOA lets businesses extend the suite into adjacent application areas with minimal impact so that the company can maintain its competitive edge. This extensibility enables executives to take advantage of existing SOA-compliant applications that may be executing on site, in another company data center, or in a business partner's or third-party's data center without the cost of rewriting code. Or executives can install a new SOA package and easily integrate it into the VITA business environment.

No other ERP application vendor can offer business and IT executives the flexibility and user capabilities provided by Agresso through its VITA architecture. SOA helps, but it is an IT integration tool and not an overarching architecture designed to satisfy the dynamic demands of business executives. For business executives and companies living in change only Agresso's VITA-based applications deliver the infrastructure required to stay ahead of the competition.

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