

A New Breed of Data Warehouse

The latest technology helps organizations overcome data warehouse implementation challenges and realize the true value of information



ASG[®]
Software Solutions

A WHITE PAPER

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Executive Summary

The potential benefits of enterprise data warehouse technology are clear: organizations can store and access huge volumes of historical and current information that provide end-users with unprecedented business insight and help them make more informed and timely decisions.

But many organizations today are struggling with challenges that can significantly undermine their investments in enterprise data warehouse technology and keep them from getting optimum payback from these deployments. Among the key challenges are the lack of a viable way to track information end to end, and the general frailty of data warehouse solutions that, in the long term, prevents organizations from getting the value they anticipated out of the technology. In some cases, this can even lead to a disuse of the data warehouse solution altogether.

Many data warehouse projects fail because of the complexities involved. Several years ago a leading research firm predicted that more than half of data warehouse projects would have limited acceptance—or would be outright failures—as a result of data quality issues. Many organizations fail to recognize that they have an issue with data quality, focusing only on identifying, extracting, and loading data into the data warehouse but not taking the time to assess quality, the firm said. Similarly, a Cutter Consortium survey reports that only 15% of respondents classified their data warehousing projects as a success, while 46% of respondents said that these resource-intensive expenditures added little or no value.

Organizations are spending more money on enterprise data warehouses and associated technologies than they thought they would. By the time they factor in labor costs, business intelligence applications, enterprise metadata management, costs to create dashboards, and various services related to data warehouse implementation, the total cost of ownership (TCO) ends up being much greater than expected.

Because enterprise data warehouses are evolving along different dimensions, organizations need to effectively manage metadata to ensure successful use of their data warehouse systems. But current data warehouse offerings on the market limit organizations' ability to manage metadata.

A new breed of data warehouse technology is emerging that addresses many of the implementation challenges organizations face. ASG's BSP™ Data Warehouse, offered by ASG Software Solutions, combines metadata federation technology with the fastest growing database platform, Microsoft® SQL Server®. It relies on technology from ASG-Rochade®, the world's leading metadata repository. The result: an effective data warehouse technology that equips enterprises to realize the true value of their data warehouse investments.

This white paper looks at some of the key challenges organizations face in getting the most out of their enterprise data warehouses and describes an emerging solution that will enable them to maximize their sizable investments in these vast stores of information.

The Strategic Value of Data Warehouses

Enterprise data warehouses are among the most valuable IT resources that an organization can own. Used in conjunction with technologies and applications such as data marts, business intelligence, reporting, and analytics, an enterprise data warehouse can provide increased business agility and help companies compete more effectively and better serve their customers.

According to analyst research, 90% of Global 2000 companies will have implemented some type of business-critical dependency between their data warehouses and at least one revenue-supporting or cost-controlling operational application by 2009, up from less than 25% in 2007.

Data warehouses are standardized data stores that allow enterprises to aggregate vast amounts of information from various systems in different parts of the organization. For instance, if a company has gathered data into dozens of databases operated by a variety of departments and divisions, an enterprise data warehouse provides

the repository for analyzing and comparing this data and delivering historical perspective and trending.

A warehouse gives business users a convenient place to find a single view of a specific customer, market, product, or service. Users inside and outside the organization can make data queries to find out what they need to know when they need to know it. Historical information in a data warehouse, such as buying trends among a certain demographic group at specific times of the year, can enable businesses to conduct the kind of competitive analyses or marketing campaigns that keep them a step ahead of competitors.

By collecting snapshots of transactional data from across an enterprise—everything from order records to customer status reports to support calls—data warehouses describe interactions between an organization and its customers, suppliers, and other business partners. Warehouses therefore provide a record-by-record view of a company's business, taking all that information, organizing it, and putting it into historical perspective.

Among the key drivers of data warehouse implementation are that warehouses enable organizations to aggregate data from a huge variety of systems and applications, such as payroll, order entry, enterprise resource planning (ERP), customer relationship management (CRM), and others. Typical organizations might have hundreds of such data sources that generate many terabytes of information in different formats. Pulling all that information together is incredibly difficult.

Industry Thought-Leaders

"The data warehouse – if it is built properly – should become useful as soon as the first iteration is built, and each iteration makes the data warehouse more useful."

- William Inmon, Inmon Data Systems

Using extract, transform, and load (ETL) tools, organizations can extract data from the different sources, transform it into a common format to fit their specific needs, and load the data into the enterprise data warehouse. Information is then available in a format that is friendly to all types of business users, so they can leverage this information to do their jobs.

Data Warehouse Economics Are Not Working

Data warehouses are by no means new; organizations have been using them in some form or another at least since the early 1990s. Nevertheless, many enterprises still struggle to realize the potential of these enormous data stores, and, in many cases, data warehouses actually lose their value over time. Organizations are not able to ensure rapid, sustainable success.

How does this happen? There are several key challenges related to data warehouse implementation and use.

- **Complex, heterogeneous solutions.** Over time, organizations typically acquire a broad range of heterogeneous solutions for a variety of systems and applications. They use databases from one vendor, business intelligence (BI) applications from another, and ETL tools from yet another. They need to make all these elements work together in harmony, which takes a lot of time and integration work. This is especially true if enterprises have to design their own data models for all of these different technologies.
- **An ongoing effort.** The implementation of enterprise data warehouses generally takes a long time because of the complexities involved.

"How long does a data warehouse take to deploy? The answer is that as long as the business is growing and changing, there will be new additions and changes necessary to a data warehouse," says William Inmon, an expert on data warehousing and author of [*DW 2.0 – Architecture for the Next Generation of Data Warehouses*](#).

"A data warehouse is an ongoing project," says Inmon. "But there is a difference between a data warehouse deployment ending and a data warehouse becoming useful. Done properly, a data warehouse is built in iterations. The data warehouse—if it is built properly—should become useful as soon as the first iteration is built, and each iteration makes the data warehouse more useful."

IT projects that run on for too long can lose the support of senior management and lose budget if they're no longer seen as strategically viable. And given the rapid pace of change in today's business world, senior management might have a lower tolerance for implementation projects that take a long time.

- **Lack of information context.** It's difficult for organizations to get full value out of their enterprise data warehouses because of a lack of information context. Information coming from different applications, such as business intelligence and customer relationship management (CRM), reflect those specific

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technologies and various operational transactions, so they must be summarized by ETL tools and then moved into the data warehouse. It's hard to know what the information really is unless you have full context, and getting that context can be difficult.

- **Difficulty in auditing.** Yet another challenge is that auditing and tracing information and transactions is difficult to achieve with many current data warehouse systems. At a time when many organizations are subject to a broad range of regulatory compliance issues, not being able to easily conduct audits and demonstrate traceability can be a significant risk.
- **Inflexible to change.** Still another significant challenge for organizations is the inability to deal with change and the disruption change can bring. Enterprise data warehouses should be sustainable over a period of years, and they are dependent on many different moving parts. There is almost a guarantee that sooner or later one or more of these moving parts will change, and that change will not be completely reflected in the data warehouse.

"When data warehouses are built under a relational design for the core data, data warehouses can change," Inmon says. "But when the star schema/dimensional model is used, the data warehouse is very brittle and resists change. Star schema/dimensional models are good when the requirements are known and fixed. But where requirements are not completely known and when requirements change, most star schemas are rewritten rather than being changed because they are so brittle."

Because of the inability to consistently reflect change, some of the information in the data warehouse can become invalid over time. Bad information can result in bad business decision making, declining performance, poor business results, and a lack of confidence among data warehouse end-users. Workers will use the data warehouse less and less.

In a 2007 report on data management, Gartner says, "as important as managing and controlling the data itself will be the capture, analysis, alignment, and dynamic use of metadata. By using techniques and technologies for modeling and metadata management, organizations can begin to simplify the process of relating their diverse data structures—including all aspects of the content continuum, from highly structured to less structured content—and expose data in a way that ensures semantic consistency and improved transparency."

- **Unanticipated costs.** Many companies are spending far more than they anticipated on enterprise data warehouses and the associated technologies, such as BI and reporting tools.

When they factor in labor costs, BI applications, enterprise metadata management, dashboarding, and other services related to data warehouse deployment, the TCO becomes much higher than they originally planned for. The cost of metadata management alone can be daunting. In fact, some sources estimate that half the cost of maintaining an enterprise data warehouse involves the management of metadata.

More Information

A new breed of data warehouse is emerging that addresses the implementation and cost challenges organizations face.

At a time when major technology costs are being reviewed more stringently by corporate finance departments—and particularly during slow economic times—IT executives need to be able to justify the TCO for technology projects. Even more, they need to figure out ways to reduce total costs. Organizations are looking for cost-effective data warehouse solutions that they know will be sustainable over a long period of time.

What do all of these challenges and hurdles add up to? Data warehouse economics are not working. Organizations are spending huge amounts of money on implementing, maintaining and supporting these systems, and not getting the value they anticipated. The return on investment, if there is one at all, takes much longer than originally expected.

The ultimate failure of a data warehouse project reflects poorly on the IT organization and on the enterprise as a whole. If customers and suppliers rely heavily on the data warehouse for information access, the negative impact of the failure can be even worse than if dissatisfaction were limited to internal users.

The New Breed of Warehouse

A new breed of data warehouse technology is emerging that addresses the implementation and cost challenges organizations face. This solution will combine metadata federation technology with the fastest-growing database platform, Microsoft SQL Server. The result is an effective data warehouse technology that enables

enterprises to realize the true value of their data warehouse investments.

ASG Software Solutions, a provider of management solutions for business service, IT infrastructure, operations, metadata, performance, application lifecycle, identity, and content, has developed a new data warehouse offering called ASG's Business Service Platform™ (BSP™) Data Warehouse.

The new offering, which ASG has built on the Microsoft SQL Server, integrates ETL, business intelligence capabilities, data models, and data warehouse models for specific industries. It also integrates management capabilities using ASG's BSP, which enables organizations to proactively monitor, report on, and manage business services.

Microsoft SQL Server is a key factor in the enhanced functionality of this new breed of data warehouse. In terms of building a data warehouse, SQL Server provides a visual development environment to build reports, cubes, and ETL packages; an enterprise data integration platform; connectivity to heterogeneous data sources; and clean and validated data. In terms of data warehouse management, SQL Server enables enterprise scalability to load larger volumes of data into smaller batch windows, visibility across all data warehouse workloads, continuous availability, and simplified management.



More Information

To reduce complexity and address metadata management, ASG and Microsoft have put in place a common stack for core data warehouse and BI functionality.

ASG's BSP Data Warehouse addresses the major challenges of data warehouse implementation and delivers key benefits:

- **Minimizes learning challenges and cross-product inconsistencies.** Because the ASG solution provides a unified data warehouse technology stack based on Microsoft SQL Server, it minimizes learning challenges and cross-product inconsistencies. The provision of process management through ASG-Zena™ simplifies implementation and reliable data flow through the data warehouse and business intelligence stack. This addresses the challenge of implementations taking too long.

- **Manage metadata, end to end.** The solution embeds the ASG-Rochade metadata repository to manage data warehouse and BI metadata end to end. Metadata from more than 20 data warehouse (DW)/BI technologies are integrated into a unified meta-model based on the OMG's Common Warehouse Metamodel, which makes implementation considerably easier. This ensures that full structure and semantics of information are visible and that information flows can be tracked from the source system to a BI query or report. This enables organizations to have the information context they need to get full value out of their data warehouse.
- **True data lineage.** ASG's BSP Data Warehouse provides true data lineage because metadata management is embedded. It's possible to trace data flow and to see all transformations applied throughout the process. The configuration and version management capabilities also ensure long-term auditability of the DW/BI environment.
- **End-to-end impact analysis.** By making relationships between every functional component and every information asset visible, ASG's BSP Data Warehouse metadata management solution provides complete end-to-end impact analysis for any planned change. This capability makes change reliable and visible.
- **Cost-effective.** The combination of heterogeneous technologies chosen to implement DW/BI environments is often prohibitively expensive. The use of the Microsoft SQL Server product family makes the DW/BI stack significantly more economical. Because all of the key software elements are based on the SQL Server, overall pricing for the system is significantly less than comparable data warehouse offerings. The implementation cost of the DW/BI environment is substantially lower than alternatives.

In addition, the integrated collection of ASG technologies, which are offered with ASG's licensing flexibility, adds full management capabilities, which minimizes the total cost of acquisition. The inherently simpler implementation of an integrated solution reduces services, support, and maintenance costs. Combined with the licensing advantage, TCO is minimized.

The integrated solution also includes ASG-Zena, an enterprise-wide workload management tool for distributed operations environments that supports event-based scheduling as well as traditional date- and time-based scheduling methodologies. ASG-Zena provides the integration of legacy applications, ERP and "message-aware" environments such as .NET and J2EE. With ASG-Zena, users can manage workloads and several scheduling points across multiple platforms from a single console.

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More Information

ASG's BSP Data Warehouse reduces the total cost of ownership of a data warehouse, making data warehousing affordable for mid-sized organizations.

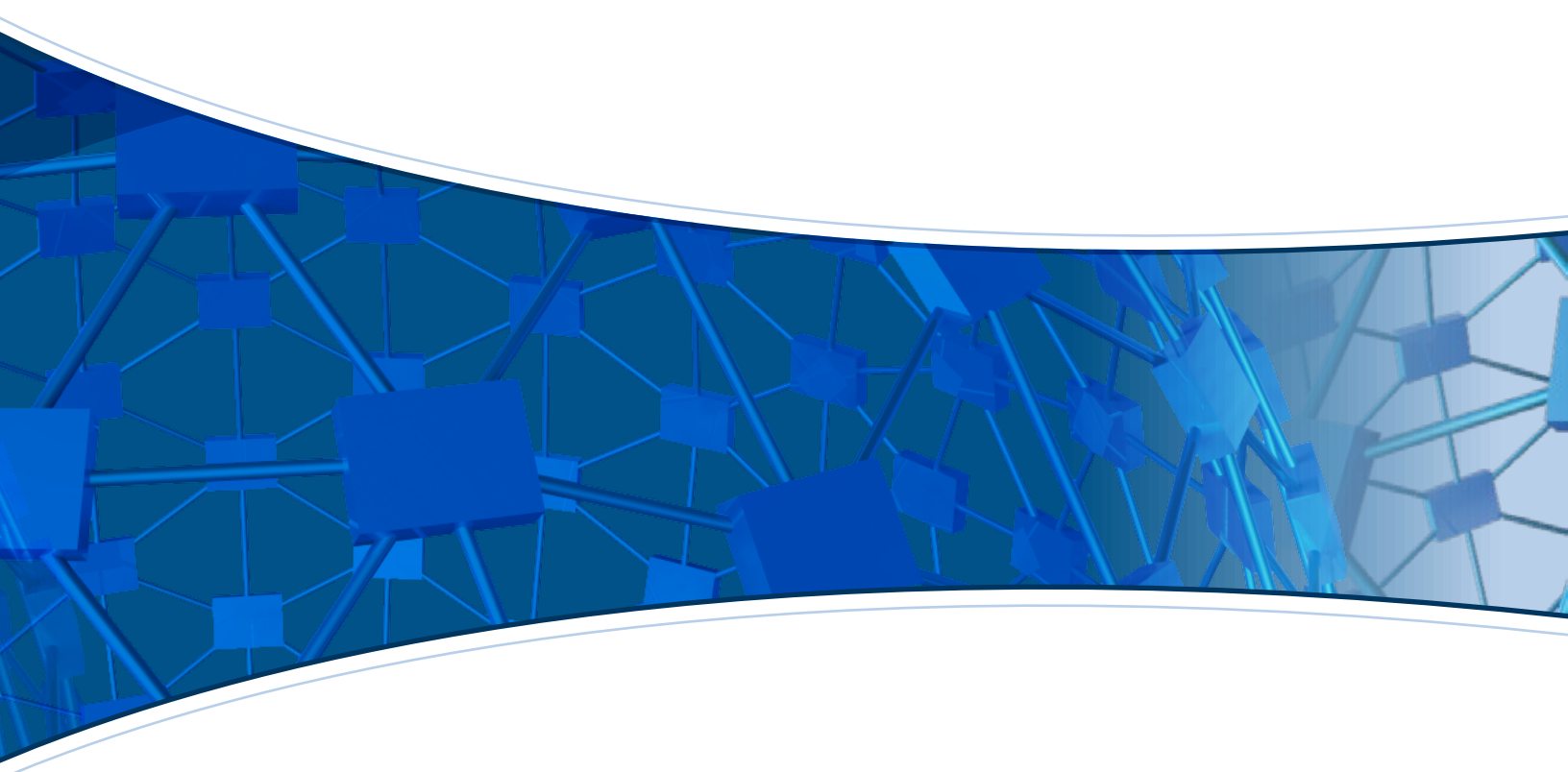
ASG's BSP Data Warehouse also includes ASG-Rochade, a metadata management solution for large and medium-sized organizations. It manages information about data and systems across an enterprise, providing the context for information to help ensure that it is accurate, reliable, and understood by users when they are making decisions that involve diverse sources of data. ASG-Rochade provides a streamlined process for managing metadata from sources throughout the enterprise from a single, centralized location. It can store and disseminate information customized to a particular user's perspective.

These more favorable economic factors make enterprise data warehouse technology far more affordable for mid-sized and smaller organizations that until now have not been able to deploy the technology because of cost constraints. The combination of reduced costs and improved benefits add up to winning data warehouse economics.

Maximizing the Value of Information

Organizations that are able to realize the true value of their enterprise data warehouses can see tangible benefits, such as improved business performance, enhanced customer service, higher productivity, and greater flexibility. These organizations, by effectively leveraging the wealth of information resources that data warehouses contain, stand to have a huge advantage over their competitors. The ability to harness the power of a dynamic information resource that reflects the state of a business at any given time is invaluable.

Implementing and maintaining an enterprise data warehouse is one of the biggest challenges facing IT organizations. But it's a challenge that can be overcome with the latest breed of data warehouse technology. Through effective metadata management, organizations can optimize their data warehouses, leading to faster and more effective decision making, improved business performance, and increased return on investment for their data warehouse implementations. The latest breed of data warehouse technologies, with metadata management capabilities that are critical to the effective deployment and use of data warehouses, allows all types of business users to leverage the information stored across the organization.



About ASG | www.asg.com ASG provides software solutions to over 85 percent of the world's largest companies. Through its comprehensive Business Service Management (BSM) solution, Business Service Platform™, ASG is an established BSM provider with a strong heritage in Content, Metadata, Applications, Operations, Performance, Infrastructure, and Identity Management technologies. ASG enables clients to reduce costs, enhance customer service, meet business objectives, and truly go beyond BSM. Founded in 1986, ASG is a privately held company based in Naples, Florida, USA, with more than 90 offices around the world.

Beyond BSM™

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