

# Evaluating a Single-Vendor Versus Multivendor Approach to Modern Data Management

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Today's data management landscapes have evolved into a complex blend of old and new. The back-office systems of yesterday now coexist with advanced new technologies purpose-built for real-time analytics, cloud computing, and mobile applications. Extracting the most value from information is forcing companies to [rethink approaches to managing data](#). It's a good time to take a new look at an old question: Is it better to work with a single vendor or a collection of specialized technologies?

### **CHANGING DYNAMICS REQUIRE NEW APPROACHES**

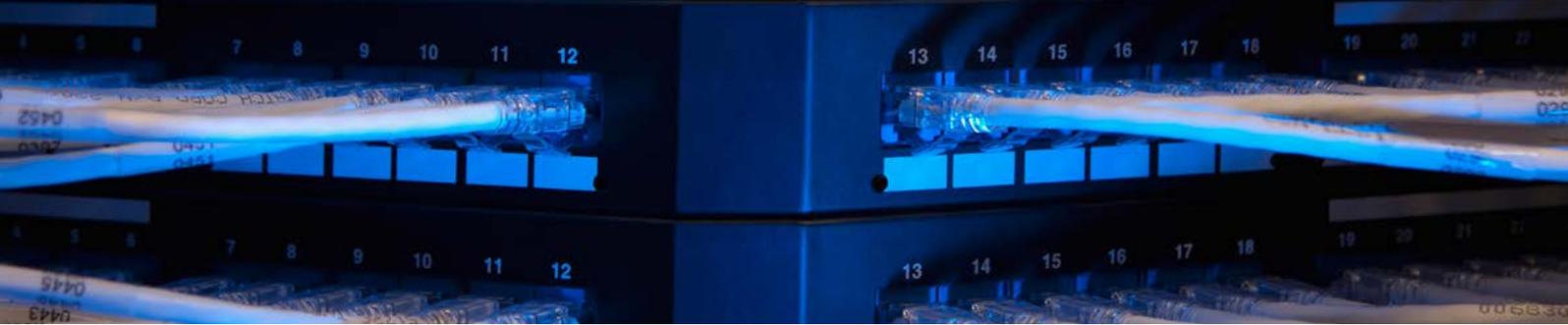
Over the past 30 years, information technology has transformed the business landscape, creating massive advantages through automation and process efficiencies. Naturally, the IT systems driving our business have evolved over time, from the green-screen systems of record in the 1980s to the data-driven applications of today. But the pace of this evolution has accelerated sharply in recent years. Disruptive new technologies have made it possible to leverage more data for faster insights across the enterprise than even before, fueling unprecedented opportunities for innovation. For CIOs, these are exciting but challenging times.

Building the most responsive and value-creating IT infrastructure in a rapidly changing ecosystem is a complex, ongoing task. Companies must decide which technologies are strategically essential, which vendors to work with, what can be outsourced, and what skills are required in-house. These decisions are often at the heart of the long-standing single-vendor versus multivendor debate.

Whether it is better to partner with one vendor or with multiple vendors for core business systems and IT infrastructure is an important question. It's a question that has gained traction as vendors broaden their offerings to deliver more functionality, packaged as suites or bundled solutions. Advocates of suites or bundles argue that working with one vendor reduces complexity and risk. Those who favor best-of-breed approaches – choosing individual market-leading products aimed at solving specific business functions or data management tasks – feel it gives them more choices and keeps their companies on the cutting edge.

In the context of today's hyperconnected business climate and resulting data management challenges, however, the question takes on new dimensions – the biggest of which is the escalating pace of innovation. For today's winning businesses, the ability to harness data for value-generating business activities is an essential competitive advantage. Selecting the right data management infrastructure is vital to a company's success or failure. Ensuring that the chosen data management infrastructure can adapt and support new opportunities arriving at a faster and faster clip is one of the most high-stakes bets a CIO will make.





By partnering with one vendor’s data management solution, some might worry about lock-in and limiting the ability to take advantage of new innovations fast enough. On the other hand, a multivendor approach may afford the comfort of a flexible best-of-breed solution purchased at the

most competitive price, yet the cost (in dollars and time) of tying all the parts together can add significant unforeseen expenses down the road and can carry a potentially higher risk of failure. The table below summarizes both sides of the debate.

### Weighing a Multivendor Versus a Single Vendor Approach

#### Multiple Vendors

Pros:

- Permits best-of-breed technologies for different workloads and tasks
- Involves lower initial costs through more competitive licensing fees
- Avoids single vendor “lock-in”

Cons:

- Architectural complexity creates high downstream costs to integrate and maintain diverse systems
- Testing and running proof-of-concept trials involving disparate platforms and architectures increases time to deployment
- Higher training costs; team members rarely achieve subject-matter expertise levels across every technology
- Higher risks, as incompatible product road maps may create unforeseen disruptions, such as one vendor opting to stop supporting another vendor’s products

#### Single Vendor

Pros:

- Preintegrated technologies reduce complexity
- Fewer training and maintenance costs, and subject-matter expertise levels are reached faster for the chosen technology
- Single platform decreases evaluation, testing, proof of concept, and time to deployment
- Economies of scale afford opportunities for bundled (more price-competitive) license fees

Cons:

- Potential lock-in
- Potential for the pace of innovation to be dictated by the chosen vendor



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## THE ESSENTIALS OF A MODERN DATA LANDSCAPE

Enterprises around the world currently spend hundreds of billions of dollars each year on infrastructure software. They are largely investing in data and data management tools to mine new types and sources of data and to take advantage of cloud, Big Data, and mobile technologies. It's a significant investment, reflecting the fact that more companies see and treat data as a game-changing strategic asset.

Many enterprises rely on a variety of platforms to address unique and specific data management requirements. Ongoing research by Enterprise Management Associates indicates that nearly 65% of respondents are using two to four platforms, implementing fairly complex and diverse combinations of technology to power a range of modern data management requirements.<sup>1</sup> These different workloads and requirements now typically span:

- **Operational data management** – Operational workloads are associated with the day-to-day systems and applications that run our businesses and organizations. They contain the business records, electronic documents, and countless other informational artifacts. Data sizes can grow into the terabytes, with these systems fueling “extreme transaction processing” systems found in securities trading, telecommunications order provisioning, or online gaming.

- **Operational analytics** – These workloads help companies summarize, predict, and categorize business operations. The software systems, including data warehouses and data marts, support a range of business intelligence needs, such as performance analysis and financial reporting. They also integrate advanced analytics techniques such as customer segmentation, predictive analytics, and graphs into operational workflows to provide real-time insights that improve business processes.
- **Advanced analytics** – Organizations in every industry want to make sense of the massive influx of Big Data. Analytics engines and appliances are used to synthesize traditional structured data with semistructured and unstructured sources of information – and then integrate these results into real-time business processes. When data is properly captured and analyzed, these systems can provide unique insights into market trends, equipment failures, buying patterns, maintenance cycles, and many other business issues, which enable the business to lower costs and react immediately to events as they occur. This kind of event-driven intelligence is the essence of a real-time business.

1. “Operationalizing the Buzz: Big Data 2013,” by Enterprise Management Associates (EMA) and 9sight Consulting, November 2013.



- **Mobile and embedded data management** – Businesses looking for new ways to fuel competitive advantage and growth are increasingly pushing the “point of business” farther and farther away from the traditional data center environment – into the field, onto mobile devices, or to the point of sale. Goods and services are exchanged without human intervention through intelligent appliances and kiosks. Sensors built into the infrastructure around us capture vital business data that is used to personalize business interactions and service delivery via the Internet of Things (IoT). These next-generation applications require a secure and seamless flow of data that ensures anytime, anywhere access to information and business functionality and introduces a range of data management complexities.

As data-driven workflows become more diverse and dependent upon different data stores and different types of data, infrastructure choices must also encompass strategies for unifying data, streamlining end-to-end business processes, and lowering operational costs. These choices include:

- **Data provisioning and integration** – The process of making data available in an orderly and secure way to users, application developers, and applications is a significant challenge for organizations that want a unified view into data. When data exists in multiple formats across multiple systems, architects must spend time writing code to access and transform the data, rather than on value-generating business applications. Data federation has emerged as an alternative to unwieldy, centralized data warehouses. By creating a data services layer that retrieves data from its original location, and by providing it to users and applications as needed, federated data warehouses are easier to implement and less disruptive.
- **Data governance** – Ensuring that data is accurate and trustworthy across all business systems and processes is a discipline that encompasses both technology as well as organizational processes for monitoring, measuring, reporting, and remediating data quality issues. Given the scale and complexity of managing data across diverse systems and platforms, tools to help automate data governance practices are an essential element of the modern data landscape.

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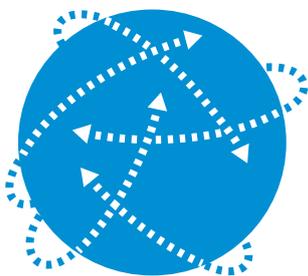
- **Data modeling and enterprise architecture** –

As the data landscape grows in complexity, it becomes harder to see the impact of change as new requirements emerge. Enterprise architecture tools capture, store, structure, analyze, and present information about the organization's data assets, and they help operationalize new architectures with less risk and disruption. When organizations can visualize the future state, based on a solid understanding of the current environment, they are better equipped to understand, agree, and stay aligned with business goals.

- **Business process management** –

The complex orchestration of tasks, activities, and workflows employed in running any organization often involves data from multiple places. Manually documenting relationships between systems, data, and people is time consuming and error prone. Making changes to workflows in order to adapt to new opportunities or requirements is difficult, and this difficulty is only exacerbated by how quickly the IT ecosystem is evolving.

In light of this diversity of data management workloads and technologies, the discussion around a multivendor or single-vendor approach needs to be reframed for the era of Big Data; social, mobile, and cloud computing; and the Internet of Things. The question becomes this: Which vendors offer the technologies that can span (or easily integrate with) a wider and wider range of challenges – and keep pace with a rapidly evolving business and technology ecosystem?



The potential economic impact of the Internet of Things is estimated in the trillions of dollars, generated through improved operational efficiencies as well as new revenue-creating products and services.





## KEY TRENDS IMPACTING DATA MANAGEMENT DECISIONS

Enterprises face growing challenges in delivering accurate, trustworthy data to satisfy a broad spectrum of existing and emerging business requirements. Business users want instant access to data to support real-time decision making, while IT wants to lower cost, minimize complexity, and improve operational efficiency. To meet these new business requirements and stay competitive, IT teams will need to revisit their data management strategies and capitalize on opportunities created by the trends outlined below.

### Big Data Comes of Age

Commodity hardware, low-cost storage, and advances in memory technologies are making it possible and practical to leverage new sources of data for more business processes and decisions. In an ongoing study, 53% of respondents had active Big Data systems in operation in 2013, almost double what was reported in 2012.<sup>2</sup> Across almost every industry or sector, companies are grappling with vast and growing amounts of information. Data is generated by business operations and enterprise applications. People generate vast amounts of data that companies now want to analyze and act on, such as Web-click trails, social media tweets and posts, and e-commerce behavior. Machines also generate massive data

streams that can be useful for businesses – from RFID tags and mobile devices to other embedded sensors. Harnessing large volumes and a variety of data is a worthy achievement, but it is not enough, because data tends to have a short shelf life. IT organizations must also find a way to deliver it quickly to business users so that decisions can be made in time to have a real impact on productivity, profitability, and efficiency.

### In-Memory Computing Changes the Playing Field

Today, in-memory computing is dramatically changing the IT landscape. Many organizations are moving to in-memory computing, which offers performance improvements in orders of magnitude over the disk-centric architectures designed in the 1980s and 1990s. Traditional operational systems are impractical for running complex analytics or simulation models, which can seriously impact performance and take hours to complete. In-memory computing can remove these limitations, performing advanced analytics in minutes instead of hours. According to Gartner research, “By 2018, at least 50% of Global 2000 companies will use in-memory computing to deliver significant additional benefits from investments in ERP.”<sup>3</sup> Line-of-business users will be able to do analyses that were previously impossible on live transactional data, driving a new wave of innovation in business performance and efficiency.

2. “Operationalizing the Buzz: Big Data 2013,” by Enterprise Management Associates (EMA) and 9sight Consulting, November 2013.

3. “Predicts 2014: In-Memory Computing Will Be Adopted to Deliver High-Impact Business Value,” by Massimo Pezzini, Valdis Filks, Nigel Rayner, Errol Rasit, Andrew Norwood, Joseph Unsworth. Gartner, November 25, 2013. Research Note G00258082.



## **The Internet of Things Will Disrupt the Status Quo**

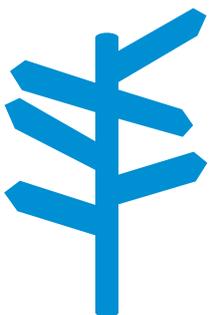
The IoT is widely considered to be one of the most disruptive technology trends of the next decade, with sweeping implications for businesses and policymakers. The potential economic impact of the IoT is estimated in the trillions of dollars, generated through improved operational efficiencies as well as new revenue-creating products and services. As the IoT moves to the mainstream, enterprises need to be ready to fold increasingly intelligent assets into the IT landscape. It is a vision that requires a technology infrastructure that can capture data securely from hundreds of thousands of end points, handle Big Data affordably, and provide powerful real-time analytics to large numbers of people.

## **Consumerization of IT Continues**

While IT departments grapple with the complexities associated with more and new types of data, they must also address their users' insatiable appetite for faster and faster results – anytime, anywhere, on any device. Mobile devices used at work will increasingly be owned by employees in the coming years, with users exerting more control over IT deployments than ever before. Bring-your-own-device trends will require IT teams to devote more time and budget to security and mobile device management.

## **Business Moves to the Cloud**

Cloud-enabled IT infrastructure represents a fundamental change in how software is deployed and used. In the cloud, multitenancy affords massive economies of scale made possible through the sharing of infrastructure across many users. These economies create a persuasive business argument for moving more enterprise workloads to the cloud, in effect outsourcing IT infrastructure and operations to a much more cost-effective paradigm. Early concerns around security and complexity are quickly being overcome by maturing technologies. There are many options today, including private cloud and hybrid cloud, with different degrees of service-level agreements and costs that make it easier to run enterprise workloads in the cloud. The reality is that enterprise applications and IT infrastructure will continue to live across multiple environments – in the cloud and on premise – and managing complex IT operations in a hybrid model will require a careful strategy.



Today's data landscape involves decisions and trade-offs between a wide variety of specialized technologies that can support extreme transaction processing, real-time analytics, a new generation of mobile applications, and cloud delivery models.





## SAP® DATA MANAGEMENT DELIVERS MORE VALUE

For more than 40 years, SAP has helped highly successful companies run their businesses better. As cloud, mobile, and in-memory computing open up new requirements for real-time data access, SAP has recognized the need for a radically new approach to managing data. Today's leading companies must master the ability to leverage information in real time for competitive advantage and innovation – while keeping costs as low as possible. The SAP® Data Management portfolio does just this. Preintegrated technologies, optimized for different workload requirements, all work together to let you process, analyze, and deliver complete and accurate information at any speed to any application or user located anywhere – with low TCO.

Can one vendor offer the technologies that can address the wide range of data management challenges CIOs now face? SAP believes it can.

### Optimizing the Mix in a Unified Framework

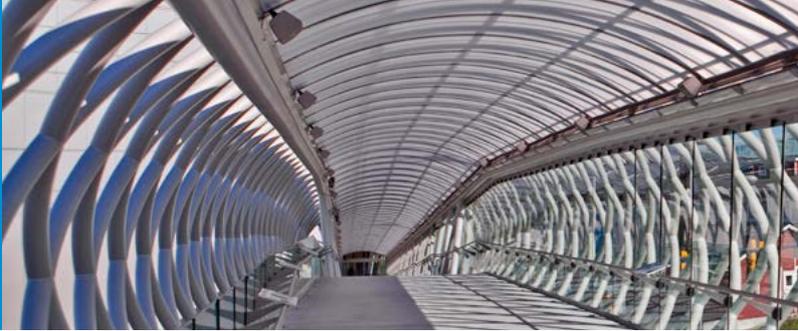
SAP Data Management includes in-memory, transactional, analytical, and mobile data management solutions that can be deployed independently or together to solve a broad range of business and technical requirements. Technologies that are market-leaders in their own right are designed to work together to solve critical business needs without the costly custom integration and administrative overhead that is typically associated with multivendor approaches.

### Common Platform Deployments

Many of our customers are discovering the value of implementing multiple SAP Data Management technologies in one unified SAP landscape that can span both on-premise and cloud deployment models. Typically, they do so for two primary reasons: to cost-optimize technologies for specific workloads or to capitalize on breakthrough technologies for competitive advantage. The most common deployment scenarios are as follows:

- **Extreme transaction processing** – Today's transactional systems are often exceptionally demanding, serving tens of thousands of concurrent users with split-second response times. Leveraging a combination of in-memory and disk-based databases enables SAP customers to accelerate the performance of their ERP and other mission-critical business applications as data sizes grow into the terabyte and petabyte range.
- **Near-line store (NLS)** – Companies are accumulating more and more data for analysis and reporting purposes. Data is growing at double-digit rates each year and can place a strain on warehouses and data marts. But not all data is equally valuable, and moving less-used historical data to a near-line store where it can still be easily accessed is far more economical than keeping it in the primary warehouse or an in-memory system. By tiering data accordingly, customers can provide transparent access to real-time and historical data in the most cost-effective way.





- **Real-time analytics** – In-the-moment insight and the data-driven process are strategically critical for a growing number of companies – from retailers delivering in-store personalized promotions to financial markets. SAP software is enabling companies to quickly analyze and act on events as they happen through an orchestration of complex tasks, from combining multiple data sources to filtering out what is irrelevant and surfacing actionable data – at very high volumes and in real time.
- **Secure frontline and IoT applications** – SAP solutions for the IoT provide everything enterprises need to translate IoT opportunities into business value – machine-to-machine connectivity, cloud platform, device management, Big Data processing, event stream processing, predictive analytics, and industry applications.

### Sources of Value

In analyzing hundreds of customer deployments, we find significant evidence of the value of SAP's portfolio approach to data management. For the companies and organizations that have implemented two or more SAP Data Management technologies, we see value categorized in the following ways:

- **Competitive advantage** – SAP Data Management centers on groundbreaking in-memory computing to harness the value of massive data for actionable insight in the moment – so you can run your business smarter, faster, and more efficiently.

**Example:** In the semiconductor industry, the SAP HANA® platform and SAP Event Stream Processor (SAP ESP) capture and analyze terabytes of machine-generated data in real time. Timelier insight into what's happening on the plant floor improves yield and reduces rework, recapturing millions of dollars per plant each year.

**Example:** In the healthcare industry, SAP HANA analyzes Big Data up to 400,000 times faster than conventional databases. Genome extraction analysis that used to take days can now be performed in less than 20 minutes, which is revolutionizing cancer treatment.

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“SAP's vision is focused on enabling a paradigm shift in data management: transforming enterprise IT departments from complex and slow landscapes to a simplified architecture that enables new classes of Big Data, cloud, and mobile applications.”

~~Dr. Vishal Sikka, Member of the Executive Board of SAP AG, Products & Innovation~~





- **Lower operating costs** – SAP Data Management minimizes unnecessary data fragmentation by unifying all types and sources of data within a common framework. This frees developers from the high overhead costs associated with integrating heterogeneous landscapes.  
**Example:** A leading agricultural products company uses SAP Adaptive Server® Enterprise (SAP ASE) and SAP Replication Server® to help ensure real-time availability of 2.5 TB of data for inventory tracking, commodities trading, and many other daily decisions. Higher performance and greater efficiencies have contributed to a reduction of US\$29 million in annual operating costs.
- **Lower capital costs** – By combining powerful, in-memory database technology with other purpose-specific databases in one unified environment, you can intelligently optimize data wherever it resides – in memory, on data center disks, on mobile devices, or in the cloud.  
**Example:** Financial services firms combine multiple SAP technologies to modernize risk management and monitoring systems. SAP HANA, SAP IQ software, and SAP ESP are used to support real-time, intraday, end-of-day, or historic risk analysis far more effectively and efficiently. Consolidating vast amounts of data in an efficient column-store database such as SAP IQ reduces storage requirements up to 70%.  
**Example:** A multibillion-dollar sugar producer shifted the cost of managing more than 100 physical SAP software systems and servers to a 100% cloud-based model. By running critical business applications in the SAP HANA Enterprise Cloud service, the company can close books faster, optimize the supply chain, and free up resources to focus on more value-generating activities.
- **Lower software and support costs** – Complementing SAP application software with data management products that are also from SAP gives customers the advantage of bundled licensing fees that are lower on a per-product basis.  
**Example:** By migrating its SAP ERP application from the Oracle database to SAP ASE, a global engineering and services firm will save US\$300 million annually on maintenance alone. One global point of contact and bundled licensing terms has provided hundreds of customers with a compelling business case for moving SAP operational and transactional systems to SAP ASE or SAP HANA.
- **Reduced risk** – Across the various SAP Data Management products, upgrades are planned and delivered holistically; an upgrade to one product won't create disruption with another product. In addition, a global point of contact results in faster deployment.  
**Example:** Oracle's announcement in March 2011 that it would no longer support the HP Itanium platform forced many SAP customers to make hardware choices outside the scope of normal refresh cycles. Many SAP customers are deciding to eliminate the risk of incompatible technology road maps by moving to an SAP Data Management landscape. Doing so eliminates these types of unplanned impacts, and a unified data framework creates a smoother path to SAP HANA or SAP HANA Enterprise Cloud.



## CONCLUSION

A decade ago, data management decisions were simpler. A company might consider the best platform for online transactional processing systems or reporting systems, but not much more. Today's data landscape is far more complex, involving decisions and trade-offs between a wide variety of specialized technologies that can support extreme transaction processing, real-time analytics, a new generation of mobile applications, and cloud delivery models. The fact is, specialized technologies that can meet a wide range of business requirements are essential to innovation and for staying ahead of the competition. Implementing purpose-built technologies from multiple vendors can create significant downstream costs in terms of integration and administrative complexity. With SAP software, you can leverage the optimal mix of data management technologies within one unified landscape, allowing you to adapt quickly to new requirements and capitalize on innovations – with less risk and lower overall costs.

## LEARN MORE

To create and maintain a competitive advantage, IT must provide cost-effective data management solutions that drive innovation while promoting faster, more accurate transactions and analysis. SAP® Data Management software offers game-changing innovation through unprecedented speed for transactions and analysis at the lowest total cost. Data management technologies from SAP can help you adapt better to changing opportunities and priorities, operate better to reduce costs and manage risks, and envision fundamentally new ways of running your business for distinct competitive advantages. To learn more, visit [www.sap.com/database](http://www.sap.com/database).



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