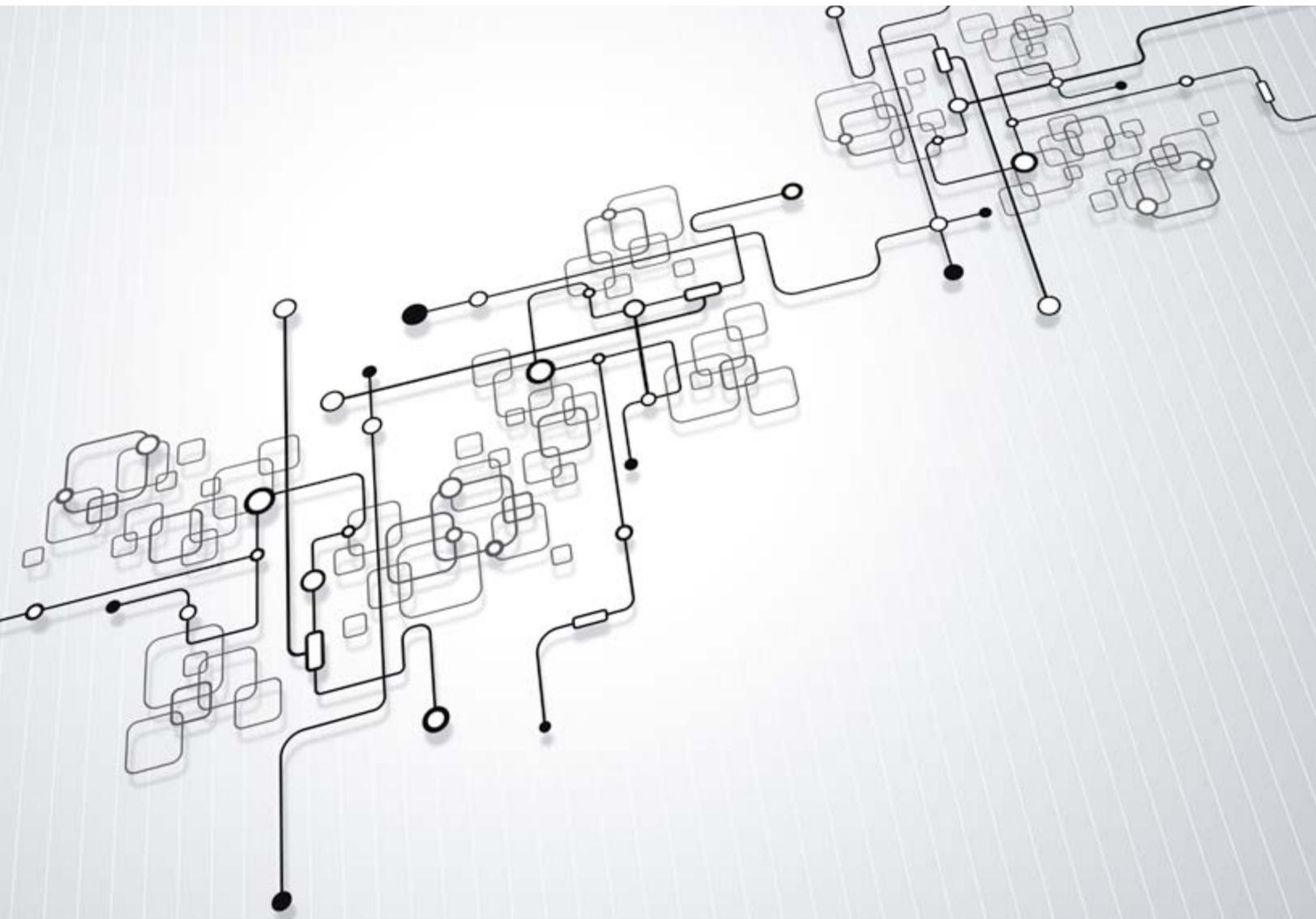


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GUIDE



Bringing Together ESB and Big Data

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Big data is one of the hottest topics across IT and business. IDC has called big data one of the four pillars of the IT industry's next dominant platform, along with mobility, social networking and cloud services.¹ McKinsey & Co. has characterized it as "the next frontier for innovation, competition and productivity."² And Gartner called big data one of the most important technology trends of 2012, projecting that by 2015, more than 4.4 million IT jobs will be created globally to support big data initiatives.³

¹ *IDC Predicts 2012 Will Be the Year of Mobile and Cloud Platform Wars as IT Vendors Vie for Leadership While the Industry Redefines Itself*, IDC, December 2011

² *Big data: The next frontier for innovation, competition and productivity*, McKinsey & Co., May 2011

³ *In 'big data,' Gartner sees big jobs — 4.4 million by 2015*, SearchSOA, Oct. 24, 2012

Big data is one of the hottest topics across IT and business. IDC has called big data one of the four pillars of the IT industry's next dominant platform, along with mobility, social networking and cloud services. McKinsey & Co. has characterized it as "the next frontier for innovation, competition and productivity." And Gartner called big data one of the most important technology trends of 2012, projecting that by 2015, more than 4.4 million IT jobs will be created globally to support big data initiatives.

One of the driving forces behind big data is the opportunity for organizations to use advanced analytics to take advantage of the massive amount of unstructured data being created both inside and outside the enterprise. Email, social media, tweets, customer interactions, collaborative software and other applications create a wealth of new information about user interests, buying patterns, habits and other trending data that organizations could use to boost business performance — if they are able to harness it. According to IDC, the number of files being created and stored is more than doubling every two years, and 90% of that is unstructured data.⁴

However, in order to realize the promise of big data, organizations must have in place an overall strategy for data management that is built on a sound foundation of unified and integrated management of all data. Such an approach must start with the transactional data that is critical to strategic business initiatives such as customer relationship management (CRM), enterprise resource planning (ERP), supply chain management (SCM) and business process management (BPM). Central to any unified approach to integrated data management is the ability to capture, analyze and act upon data from a wide range of applications across heterogeneous and highly complex environments. One of the operational tools that can enable this type of enterprisewide data integration for big data initiatives is an enterprise service bus (ESB).

Why ESB and Big Data?

An ESB provides a flexible connectivity layer to implement the interaction and communications between heterogeneous applications. With an ESB in place, organizations can reliably and securely integrate distributed systems and remote locations while reducing the number, size and complexity of application interfaces. With certain ESB products, specifically those from Talend, organizations can use a single user interface and centralized console to speed the deployment and upgrade process for Web services, REST applications, data services and messaging routes.

⁴ *Extracting Value from Chaos*, IDC Digital Universe Study, June 2011

How does an ESB enable big data initiatives? Several ways:

- 1. Helps address the issue of variety, including the integration of structured and unstructured data.** Real-time information can come from a wide range of sources, including social media, email, mobile devices and even embedded sensors in energy meters, cars and other objects. But for data-driven organizations to access, analyze and act upon that data, it must be integrated into the existing application environment, including your ERP, CRM and SCM systems.
- 2. Helps address complex technological challenges.** To achieve a successful big data initiative, organizations have to acquire, integrate and manage several big data technologies, such as Hadoop, MapReduce, NoSQL, Pig, Scoop, Hive Oozie and others. Integrating large data sets of structured and unstructured data can be an expensive custom-coding project that will also be extremely difficult to maintain and manage. Conventional data management tools fail when trying to integrate, search and analyze big data sets.

If you think about how big data can impact an organization's ability to deliver competitive advantage through real-time analytics and actionable information, it is easy to see the advantages of a unified data integration platform that includes an ESB. For any order that comes in — say, through a Siebel CRM or SAP ERP application — there will be a flow of data and movement across the ESB. But what if the organization has access to additional data that might not necessarily be captured in the customer order process? If it has, for example, data captured through Facebook, Twitter or even an email interaction with that same customer, that information could be used to upsell, offer a new product or improve the customer experience in any number of ways. The combining of the world of structured data with the world of unstructured data is the real promise of big data.

Exploring the Promise of Big Data and ESB

For most organizations, fulfilling the promise of big data is something that is still on the horizon, particularly when you consider the challenge of combining big data initiatives and unstructured data with existing mission-critical applications platforms. Big data is a complex topic, both as a technology initiative and as a business initiative. While most organizations are aware of big data, they are not necessarily sure how to deploy it and take advantage of it. As such, many enterprises have product teams that are investigating solutions for integrating big data with existing enterprise applications.

As organizations explore the potential for big data, they are finding dramatic and exciting use cases across a wide range of industries and applications, from sentiment analysis to predictive analytics, risk management, fraud prevention, retail banking, digital marketing, channel optimization, targeted advertising and many, many others. Here are just a couple of examples:

- **Retail:** One of the big data use cases that many people can relate to is in retail, where there are a number of opportunities for organizations that can rapidly utilize advanced analytics to target specific customer behavior. If, for example, retailers know that certain types of toys, clothing or electronics have a particular appeal to shoppers who go to stores on Black Friday, the day after Thanksgiving, they can adjust their inventories, structure their discounts and create promotional programs around specific customer interests. Their promotions could change during the course of the day, based on observed customer behavior, and marketing incentives could be pushed out to customers via social media as they are shopping.
- **Financial services:** Financial services firms, with their massive amounts of data and the high velocity of their applications, are finding widespread use cases for big data initiatives. For example, many of these firms are already correlating deep analytics with accounting data, position tracking and order management systems to deal with potential rogue trading problems. They are also correlating data from a wide range of sources — many of which are unrelated to one another — to catch fraudulent activities more quickly than they could using current systems and methodologies.

What these scenarios have in common is the opportunity for organizations to drive incremental revenue, enhance profitability and improve operations and agility by strengthening their ability to access, integrate, analyze and act upon data coming from a wide range of disparate and heterogeneous sources. And that is where an operational tool such as an ESB comes together with big data analytics to enable new and innovative ways of doing business.

Moving Forward With ESB and Big Data

One of the best ways to get started with ESB and big data is to work with an open source ESB solution such as Talend's, which offers a fully unified and integrated platform that can address all of your data management challenges for structured and unstructured

data. You will typically find that such open source solutions are less expensive than proprietary solutions and provide other significant advantages, including:

- 1. Less vendor tie-in:** Even though a solution may be open source, it's not completely open, and you will be buying into your vendor's development environment, which will include proprietary extensions. The extensions and support of a particular environment are one of the reasons you would want to choose a vendor such as Talend, which offers a fully supported and integrated platform. But it is also less proprietary than working with a non-open-source vendor. If you develop in the open source Talend platform, all of your code will be reusable without license. You are much less tied into the idiosyncrasies of a particular vendor.
- 2. Faster time to innovation:** The open source community tends to innovate much more quickly than traditional proprietary vendors. The community is committed to finding solutions to problems, not protecting an installed base. If there is a requirement to change the source code to address a new opportunity, you will get it much more quickly in an open source environment.
- 3. Community support:** Likewise, if there are any new features that are required or bugs that need to be fixed, Talend has a large number of contributors that work together in a coordinated and managed community that provides training, support and unfettered access to information. Everything that happens in the Talend environment is completely transparent.

Choosing the Right ESB Solution

The most important factor in choosing the right ESB solution is to make sure that it comes from a vendor that offers a complete data management and integration platform that incorporates ESB with master data management (MDM), BPM, data quality and data integration. One of your key goals with big data is to get a 360-degree view of the customer, taking into account all of the information that might impact a buying decision or a customer experience. For example, say a customer has created an online account with your e-commerce portal and has been adding comments or "likes" to a certain class of product. This information can be used to market to that customer the next time she visits your site, pays a bill or receives an invoice.

Talend is the only vendor that offers a complete data integration solution that includes ESB, MDM, BPM, data quality and data integration on a single platform. It provides an open source approach and flexible integration platform for big data, which enables

organizations to easily connect and analyze data from disparate systems to help drive and improve business performance. Talend's solutions address all big data challenges and opportunities, including big data integration, quality and manipulation, as well as project governance and administration.

Conclusion

As most organizations know all too well, managing data is one of the most challenging — and important — aspects of doing business today. The proliferation of heterogeneous IT environments and mission-critical applications has demanded solutions, such as ESB, that simplify integration and enable innovation. Without the ability to simply and cost-efficiently communicate and enable cross-development across these applications, organizations would be crippled and innovation would be stifled.

Bringing all of the potential of unstructured data into the already complex world of data integration is no small challenge. It's no small opportunity either. In fact, as we've seen, the potential of big data will be profound, affecting all aspects of our lives and our businesses.

But for big data to reach that potential — and for unstructured data to make that kind of game-changing impact — organizations have to have the right data management technology foundation in place, one that is built on a unified approach and includes critical tools, such as ESB, to enable agility and flexibility across applications, systems and data types. Only then will the promise of big data transform into the reality of big data.