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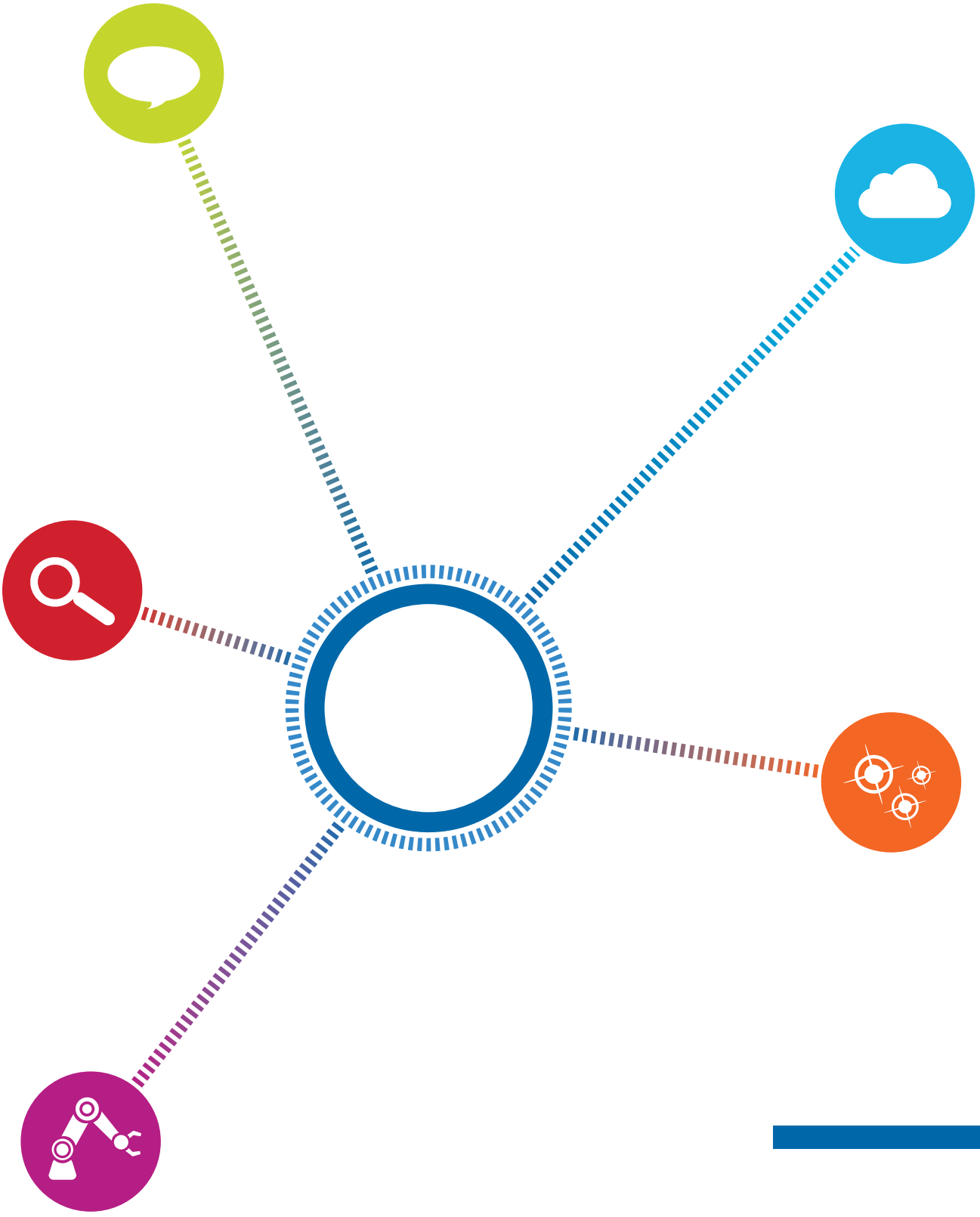
WHITEPAPER

The New Integration
Application Integration in the 21st Century World of Mobile, Social, Cloud and Big Data



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Integrating a New World

For at least two decades, integration has been one of the most powerful approaches to leveraging the value of existing IT assets. By all indications, integration will become even more important in the near future, both for internal and customer-facing processes. Gartner, for example, predicts that spending on integration will increase 33 percent from 2013 to 2016.[1]

But in an IT landscape dominated by big data, mobility, social networking and cloud computing, integration will not only grow in importance, its very nature will change. At minimum, the "new integration" will involve:

- data in motion as well as data at rest, including operational and transient data that will never even be stored in a database or data warehouse
- data in external systems from suppliers, customers, partners, social networks and other sources, all of which lies beyond the corporate firewall, and beyond the control of IT
- data in SaaS solutions and public clouds
- a plethora of smart phones, tablets, and other mobile devices that will need to access all this data in appropriate formats

Not only will the new integration be expected to handle new and unfamiliar data types – it will be expected to deliver business results in real or near-real time. Conventional approaches to integration such as batch-processed ETL will continue to be important, but they will need to be augmented by new technology that can successfully meet these real-time demands.

This paper will discuss the new IT landscape as it relates to the new integration, and argue that the need for a comprehensive integration strategy has never been more urgent. This strategy must not only take new data types into account, but also address the more fundamental issue of agility – because whatever the integration needs of an enterprise may be at the moment, they are certain to change rapidly.

The Real Time Reality

For most IT organizations, the first reality of the new integration will involve the need to integrate real-time data into business processes. There are already countless use cases. For example, brick-and-mortar retail organizations that can track their customers' location have a tremendous advantage in delivering relevant offers via smart phone – at the very moment when customers are most likely to buy. In fact, a customer's physical location could (and probably should) be used to trigger such offers. But relevant offers can only be generated when geo-location data is integrated with other data such as purchasing history, which is likely to reside within an on-premise application. Data from external systems, such as a weather service, may also play a role in offer generation. For example, on a rainy day, umbrellas might be offered rather than T-shirts.

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1 Source: Gartner, Predicts 2013: Application Integration, 14 November 2012

Lean manufacturing can be dramatically enhanced with the precise positional information provided by RFID technology, which of course requires an entirely different set of protocols than GPS data. As with retail use cases, RFID data only adds value when integrated with other applications such as shop floor management or the ERP system.

Logistics and distribution applications may require the integration of these two positional technologies for maximum value: RFID for items or pallets and GPS for ships or trucks.

These are just a few examples of the many, many situations where integrating real-time positional data with other applications delivers business value.

Operational data is another area where real-time integration can produce measurable business benefits. Airlines, for example, can provide better service to their passengers when unscheduled maintenance delays a flight. This event can trigger automated passenger notifications and mitigate inconvenience, while possibly building loyalty – a scarce and valuable commodity in the airline business.

In the energy and utilities industry, integrating operational data with predictive analytics can enable pattern recognition that will prevent problems far more serious than the inconvenience of a few passengers.

The External Data Dilemma

The second reality of the new integration is that enterprise IT organizations will be compelled to deal with data that resides outside the firewall. Gartner's estimate is that by 2017, over two-thirds of all new integration flows will extend beyond the firewall.[2] Obviously, this is not totally unknown territory for IT. In the auto industry, for example, EDI has been in use for decades. What's new is the sheer number of business relationships that require such integration. Examples range from vendor-based inventory to third-party logistics to health care, which is well-known for its multitude of incompatible standards. But whatever the industry, enterprises can look forward to greater and greater integration among suppliers, customers, and channel partners.

Another class of external data that is becoming increasingly important to the enterprise is social data. Marketing departments in particular are eager to take advantage of any data that can contribute to their 360-degree view of customers, and an individual's "social graph" can prove a treasure trove of information in this regard. Facebook now dominates the social landscape, but there is already evidence that more specialized networks will soon begin to proliferate, adding to the integration challenge.

All of these examples – and dozens more that could be mentioned – have one thing in common. They are likely to involve data structures and protocols over which enterprise IT organizations have no control. Even the most basic elements of information such as product names or units of measurement can and will pose problems. Furthermore, achieving stability in standards has proved elusive in the twenty-first century, as the recent struggle over RFID standards painfully demonstrates.

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2 Source: Gartner, Predicts 2013: Application Integration, 14 November 2012

The Cloud Complication

The third reality of the new integration is the rise of SaaS solutions and public clouds. SaaS solutions offer tremendous business advantages to some business units because of their rapid deployment capabilities, elasticity, and "pay as you go" pricing structures. Many IT departments are finding, to their dismay, that business units now feel free to make independent deals with SaaS providers, and only later come to IT with requests for integration with on-premise systems.

Public clouds also offer compelling business benefits. The opportunity to offload non-critical business functions is very attractive and can reduce costs at a time when CIOs are continually challenged to accomplish more with less. While it's true that IT departments can have substantially more control with public cloud applications than they do with SaaS solutions, cloud APIs are nonetheless complex, running into the dozens – and sometimes hundreds – of pages. Integrating cloud applications with those that remain on premise is not simple, in spite of all the marketing hype to the contrary.

The Consumerization Crunch

The challenges of acquiring and processing new classes of data are compounded by the need to deliver that data to new platforms. It has already been established that IT can't "just say no" to the flood of smart phones and tablets which the related trends of mobility, consumerization and BYOD have brought into the business world. Rigidity in this area not only makes enemies for IT organizations. It can also stifle employee productivity. But these new devices must be able to access data and applications for maximum value, creating another set of integration demands for IT. Gartner predicts that integration of data on mobile devices will represent 20 percent of the total enterprise integration spending by 2016.[3]

For IT, aligning to business goals related to the BYOD phenomenon means adapting to constant change. Many companies that initially standardized on the Blackberry have already been compelled to adapt to the iPhone and iPad, and will most likely soon need to accommodate Android platforms and perhaps Windows 8.

The common denominator among all these platforms is that they are subject to unpredictable change, and that change will be in their best interests, not those of the IT departments that have to cope with it.

The Strategy Imperative

In the past, IT departments have most often addressed integration needs on a point-to-point basis, such as the integration of a new supply chain management application with an existing ERP system. Point-to-point projects were typically driven by a combination of a clear business need backed up by reasonable ROI projections. In contrast, broader, enterprise-wide approaches were usually seen as over-ambitious and expensive.

Times have changed. In today's integration-intensive IT environment, with its proliferation of platforms, standards and devices, the old point-to-point approach has serious drawbacks.

Point-to-point integration is almost always achieved by making modifications to the applications involved. This means that further application modifications are required

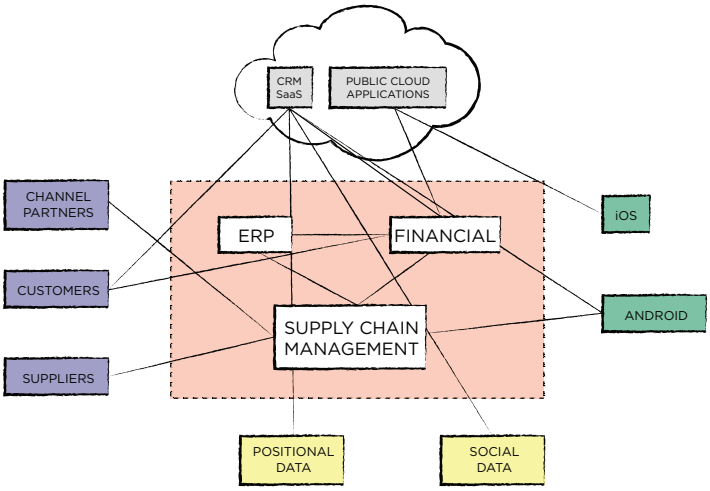
3 Source: Gartner, Predicts 2013: Application Integration, 14 November 2012

every time there's a significant upgrade in either one. These modifications not only consume resources – they can have unexpected consequences – and may even result in contract disputes with vendors. Furthermore, because the work done on Project A is almost always application-specific, it can't be leveraged for projects B, C, D and so on. Each new project must start from square one. If only a handful of applications were involved, this would not be a serious problem. But in the modern enterprise, the number of applications typically runs into the hundreds.

The point-to-point approach isn't only expensive and resource-intensive. It's also slow, and in some cases can severely limit a business unit's ability to react effectively to changing conditions. In summary, the point-to-point approach is:

- not efficient
- not cost-effective
- not agile

Point-to-Point Integration

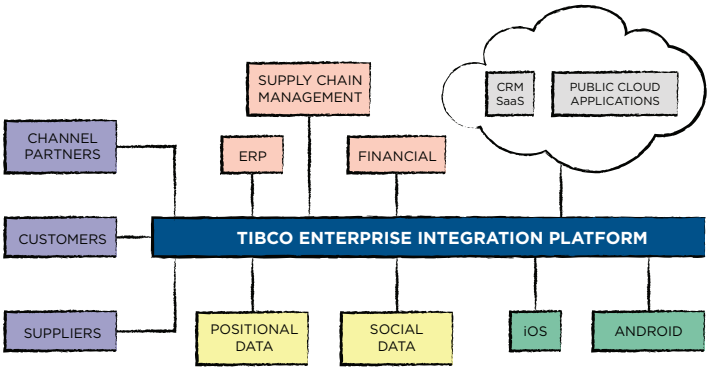


These problems are likely to worsen over time. What's needed is a new integration strategy, with four key components:

- agility to react quickly to change
- flexibility to deal with multiple data types
- ability to support event-driven business processes in real time
- a clear path to ROI, with the possibility of short-term business wins that demonstrate the strategy's business value

In short, an Enterprise Integration Platform can fill all the needs of the strategy outlined above. Furthermore, it can be implemented in a series of gradual steps, with each one delivering ROI.

Enterprise Integration Platform



For more than 20 years, TIBCO has provided the technology and services to build critical integration infrastructure. Over 3,500 customers worldwide have used the TIBCO Enterprise Integration Platform to cut through complexity, be more efficient, meet business requirements faster, and reduce costs. Information is available, accessible, and consumable from anywhere, anytime. Interoperability is seamless. Change is cost-effective and manageable.

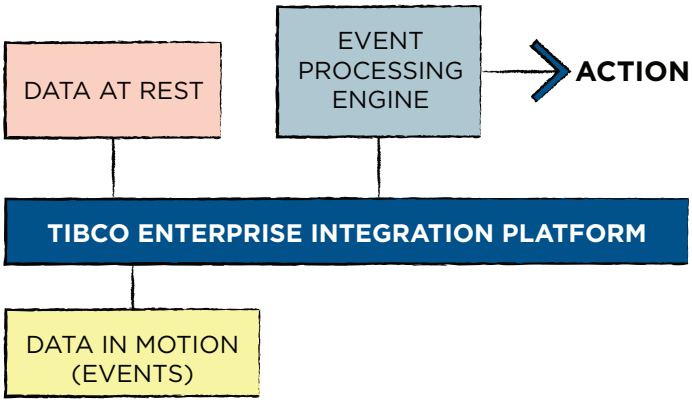
In today's world, business units can't effectively communicate with one another if their respective systems and processes can't communicate. The need for manual processes to enable communication – even processes as simple as typing an order into a system – create an enormous amount of friction within the enterprise. In contrast, when systems can communicate, the result is higher productivity, greater agility, and competitive advantage.

Integration is the core competency that delivers these benefits, and companies that invest in this area are likely to obtain a very substantial reward.

Incremental Business Value in the Event-Driven Enterprise

Many companies deploy the TIBCO integration platform primarily to eliminate the spaghetti-like tangle of point-to-point integration – which is costly and difficult to maintain – with a forward looking publish-and-subscribe model that supports much greater business agility. But cost reduction and agility are only part of the story. The real importance of the new integration is that it enables event-driven processes that can increase revenue, reduce risk, and cut the cost of doing business in countless ways by improving efficiency. The key to exploiting these possibilities is event processing enabled by the TIBCO BusinessEvents® event server.

An Enterprise Integration Architecture for the 21st Century



At any given moment, millions of items of information, or events, can be published on the TIBCO integration platform. Event processing lets an enterprise construct rules to:

- correlate events to identify specific patterns or situations
- take decisions and drive actions to act upon this situation

One important use case for event processing is fraud prevention. If a customer who lives in Atlanta withdraws cash from an ATM at 5:37 p.m., pays for a dinner (also in Atlanta) at 7:15 p.m. the same day, and then at 8:17 p.m. attempts to use a different card in London, event correlation can link data streams from the two cards and determine that this is surely an attempted fraud. Rules-driven processes can then be triggered to block the transaction. This is a simple example, where events from only two sources are involved.

Retail can provide a more complex example. A member of a rewards program enters a supermarket and launches her rewards app. The events processor is instantly aware of her location. It also "knows" from her purchasing history that she often buys heirloom tomatoes, and from RFID tracking data that the heirloom tomatoes in the store are near the end of their useful shelf life. Based on rules governing perishable items combined with her purchasing history, the system issues her an instant discount. The next rewards member entering the store would get an entirely different offer, again based on a combination of events and data warehouse input.

These are only two examples of how the ability to trigger automated processes based on events – often supplemented by data at rest – can deliver powerful operational and competitive advantages.

Are You Getting the Most Value from Your Integration Platform?

When it comes to integration, organizations are not equal. Those more capable are setting the pace of 21st century competition. They are ready to integrate new systems and efficiently support the disruptive models, volumes, and opportunities offered by new technologies:

- Cloud applications' increased speed and cost-efficient scalability
- Mobile applications' heightened engagement with customers, partners, and employees
- Social networks' treasure trove of customer data

How Do You Compare to Best Practices?

For more than 20 years, we've provided the technology and services to build critical integration infrastructure. From our experience with 3,500 customers, we've created an interactive tool for assessing integration maturity, the Integration Maturity Model (IMM). The IMM allows you to assess your organization's integration capabilities on six axes:

- Connectivity
- Simple Integration
- Advanced Integration
- Event Enablement
- Infrastructure and Operations
- Standards, Best Practices and Frameworks

Beyond technology, the tool reviews your architecture, operations, and organization compared to integration best practices. It shows you which integration capabilities can be easily developed for best value, helping you define an integration roadmap.

What Do You Have to Win or Lose?

Companies with high maturity scores achieve:

- significantly lower integration costs for development and maintenance
- shorter integration implementation times
- enablement of key initiatives such as supply chain optimization using information awareness or creation of differentiating customer services using SaaS applications

Find Out About Your Organization's Integration Capabilities:

Sign up for a free Integration Maturity Model assessment, or learn more at www.tibco.com/maturity.

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exported05Apr2013