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# Seven Top Integration Trends For 2011 To 2012

by Ken Vollmer and Noel Yuhanna  
for Application Development & Delivery Professionals

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## Seven Top Integration Trends For 2011 To 2012

The Need For Speed, Services, And SaaS Is Shaping The Integration Future

by **Ken Vollmer and Noel Yuhanna**

with Mike Gilpin and Sander Rose

### EXECUTIVE SUMMARY

Integration remains a high priority for enterprises in 2011 to 2012, leading Forrester to mine client inquiries and interview industry experts for insight into the latest integration trends. Enterprises are seeking a lean, mean, and more holistic approach to integration, doing more real-time integration and planning increased usage of enterprise service buses (ESBs) and data services platforms. The need to integrate on-premises apps with software-as-a-service (SaaS) apps is also starting to affect requirements. These trends will affect a wide range of Forrester clients this year and should shape key objectives for planned upgrades or modifications to integration infrastructure and skills. Application development and delivery professionals and enterprise architects should keep these trends in mind when planning application and integration strategy for the coming year.

### TABLE OF CONTENTS

#### 2 **Integration Capability Is Critical To Any Enterprise**

Trend No. 1: More Firms Are Taking A Holistic Approach To Integration

Trend No. 2: More Firms Are Implementing Data Services Platforms

Trend No. 3: Lean Integration Is On The Rise

Trend No. 4: Demand Is Increasing For Real-Time Integration

Trend No. 5: The ICC Has Become Mainstream

Trend No. 6: Demand Is Increasing For Integration With Software-As-A-Service (SaaS) Apps

Trend No. 7: ESBs Are Hot!

#### RECOMMENDATIONS

#### 10 **Conduct A Collaborative Review Of Key Integration Trends**

#### 11 **Supplemental Material**

### NOTES & RESOURCES

Forrester has interviewed more than 40 vendors and handled inquiries from more than 400 enterprise clients in the past 12 months regarding integration challenges and trends.

#### **Related Research Documents**

["The Forrester Wave™: Comprehensive Integration Solutions, Q4 2010"](#)  
November 9, 2010

["The Forrester Wave™: Information-As-A-Service, Q1 2010"](#)  
February 10, 2010

["Forrester TechRadar™: Enterprise Data Integration, Q1 2010"](#)  
February 4, 2010

## INTEGRATION CAPABILITY IS CRITICAL TO ANY ENTERPRISE

Virtually all enterprise application delivery projects require significant integration among applications, internal data sources, external trading partners, and more and more frequently, external data resources. These requirements are driving strong demand for integration technology, as well as many questions from Forrester clients on how best to select and implement that technology (see Figure 1). In numerous inquiry and advisory interactions with clients, Forrester has identified the integration trends that will affect most organizations during 2011 and beyond.

### Trend No. 1: More Firms Are Taking A Holistic Approach To Integration

Years of investment in multiple single-purpose integration products have brought many firms to the point that they need to reduce the complexity and cost of their integration infrastructure by taking a more holistic approach. These firms are now considering all their integration requirements (application, business-to-business [B2B], process, and data) to develop a holistic strategy that addresses them all with a minimum of technology overlap. Past integration products were more specialized, requiring enterprises to use integration tools from multiple vendors to meet this full range of requirements. Today, however, an increasing number of integration solutions address most or all of these requirements. These solutions traveled by different routes to reach this destination:

- **Some solutions have always been comprehensive.** Ab Initio provides holistic integration capabilities covering extract, transform, and load (ETL), enterprise application integration (EAI), business process management (BPM), B2B, and much more in a tightly integrated technology stack. However, this little-known vendor may not be a viable option for some organizations due to its comparatively high price and limited marketing efforts.<sup>1</sup>
- **Others began with application or B2B integration.** Software AG, Tibco Software, and iWay Software have specialized in application and B2B integration for many years, but more recently they have moved into data integration, offering integrated master data management (MDM) solutions.
- **Still others began as data specialists and expanded from there.** For example, data integration powerhouse Informatica has added robust EAI and B2B integration capabilities to its suite of integration tools.

By moving to more comprehensive integration tools, firms are simplifying their integration infrastructure, lowering costs, and making it easier to address complicated integration challenges. For example:

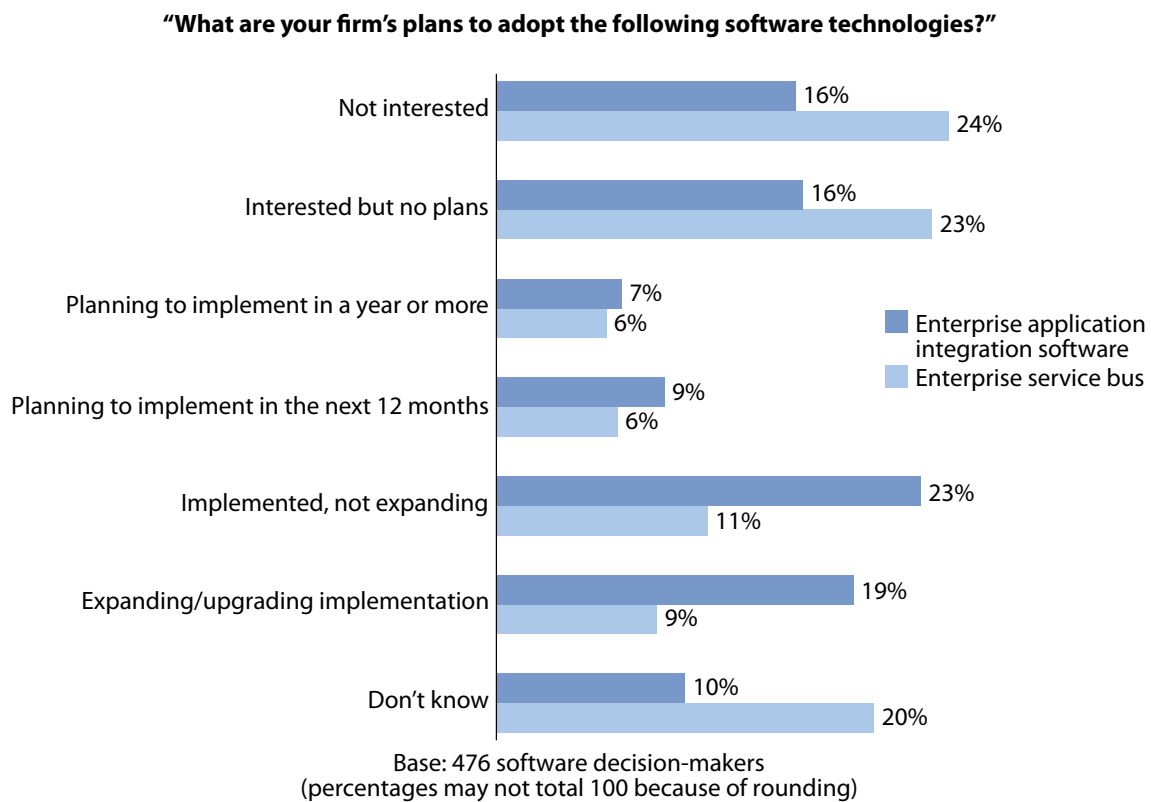
- **Ensenda converged on Informatica.** This logistics firm handles the customer delivery process for many North American manufacturers and retailers. It implemented an integration solution from Informatica that handles application, B2B, and data integration needs within

the same tool set, enabling it to achieve an 80% reduction in partner onboarding times while reducing application maintenance times by 90%. It also reduced service-level agreement (SLA) escalations attributable to data quality issues by 95%.

- **A specialty paper manufacturer selected Sterling Commerce (IBM).** This US-based firm streamlined accounts-receivable using combined B2B, process, and application integration tools that enabled it to reduce cash allocation time delays by more than 50%.

Taking a more holistic approach to integration challenges enables enterprises to increase the success rates of integration projects. To maximize the benefit, align your enterprise integration strategy and integration competency center priorities with the holistic approach by consolidating formerly separate strategies and groups into one (see Figure 2).<sup>2</sup>

**Figure 1** Demand For Integration Technology Is Strong

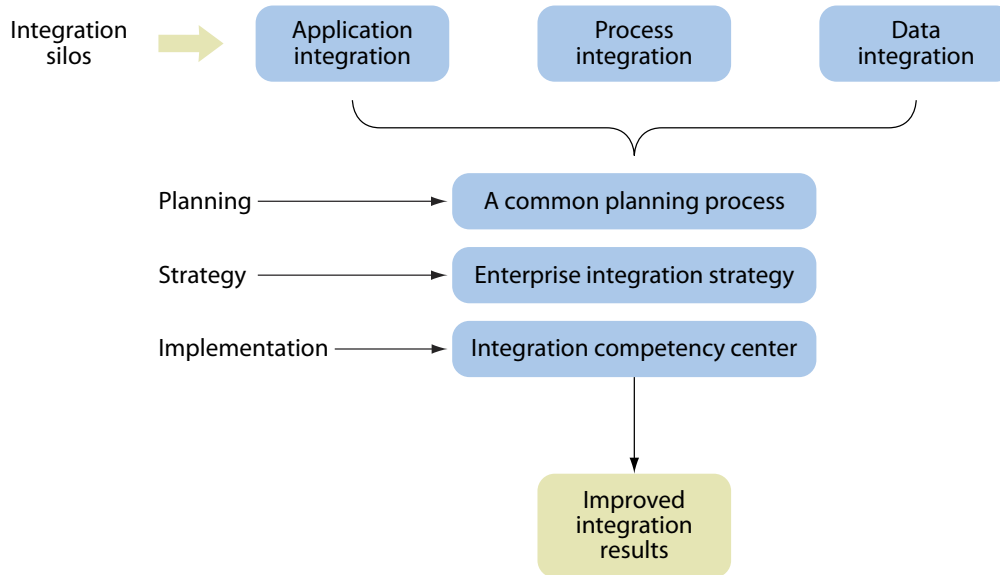


Source: Forrsights Software Survey, Q4 2010

Source: Forrester Research, Inc.

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**Figure 2** A More Holistic Approach To Integration



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Source: Forrester Research, Inc.

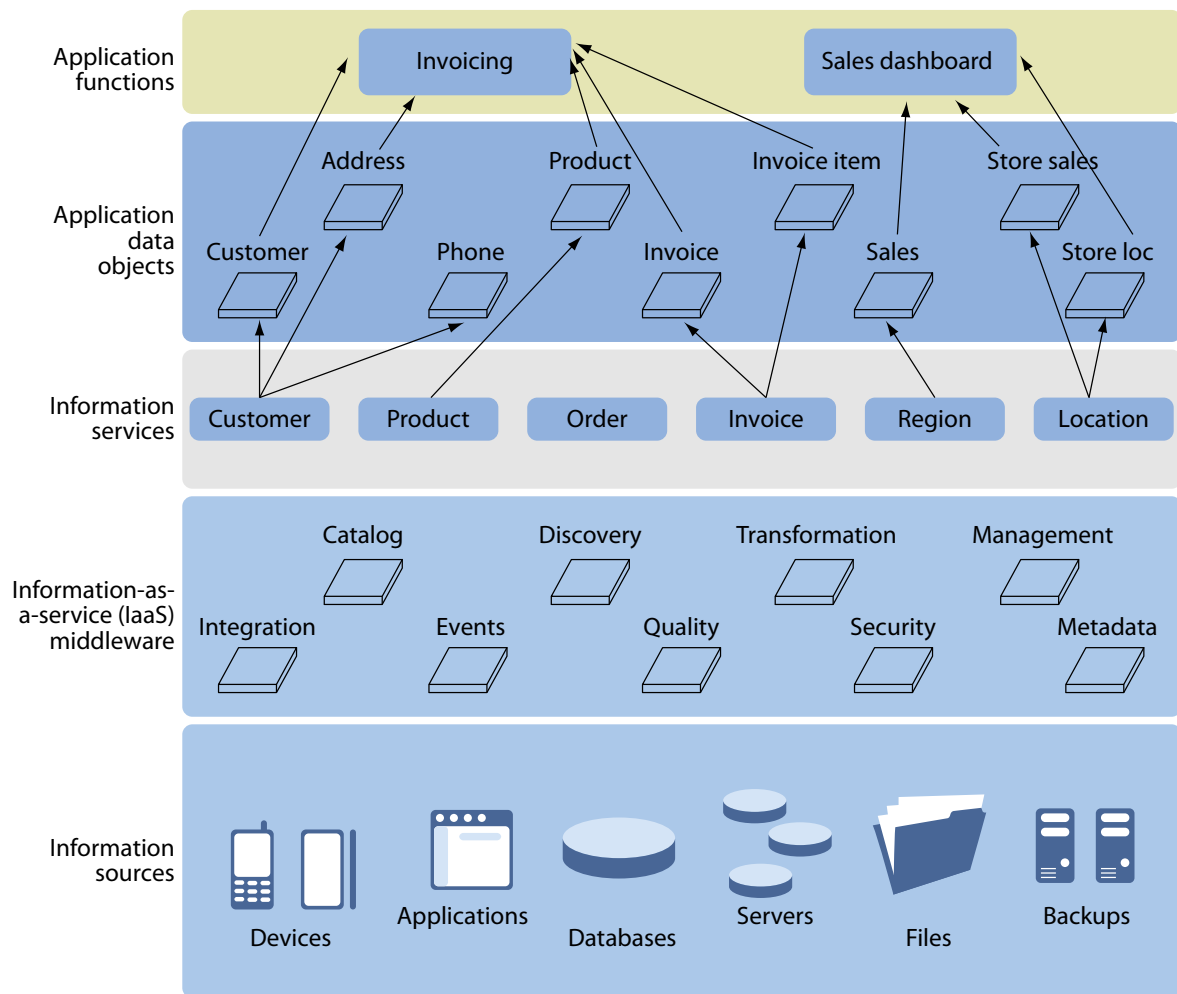
### Trend No. 2: More Firms Are Implementing Data Services Platforms

Firms continue to struggle with rapidly growing data, leading to terabytes and petabytes of information stored in hundreds or thousands of databases, data warehouses, files, and other repositories. At least 30% of this data duplicates original sources because ETL, change data capture (CDC), and replication technologies move copies of data closer to the applications that consume it to improve performance and accessibility. Couple this continuing explosion of data growth with globalization and the increasing demands of web and mobile applications for faster access to real-time information, and it's easy to see why Forrester hears an increasing chorus of demands for better data integration from our clients. Cue data services.

Data services platforms, also known as information-as-a-service (IaaS), provide flexible data integration based on a newer generation of service-oriented standards that enable ubiquitous access to any type of data on any platform using a wide range of interfaces and data access standards.<sup>3</sup> Data services platforms can support many usage patterns including “single version of the truth,” real-time business intelligence, enterprise search, high-performance transactional applications, and collaboration. In addition, they can deliver data in real time, near real time, or batch, for web, mobile, or cloud-based applications (see Figure 3).

Forrester sees an increasing number of enterprises deploying data services platforms, and they are using these platforms for a wider range of data integration problems after proving their viability and value on early projects. Although early adoption was concentrated in government, financial services, telecommunications, and retail, adoption is now growing in the manufacturing, healthcare, high-tech, and media and entertainment sectors. Leading vendors that provide data services platforms include Composite Software, Denodo Technologies, IBM, Informatica, Microsoft, Oracle, Red Hat, and SAP.

**Figure 3** Information-As-A-Service/Data Services Platform



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Source: Forrester Research, Inc.

### Trend No. 3: Lean Integration Is On The Rise

Following a natural progression that began with the implementation of Lean Manufacturing techniques in the 1980s, followed by more recent application of Lean Thinking to software development, Lean Integration is following suit with many of the same concepts, including:<sup>4</sup>

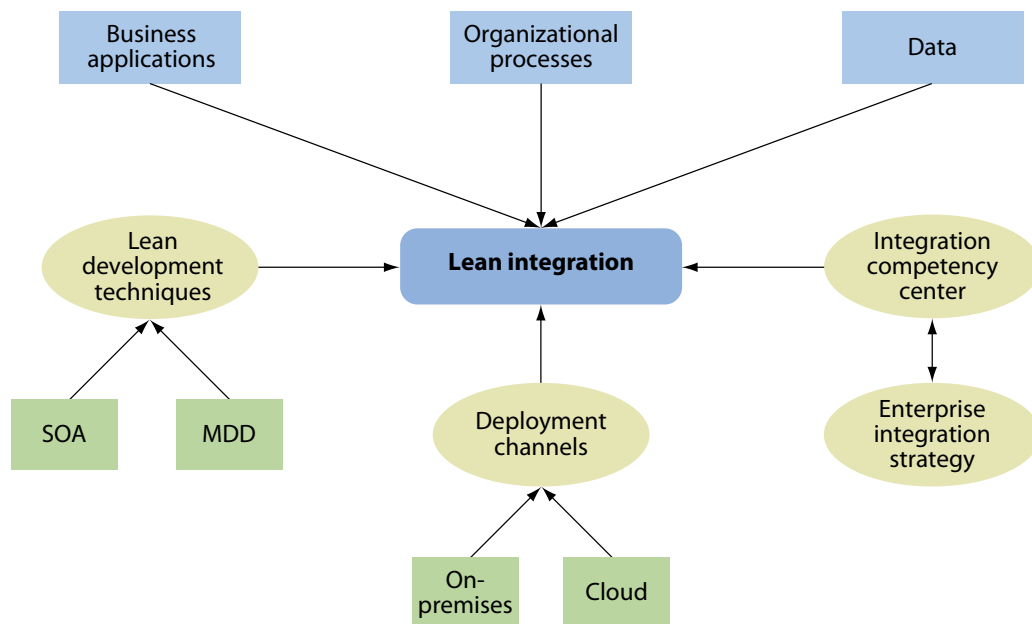
- **Automating repetitive integration tasks.** One of the key goals of Lean Integration is to automate repetitive integration tasks that slow the development process. For example, tools that support Lean Integration have built-in features like business process execution language (BPEL) and business process modeling notation (BPMN) to automate business processes that would otherwise require writing code.
- **Delivering quickly.** Agile development techniques like Scrum (an iterative, incremental software development methodology) are a key component of Lean Integration, and this approach helps developers deliver results faster than using traditional techniques.
- **Making continuous improvements.** Integration tools support continuous improvement with features that enable easy modification, manipulation, and configuration of a wide range of application metadata artifacts, such as rules, policies, mappings, and processes. Speeding such change makes it easier and faster for developers to respond to the rapidly changing requirements typical of Agile processes.

In their recent groundbreaking book, *Lean Integration: An Integration Factory Approach to Business Agility*, authors John Schmidt and David Lyle highlight this trend.<sup>5</sup> And while Forrester agrees with their findings, we do not believe they go far enough. In particular, give two areas more emphasis to maximize the impact of Lean Integration:

- **Pursue holistic integration.** Include all integration silos in your Lean Integration strategy — not just data and process integration. Include application and B2B integration (and the techniques for addressing them) to increase the impact of Lean Integration.
- **Follow an enterprise integration strategy (EIS).** Many organizations understand the value of an integration competency center (ICC), but this group will be less effective without a comprehensive EIS covering all of the integration needs of the organization. Without a comprehensive strategy, the ICC will not be able to optimize the integration approach.

Forrester expects many organizations to move aggressively to implement Lean Integration to speed up application delivery, especially those that value rapid delivery because it drives increased revenue and/or customer satisfaction (see Figure 4).

**Figure 4** The Components Of Lean Integration



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Source: Forrester Research, Inc.

#### Trend No. 4: Demand Is Increasing For Real-Time Integration

Smart devices, web apps, and social media are driving the need to share and access information more quickly than ever before. This trend is now extending into enterprises where more businesses are looking to collaborate or make decisions using information in real time or near real time. To support such requirements, many enterprises continue to shrink their ETL and CDC batch intervals from daily to 12 hours or even hourly. In addition, streaming data, external data from partners and marketplaces, and automated data from radio frequency identification (RFID), logs, and systems are growing significantly, requiring improved levels of real-time integration with structured and on-premises data.

Forrester expects ETL jobs intervals to continue to narrow to support real-time integration and data replication, but this will not be enough to cope with growing data volume and demand for real-time access. Investigate new approaches such as data services, distributed data caching, information fabric, and data replication technologies to help meet these new real-time data integration requirements.<sup>6</sup> Top providers to support real-time data integration include Composite Software, Denodo Technologies, GigaSpaces, IBM, Memcached, Oracle, and SAP.

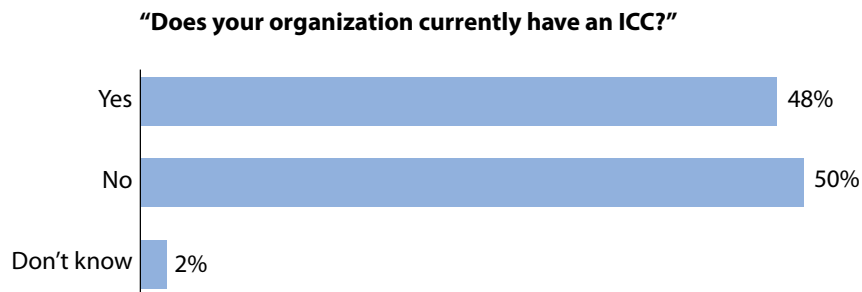


### Trend No. 5: The ICC Has Become Mainstream

The concept of using an ICC to guide integration activities is almost 10 years old, and recent survey data indicates that this approach has finally achieved mainstream status.<sup>7</sup> The results of Forrester's Q1 2011 Global Application/B2B Integration Online Survey indicate that almost half (48%) of the organizations that responded were already using an ICC (see Figure 5).

Having a well-staffed and well-trained ICC organization enables firms to handle complex integration projects more effectively, so consider having one to be a key integration best practice.

**Figure 5** ICC Adoption Has Become Mainstream



Base: 167 app development managers and enterprise architects

Source: Q1 2011 Global Application/B2B Integration Online Survey

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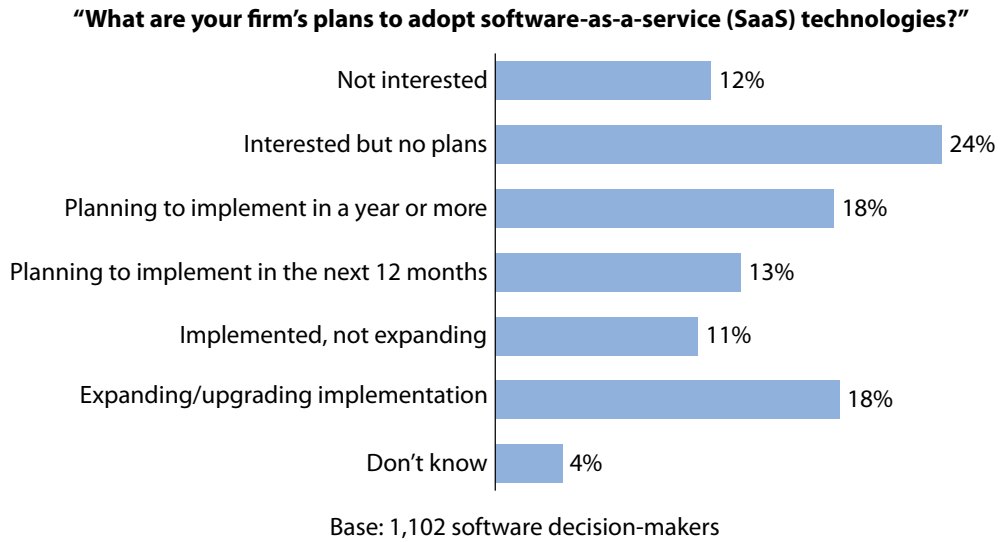
Source: Forrester Research, Inc.

### Trend No. 6: Demand Is Increasing For Integration With Software-As-A-Service (SaaS) Apps

Demand for SaaS applications continues to accelerate (see Figure 6). Firms of all sizes are using applications such as Salesforce and NetSuite to supplement or replace internal applications. Midsize firms are using hosted applications from Fiserv (financial), Unicorn HRO (HR), Sage Software (healthcare), and Epicor Software (manufacturing) as core applications.

Yet integration challenges are the second most common reason, after security concerns, for firms not to adopt SaaS (see Figure 7). Forrester has discussed these integration challenges with many clients through inquiries, and today most are using labor-intensive custom programming to surmount these obstacles, with some limited help from integration adapters. Fortunately, emerging on-premises solutions for data services, comprehensive integration, or integration appliances are beginning to deliver more features for integrating on-premises apps with SaaS apps. So expect to see increasing demand for integration coupled with improved integration capabilities fueling more integration and more SaaS adoption in a virtuous circle.

**Figure 6** SaaS Adoption Is On The Rise

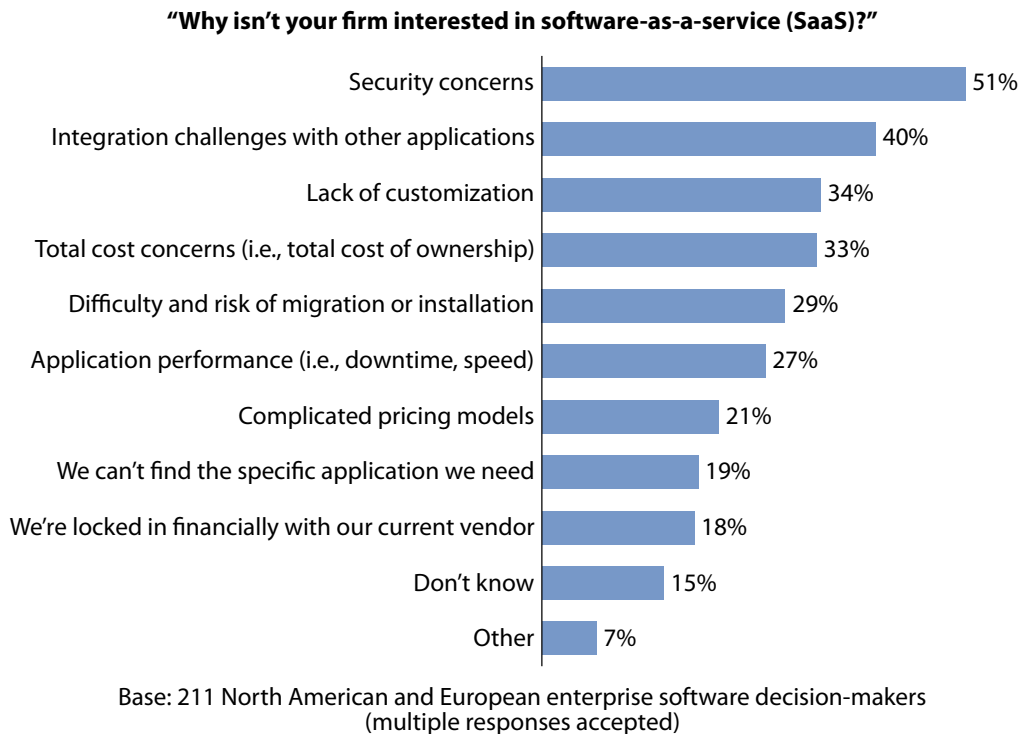


Source: Forrsights Software Survey, Q4 2010

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Source: Forrester Research, Inc.

**Figure 7** Integration Challenges Are Impeding SaaS Adoption



Source: Enterprise And SMB Software Survey, North America And Europe, Q4 2009

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Source: Forrester Research, Inc.

**Trend No. 7: ESBs Are Hot!**

ESBs are growing in importance among Forrester clients and currently account for more than one-third of all integration-related inquiries that Forrester has handled in the past 18 months. In addition, Forrester's Q1 2011 Global Application/B2B Integration Online Survey indicated very strong ESB adoption rates (58% of all respondents) with another 32% indicating that they were considering this approach (see Figure 8).<sup>8</sup> Factors driving this high level of interest include the increasing integration functionality ESBs now provide, coupled with lower pricing compared with more robust comprehensive integration solutions. ESBs are also likely to be among the first products firms buy as they implement SOA and SOA adoption continues to grow.<sup>9</sup>

ESBs offer good value for a basic set of integration capabilities, and many ESB vendors offer upgrades to a more comprehensive integration solution if the need arises.

**Figure 8** ESB Adoption Rates

Base: 167 app development managers and enterprise architects

Source: Q1 2011 Global Application/B2B Integration Online Survey

**RECOMMENDATIONS****CONDUCT A COLLABORATIVE REVIEW OF KEY INTEGRATION TRENDS**

Application development professionals and enterprise architects responsible for choosing integration technology or setting integration strategy should review the key integration trends highlighted in this report and consider their applicability to the local context. Include data architects, database administrators, information security, and ICC personnel as appropriate to round out the review panel. Specifically, the review should:

- **Analyze the potential impact of these trends.** How are current projects affected? What changes are likely in the future? Focus on trends most likely to impact your organization such as Lean Integration and real-time data integration.
- **Plan accordingly.** What changes could you/should you make to your existing strategy or organizational structure to ensure that you can obtain the potential advantages of these integration trends in your organization? Ensure that: 1) you have an enterprise integration strategy in place, and 2) your strategy reflects the relevant integration trends outlined in this report.
- **Think holistically.** Don't be bound by traditional thinking or organizational structures as you evaluate potential changes to how you approach application, B2B, process, and data integration challenges. Look for ways to gain the advantages of addressing these related issues in a more comprehensive manner.
- **Define both short-term and long-term integration strategy.** Even though the goals might be short-term today, you should still place your approach in the context of a long-term integration strategy. When implementing new data integration initiatives such as real-time integration, start out with a smaller initiative and grow over time to include more data sources and applications.
- **Revisit your integration strategy every year.** Integration is not a just a project, it's an ongoing process. So revisit your strategy every year, working to understand new technology capabilities and how you can benefit from them. Also re-evaluate your business requirements, as changing business priorities may trigger a need to adjust your integration strategy.

## SUPPLEMENTAL MATERIAL

### Methodology

Forrester's Forrsights Software Survey, Q4 2010, was fielded to 2,403 IT executives and technology decision-makers located in Canada, France, Germany, the UK, and the US from small and medium-sized (SMB) and enterprise companies with two or more employees. This survey is part of Forrester's Forrsights for Business Technology and was fielded during September and October 2010. LinkedIn Research Network fielded this survey online on behalf of Forrester. Survey respondent incentives include a choice of gift certificates and research reports. We have provided exact sample sizes in this report on a question-by-question basis.

Forrester's Forrsights for Business Technology fields 10 business-to-business technology studies in 12 countries each calendar year. For quality control, we carefully screen respondents according to job title and function. Forrester's Forrsights for Business Technology ensures that the final survey population contains only those with significant involvement in the planning, funding, and purchasing of IT products and services. Additionally, we set quotas for company size (number of employees) and industry as a means of controlling the data distribution and establishing alignment with IT spend calculated by Forrester analysts.

We have illustrated only a portion of survey results in this document. For access to the full data results, please contact [Forrsights@forrester.com](mailto:Forrsights@forrester.com).

Forrester fielded its Q1 2011 Global Application/B2B Integration Online Survey to 167 application development managers and enterprise architects. Forrester fielded the survey from January to February 2011.

## ENDNOTES

- <sup>1</sup> For a deeper discussion of Ab Initio's capabilities, see the May 12, 2010, "[Enterprise ETL: Evolving And Indispensable To Your Data Management Strategy](#)" report.
- <sup>2</sup> For a discussion on the benefits of an enterprise integration strategy, see the June 12, 2009, "[Create An Enterprise Integration Strategy To Lower Your Costs](#)" report.  
  
Forrester recently published ICC survey data from Q1 2011. See the April 4, 2011, "[Integration Competency Centers Help Large Enterprises Solve Integration Complexity](#)" report.
- <sup>3</sup> Information-as-a-service is a strategy that employs a more flexible architecture to overcome information integration and management challenges. See the May 2, 2008, "[Information-As-A-Service: Delivering Real-Time Information Drives Market Toward The Mainstream](#)" report.
- <sup>4</sup> For a discussion on the benefits that Lean techniques can bring to Agile application development, see the December 17, 2008, "[Make Agile Lean To Boost Business Impact](#)" report.
- <sup>5</sup> Source: John G. Schmidt and David Lyle, *Lean Integration: An Integration Factory Approach to Business Agility*, Addison-Wesley Professional, 2010.
- <sup>6</sup> Forrester evaluated eight elastic caching platform vendors using 124 criteria and found GigaSpaces, IBM, Oracle, and Terracotta to be Leaders because of their strong elastic caching features and strategies. See the May 14, 2010, "[The Forrester Wave™: Elastic Caching Platforms, Q2 2010](#)" report.
- <sup>7</sup> For an in-depth discussion of ICC issues, see the April 4, 2011, "[Integration Competency Centers Help Large Organizations Handle Integration Complexity](#)" report.
- <sup>8</sup> This data shows a higher adoption rate than recent (Q4 2010) Forrsights data, reflecting different survey populations. Software decision-makers are less likely to know about ESB usage than architects who are more directly engaged in setting and executing their firms' integration strategy.
- <sup>9</sup> Forrester's survey data shows that service-oriented architecture (SOA) still has strong penetration and high satisfaction rates. Even though today's headlines focus more on cloud computing, mobile applications, and social networking, enterprise interest in SOA-related products remains significant. See the March 22, 2011, "[SOA Adoption 2010: Still Important, Still Strong](#)" report.

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