2015 Industry Report

Connectivity in the Enterprise: The Rise of Cloud and Its Integration Challenges

By Scribe Software
Conducted in conjunction with Spiceworks
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Gartner estimates that the data integration tool market will be more than $3.4B by 2019, up from $2.4B in 2014, as companies seek to improve their overall information architecture and increase competitiveness through data and analytics. Companies are making enterprisewide integration a strategic priority and seeking new, more agile approaches to get it done quickly within their organizations.

The role of data integration has been evolving over the past several years from primarily a tactical endeavor to a key strategic element of the business, with users all the way to the CEO increasingly weighing in on its importance and execution. The shift is being primarily driven by several key market trends that are reshaping the business landscape, including:

- Digital Business
- Cloud Adoption
- Mobile
- Big Data

Our recent survey, conducted in conjunction with Spiceworks, the fastest-growing professional network for the information technology industry, sought to further understand the current state of cloud application adoption and systems and data integration from the viewpoint of those closest to it - the IT professional. This report is one of the many industry initiatives spearheaded by Scribe Software - throughout the analysis of this year’s survey, we make comparisons to "The State of Customer Data Integration 2013".
Data integration is becoming a critical component of corporate IT strategy as businesses are now seeing the true value of data as a strategic asset, and are beginning to shift focus from operational efficiency to deriving intelligent insights from integrated data for competitive advantage.

As cloud adoption continues to rise, the emergence of hybrid environments (cloud, on-premise and in-between) is further driving the need for integration as companies must connect newer cloud technologies to existing, legacy on-premise solutions to get a 360 degree view of their business, pipeline and customers.

Custom coding to individual APIs still reigns as businesses have been slow to adopt out-of-the-box tools and are just becoming aware of fast-growing cloud integration solutions such as newer integration platform as a service (iPaaS) offerings. The cost of custom coding to APIs is both obvious and hidden. With a shortage of valuable IT resources, businesses need their IT departments to deliver more than application and system uptime and maintenance. Plus, in 2015 the pace of business and the speed of IT innovation is breath-taking – in this cloud and mobile age, the long cycle times associated with custom-coded integration may threaten the viability of the business itself.
As companies seek to move beyond fundamental reporting and basic analytics to gain a competitive advantage using more diagnostic and predictive analytics, integration capabilities are growing in importance.

The first step in building any information infrastructure requires identifying, combining and managing relevant data to derive insights that can impact the business. This step requires an integration strategy that supports the agility needs of the business and can evolve with the business as the data and analytics evolve in response to the market.

Yet, while most professionals believe data integration is growing in strategic importance, they are still primarily focused on implementing the basic foundation for analytics (i.e. point-to-point connections) vs. creating the fully connected enterprise:

- Top data integration initiatives include migrating data from one system to another (42%), back office to front office (37%), integrating data for business intelligence (BI)/analytics (37%), and integrating on-premise applications (35%).

- 20-30% of enterprises that have CRM systems do not have that CRM system connected to other core business systems such as ERP and BI/analytics, data warehouses, and customer service systems.
Cloud adoption has gained momentum in recent years with many predicting 2015 would be the year of the cloud.

The reality, however, is that the transition is primarily to a hybrid environment where some applications, particularly Marketing and Sales, are moving more rapidly to the cloud, while other core business applications (e.g. ERP) still remain primarily on-premise:

- Adoption of cloud-based marketing automation has skyrocketed with 62% of respondents using a cloud-based solution. Similarly, 60% of respondents are using cloud-based sales force automation solutions.

- Cloud-based business intelligence has not been adopted as quickly as cloud-based marketing automation or sales force automation, but is increasing. 16% of respondents reported using cloud-based business intelligence solutions, which is up from 5% in 2013 (as reported in “The State of Customer Data Integration”. This aligns with the larger market trend to expanding investments in business intelligence/analytics initiatives.

- CRM is also trending toward the cloud with 30% of respondents reporting use of a cloud-based solution.

- ERP has remained largely steady on premises - with only a modest cloud adoption increase from 6% in 2013 to 9% in 2015. This likely reflects the adoption of financials or other core ERP functions because other research has shown that specific segments of ERP, such as HR, have become largely cloud-based.
Cloud adoption brings an explosion of best-of-breed applications and new complexities to integration.

The ability of enterprises to derive actionable insights from cloud applications is the new competitive battleground:

- 59% of IT respondents are not satisfied with their ability to synch data between cloud and on-premise systems and 61% remain unsatisfied synching cloud-to-cloud applications and data.
- Only 12% of respondents report using a cloud integration platform.
- Cloud application integration is not yet a priority for all organizations – premise-to-cloud integration, cloud-to-cloud integration, and cloud data replication are top priorities for only 16%, 10% and 10% of enterprises, respectively. However, with the expansion of cloud applications across the business we expect this will begin to change over the next few years.
Custom-coding integrations to an API is the main culprit for the not-so-connected enterprise.

Custom coding is prevalent due to momentum in following familiar connectivity practices, the desire to retain control, lack of awareness of new connectivity technology approaches, such as iPaaS, and lack of understanding of the high Total Cost of Ownership (TCO) of custom coded solutions:

- Custom coding remains a primary method of integration. More than half of organizations (54%) use it as an integration method.
  - Custom coding to an API remains the primary integration method as it was when 48% declared that they used it in our 2013 survey.
  - When asked what they will do next in terms of integration, companies plan to continue with custom-built solutions. iPaaS usage is slightly higher, but still small.

- While companies plan to use custom coding, they are seeking solutions to simplify the process as indicated by 59% reporting use of 3rd party software, connectors and platforms to create their integration solutions. The key to selecting these 3rd party solutions centers on self-service, training and documentation (51%) and ease of use of the design environment (47%), which supports the idea that companies want the control of custom coding, but would like to simplify the process of it.

- Companies underestimate the full cost of custom coded integration, focusing primarily on upfront costs and not considering or including ongoing lifecycle management costs.
  - Respondents identified time to develop solutions (45%) as their top challenge, followed closely by cost (36%), whereas only 30% are concerned about the time (or ongoing effort) to update solutions. However, as cloud solutions continue to take hold, updating solutions will likely become an important issue as solutions are updated with greater frequency in the cloud and new solutions can be added with ease, resulting in the need to update integrations more frequently.
RECOMMENDATIONS BY SEGMENT...

**IT Leadership:** Use Best-of-Breed Integration Solutions to Create an Agile, Connected Enterprise

- With the rapid pace of business today, IT needs to focus already overburdened resources on initiatives that will propel their business forward. With more IT organizations being evaluated on their ability to be strategic and drive innovation, IT needs to evaluate integration solutions that accelerate the integration process and enable analytics and automation.

- Creating the connected enterprise requires a level of agility and speed not possible with custom coding. New data sources and systems are coming online regularly and must be quickly “connected” for the enterprise to be successful. The cost of ongoing integration maintenance and the opportunity cost of failed integration is high. With today’s easy to deploy, cost-effective iPaaS solutions, there is no reason to write custom code to an API anymore.

- IT will need to prioritize cloud solutions and integrations in response to the changing technology landscape, and as a result, will need to adapt practices for evaluating, integrating and delivering solutions to their customers to reflect the shift to the cloud.
RECOMMENDATIONS BY SEGMENT...

**SaaS Providers:** Offer Agile Connection Options to Differentiate Your Product/Service

- It’s a best-of-breed world with IT leadership expecting solutions to integrate easily with other best-of-breed applications. Integration is a must have requirement with higher expectations for ease of deployment and customization.

- Integration is critical for winning new customers and driving sales. With the breadth and depth of integration solutions available, particularly the emerging iPaaS solutions, which are particularly designed for integrating cloud applications, SaaS providers have technology options that drive greater cost savings and reduce time to market.
**System Integrators: Become a Strategic Partner by Delivering the Connected Enterprise**

- As customers adopt the cloud and a host of new applications, they will need strategic IT and business partners that can help them navigate the sea of cloud applications and integration options as they seek to build the connected enterprise.

- Initiatives will need to shift from long, expensive implementation projects to shorter, more impactful initiatives that can grow and change with the business. From the initial selection of cloud applications through to creating and maintaining hybrid environments, there are many opportunities for SIs to build new services and revenue streams. SIs will need to be able to adapt quickly to meet the needs of their customers’ rapidly changing cloud environments or risk being replaced by other, more agile, SIs.

- iPaaS solutions are capable of meeting a wide range of integration needs on-premise, in the cloud or in hybrid environments. Seek an iPaaS partner and build integration services around the platform to aid your customers in creating the connected enterprise that leverages best-of-breed applications.
Detailed Findings:
Business Application Migration & Integration
Cloud-to-Premise Integration Required – Organizations continue to rely on a mix of cloud and on-premise systems and as a result, cloud-to-premise integration is expected to be in high demand for the foreseeable future. Core business systems (CRM, ERP, data warehouse, BI/analytics) are largely premise-based, possibly because investments may have been made years ago. As organizations improve their efficiency with additional automation and data (i.e. by deploying marketing automation, data services, and salesforce automation), they are largely choosing cloud-based systems.

Hybrid Deployments (Cloud with On-Premise) Are Not Common – Enterprises typically use either on-premise systems or cloud-based systems within a single application category, not a hybrid of the two. Only third-party data services, where organizations may use a number of providers, show sizable hybrid use.
Cloud Adoption Continues Slow Increase –

Cloud adoption in entrenched application areas has increased modestly from our 2013 survey (26% of CRM, 6% of ERP, and 5% of BI/Analytics systems were cloud-based in our 2013 survey). We suspect cloud is being chosen when systems are due for replacement. But cloud adoption varies greatly by segment. Marketing automation and salesforce automation are now dominated by cloud offerings, buoyed by the success of market leaders such as Marketo, HubSpot and Salesforce. Many companies either previously did not have these types of applications in place, or had them in a more limited capacity. As the role of the customer has evolved and the need to market, sell and service them in a more personalized way has become the new standard, companies have embraced these marketing and sales technologies in the cloud.

Is your system deployed in the cloud?
(% of those answering “Yes” is shown)
CRM Integration Continues, But at a Slow Pace – While enterprises continue to believe integration across business systems is important, actual integration of CRM systems is still modest. Among the organizations using CRM, the most common systems that are fully integrated are contact databases (28%) and customer service (26%). Full integration with core business systems such as ERP and BI/Analytics remains at 20% or below and at least 20% of respondents in each segment were not integrated at all. Since data integration is a key requirement for quality data and user adoption, the lack of integration continues to jeopardize overall system effectiveness. Integration, therefore, continues to represent an opportunity for organizations to differentiate themselves.

Many Organizations Not Prepared for Digital Economy – If integrated, data-driven processes and analytics will drive the digital economy and the next generation of business leaders. Many organizations, however, are not yet prepared. CRM Integration will be required for these organizations to acquire, retain and service customers moving forward. In fact, in our 2013 survey, more than 70% of respondents ranked CRM-to-BI, CRM-to-ERP, CRM-to-Customer Service, and CRM-to-Marketing Automation as “Important.”

To what extent are the following systems integrated with your organization’s CRM system(s)? (Asked of those using CRM software.)

Respondents: Total = 168
Detailed Findings:
Data Integration Practices, Challenges & Purchase Considerations
Custom Coding Remains a Common Approach to Integration Despite Its Lack of Agility and High Total Cost of Ownership – Organizations continue to rely heavily on custom-built data integration solutions (54%), with only modest changes in the percentage of companies employing this method over the last three years. Companies consistently underestimate the cost associated with custom code, as often there are hidden costs not readily visible to IT and business leaders.

Custom code initiatives limit the future agility of the organization, making the addition of new data sources and analytics time consuming and costly. Additionally, valuable IT resources are diverted from other tasks related to the core business to modify and maintain integration code. The opportunity cost of not having real-time data and analytics available to the business can be substantial and is reflected in the bottom line, as well as customer satisfaction rates. In a cloud-dominated application environment, custom coding will drag down the agility brought by cloud apps.
Primary Data Integration Method:

THIRD PARTY TOOLS EMERGE

- Integration Platforms and Tools Emerge as a Preferred Data Integration Method – a combined 48% of respondents rely on a 3rd party solution for integration, including on-premise platforms (31%), cloud platforms (11%), enterprise services (3%) or off-the-shelf connectors (3%).

- Custom Code Continues to Be Viewed as a Primary Integration Method – 39% of respondents said their primary method of data integration is custom code, either written internally (29%) or written by a systems integrator (10%). This often becomes a gating factor to increasing enterprise agility as business units try to move faster, since they are often held back by a lack of agility and/or resources in IT organizations.

- Methods Reflect the Complexity of the Integration Challenge – Off-the-shelf connectors were not widely viewed as a primary data integration method, likely indicating the high level of customization required in each integration. The widespread use of integration platforms and custom code indicate the complexity and scale that enterprises expect to face on a regular basis.

What is your primary method of data integration?

<table>
<thead>
<tr>
<th>Method</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>3rd Party Integration Platform</td>
<td>31%</td>
</tr>
<tr>
<td>Written Internally</td>
<td>29%</td>
</tr>
<tr>
<td>3rd Party Integration Platform</td>
<td>11%</td>
</tr>
<tr>
<td>Cloud Based Service</td>
<td>10%</td>
</tr>
<tr>
<td>Custom Code Written by a Systems Integrator</td>
<td>3%</td>
</tr>
<tr>
<td>Enterprise Service</td>
<td>3%</td>
</tr>
<tr>
<td>Off-the-Shelf Connector</td>
<td>7%</td>
</tr>
<tr>
<td>N/A - Not Integrating Data</td>
<td>6%</td>
</tr>
<tr>
<td>Don't Know</td>
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</tbody>
</table>

Respondents: Total = 284
Lifecycle Management Capabilities Are Weak for Most Data Integration Solutions – While the majority of organizations surveyed are generally satisfied with their current data integration solution’s capabilities to build and deploy an integration (i.e., satisfaction with the ease of use of the design environment and deployment tools were 64% and 63%, respectively), they are less satisfied with its other capabilities that come into play outside of the core development effort (i.e., satisfaction with tools to evaluate and manage the health of deployed integrations and debugging tools were 47% and 42%, respectively).

Most Organizations are Not Satisfied with the Cloud Integration Capabilities – With most organizations using on-premise data integration platforms or custom coding, there is lower satisfaction with those traditional methods when it comes to cloud-to-cloud and cloud-to-ground integration. Their ability to synchronize data between on-premise and cloud-based apps and to synchronize data between cloud-based apps was 43% and 39%, respectively. Cloud applications bring new complexities to the integration challenge and old methods, such as custom coding and traditional data integration platforms, are less suited for these challenges. Deriving actionable insights from these sources is the new competitive battleground.

Thinking about the data integration solution your organization uses most frequently, how satisfied are you with the following attributes or abilities? (Asked of those using data integration solutions, and involved in evaluating solutions/integrating data.) (Top 3 box reported: Those selecting “satisfied”, “very satisfied”, or “extremely satisfied” on a 5-point scale.)

- Data Quality Capabilities: 69%
- Scalability to Handle Large Data Volumes: 65%
- Ease of Use of the Design Environment: 64%
- Deployment Tools: 63%
- Self-Service Training, Documentation and Support Tools: 51%
- Tools to Evaluate and Manage the Health of Deployed Integrations: 47%
- Ability to Synchronize Data Between On-Premise and Cloud-Based Apps: 43%
- Debugging Tools: 42%
- Ability to Synchronize Data Between Cloud-Based Apps: 39%

Respondents: Total = 278
Bread and Butter Integration Challenges are Still The Top Priority for Many Organizations – Enterprises are still focused on solving some of the core integration challenges for their businesses, such as data migration (42%), back office-front office integration (37%), integrating data for BI/analytics (37%), and integrating on-premise apps (35%). Organizations are just beginning the transition of their information infrastructures and right now, are still focused on the basics.

Cloud Application Integration Not Yet a Priority – Premise-to-cloud integration, cloud-to-cloud integration, and cloud data replication are top priorities for only 16%, 10% and 10% of enterprises, respectively. As cloud application use increases, so will the need for integration both premise-to-cloud and cloud-to-cloud.

MDM and Big Data are Big Company Problems – Enterprises with more than 1,000 employees consider MDM (32%) and Big Data (22%) as top tier strategic initiatives v. smaller companies, which makes sense given the volume of data moving through these organizations and the challenges associated with making it accessible globally.

**What are your organization’s top initiatives for data integration?**
(Asked of those currently using, or planning to use data integration solutions. Up to five selections permitted.)

**DATA MIGRATION STILL TOPS**

- Data Migration from One System to Another: 42%
- Back Office to Front Office (CRM to ERP): 37%
- Data Integration for BI/Analytics: 37%
- Integrate On-Premise Apps (On-Premise to On-Premise): 35%
- Mobile App Integration: 22%
- Master Data Management (MDM): 20%
- Hybrid App Integration (On-Premise to Cloud): 16%
- Big Data Sources: 12%
- Integration of Cloud Apps (Cloud to Cloud): 10%
- Extract Data from Cloud Systems for Analytics or BI: 10%
- Enable More People to do Integrations-Develop Citizen Integrations: 8%
- Internet of Things: 6%
- Other: 2%
- Don’t Know: 11%

Respondents: Total = 265
Enterprises Underestimate the Lifecycle Management Issues and Focus on the Initial Development and Deployment Issues – Despite the fact that as much as 90% of the costs of custom-coded integrations, can come after the initial deployment, enterprises consider the time to develop an integration (45%), cost of integration software (36%), and cost to develop an integration (36%) as more important than lifecycle costs such as the time to update integrations (30%), cost to update integrations (23%), time to debug deployed integrations (22%), and the cost to debug deployed integrations (14%).

Skills Bottleneck a Top Issue for Many – The lack of skilled people is near the top of the list in terms of data integration challenges. Given the shortage of IT skills, IT needs to embrace easier-to-use integration solutions, such as iPaaS and those capable of enabling business analysts to create and maintain integrations, to free up IT resources for more valuable activities. Continued reliance on custom code will limit the agility and flexibility of the business to respond to changing market conditions and new applications.

What are the top challenges your organization has experienced or would expect to experience with data integration? (Asked of those currently using, or planning to use data integration solutions. Up to five selections permitted.)

Respondents: Total = 265
Evaluation Criteria for Data Integration Solutions

Focuses on Traditional Metrics – The most important factors organizations consider when evaluating data integration solutions are core characteristics such as the ability to learn the system (51%), ease of use (47%), data quality (39%), connectivity (39%), and scalability (38%). Integration lifecycle management capabilities, such as tools to manage integrations (36%) and debugging tools (18%) carry less weight. This is largely consistent with companies that focus on custom code approaches where employees need to be empowered to build and manage the solution themselves.

Larger Companies Are More Tuned in to Data Quality Needs – Enterprises with more than 1,000 employees were primarily focused on data quality (52%) and scalability (52%).

What are the most important factors your organization would consider when evaluating data integration solutions? (Asked of those currently using, or planning to use data integration solutions. Up to five selections permitted.)

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>&lt;1,000</th>
<th>1,000+</th>
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<tbody>
<tr>
<td>Data Quality Capabilities</td>
<td>36%</td>
<td>92%</td>
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<tr>
<td>Scalability to Handle Large Data Volumes</td>
<td>34%</td>
<td>32%</td>
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<tr>
<td>Pre-Built Connectors</td>
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<tr>
<td>Tool to Evaluate and Manage the Health of Deployed Integrations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Service Training, Documentation, and Support Tools</td>
<td>51%</td>
<td></td>
</tr>
<tr>
<td>Ease-of-Use of the Design Environment</td>
<td>47%</td>
<td></td>
</tr>
<tr>
<td>Data Quality Capabilities</td>
<td>39%</td>
<td></td>
</tr>
<tr>
<td>Levels of Control Provided in the Design Environment</td>
<td>22%</td>
<td></td>
</tr>
<tr>
<td>The Number of Developers in the Community Available to Assist or Share Experiences</td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td>Debugging Tools</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>Don't Know</td>
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BACKGROUND AND METHODOLOGY

RESEARCH OBJECTIVES
This research study was organized with the following goals:
• Profile current application deployment trends and data integration practices.
• Assess key benefits and challenges of data integration solutions.
• Understand key factors of consideration during data integration solution evaluation.

METHODOLOGY
• An online survey was offered to IT pros in the Spiceworks Voice of IT community and to Scribe customers.
• Data was collected in March, 2015.
• A total of 284 completed surveys were collected.

RESPONDENT PROFILE
• Organizations were required to have at least 50 employees and use business software (e.g., ERP, CRM, marketing automation) either on-premise or via a cloud deployment.
• Respondents were required to have influence over data integration solution decisions for their organization.

REPORT STRUCTURE
• This report aggregates results from both sample sources (Spiceworks and Scribe).