

How iPaaS Supports Today's Hybrid IT Environments

As cloud-based application adoption gains traction in enterprises around the world, IT managers must find ways to solve a perpetual problem in IT: how to connect new technology and existing technology. In this case, how to connect cloud applications and data with their on-premises legacy systems, also called hybrid IT. This paper explores a couple of options for cloud application integration and their benefits, challenges and suitability for hybrid IT integration.

Today's Hybrid IT Environments

SaaS & Cloud Growth

Given their many benefits, including relevance to solve specific business problems, ease of use, speed of acquisition and scalable cost structure, SaaS applications are being adopted at a rapid rate.

- According to Gartner, the SaaS applications market is forecasted to grow at a CAGR of 20.2% from 2011 through 2017.
- Annualized SaaS end-user spending will grow from a base of \$14.4 billion in 2011 to \$45.6 billion in 2017.

And public cloud service growth is also accelerating:

- Gartner forecasts that the market for public cloud services will grow by 16.9% CAGR from 2011 to 2017.
- In 2013, the market is an estimated \$131.7 billion while in 2017, it's projected to be \$244 billion.¹

So companies are adopting new applications as SaaS instead of on-premises, and they are migrating a significant number of on-premises applications to the cloud. They are doing this for the many advantages that can be derived from cloud solutions, including business agility, time to value, ease of use and predictable costs. IT is often left to monitor and manage this mixed environment of decentralized applications and data silos. This decentralized, heterogeneous environment characterizes hybrid IT.

Hybrid IT Brings New Benefits & Challenges

IT and business leaders are finding ways to reap the many benefits of merging new business-specific SaaS applications with internal enterprise IT systems and managing data across them. Integrating these disparate applications enables companies to aggregate operational data, automate and accelerate business processes and make informed critical business decisions.

Key to overcoming the challenges of a decentralized infrastructure to achieve these business benefits are high-performing, scalable and resilient solutions that integrate applications and data, regardless of where the applications and data reside.

Comparing Middleware and iPaaS Suitability for Hybrid IT Integration

Among the integration solutions that can address these requirements are traditional middleware and Integration Platform-as-a-Service (iPaaS) solutions. We'll discuss the capabilities and suitability of each for integrating hybrid IT environments.

Traditional Middleware for Integration

Middleware is one solution companies use to integrate applications, databases, APIs, protocols, even older legacy systems across their networked environment. Middleware is designed with a "hub-and-spoke" architecture to route data from various applications through a bus. Companies have long turned to traditional middleware to handle integration across a set of applications, usually in tightly-controlled IT environments where applications and data are centrally located and managed. This approach is most suitable for use behind the firewall.

Supports Complex Integration Scenarios

Middleware was designed to support enterprise integrations within a complex environment where multiple protocols, protocol conversion, data transformation, data-based routing, support for

multiple standards and comprehensive handling of error messages are key requirements.

Development Cycle Times

Middleware is complex to implement and requires highly skilled software programmers to code and test each integration, each of which can take months or years to complete. As traditional middleware integrations are complex and time-consuming, it's important for IT leaders to set appropriate expectations on the kinds and numbers of integrations that can be performed given the time and resources available.

Decentralized Integrations, Management Tools

Middleware platforms often have the ability to manage not only integrations, but software components and enterprise applications. A complex web of disparate integration tools are often the norm when using middleware, leading to multiple dashboards and development tools, one for each type of application and integration, whether on-premises, cloud or B2B/EDI. Managing projects across these various environments using enterprise-class middleware applications requires highly skilled software engineers to architect and support the integrations.

Licensing, Maintenance and Support

Traditional enterprise middleware contracts are site-license-based and can carry significant cost. In addition, customers must purchase maintenance agreements in order to get ongoing software updates.

Middleware Suitability for Hybrid IT

Based on the middleware capabilities listed above:

- Although middleware can support complex integration scenarios, it has not been specifically architected to support security for moving data between on-premises and cloud environments.
- A key factor for customer adoption of cloud applications is increased business agility. Long development times driven by middleware complexity falls short on the agility needed to support cloud applications.
- For software engineers using a middleware platform to create and manage their

applications and integrations, the distributed nature of hybrid IT adds a layer of complexity and skill requirements to these resource-constrained teams. Using these tools, cloud application integration can be time-consuming and costly.

- Middleware licensing, maintenance and support contracts are less attractive than they once were as companies come to realize:
 - Capabilities to support key business requirements can be held up for months or years while traditional middleware providers add features and functionality to their solutions.
 - Middleware updates and maintenance contracts mean version lock-in to middleware that is too expensive to upgrade.
 - As these platforms age, vendors may not provide timely availability of connectors for cloud and SaaS applications.

According to Gartner, adoption of traditional middleware has slowed to 7.7% per year through 2017² as customers seek alternative approaches to traditional middleware for integration.

Integration Platform-as-a-Service

Integration Platform as a Service (iPaaS) first emerged in 2008³. iPaaS is defined as a cloud-based, multi-tenant platform that supports cloud-to-cloud, cloud-to-on-premises, on-premises-to-on-premises and B2B and EDI integration. iPaaS provides centralized capabilities to build, manage and deploy integrations and supports evolving integration patterns. Real-time integration is supported by iPaaS and it scales to meet the high-volume needs in mobile, batch (ETL) and EDI environments.

Single-instance, Multi-tenant Architecture

iPaaS is built on an elastic multi-tenant architecture and enables underlying physical computing resources to be shared securely among multiple tenants (customer organizations). The iPaaS vendor, not the customer, is responsible for managing and updating the software and infrastructure. Upgrades are distributed on a regular cadence across the customer base as part of the software subscription.

Enterprise Integration Standards

iPaaS can support a wide variety of enterprise integration scenarios, including B2B, EDI and web services on one tool. Support for common transport methods and standards-based web services can be expected. iPaaS can also provide universal translation capabilities for non-standard data formats.

Support for Real-time Integration

With the prevalence of SaaS applications coupled with explosive data growth, another emerging trend is the requirement for real-time exchange of information. The use of diverse cloud services, web services and SaaS applications is driving integration to move away from legacy ETL (Extract, Transform and Load) and large batch data transfers in favor of near-real time, low-latency integration processing.

Community Collaboration

A key benefit of any multi-tenant environment is that it can securely and anonymously index metadata from across the user community. Common usage models can then be aggregated and served back to users, better informing their successful use of the platform.

This type of community collaboration greatly accelerates the time it takes to configure, test and implement integrations. One example of this is the process of mapping fields between applications. As applications are integrated and fields for each integration are mapped, metadata mappings are captured in a repository. As new tenants (iPaaS users from across all organizations) are brought on-board and create their own application integrations, they are able to leverage the crowd-sourced intelligence of this mapping repository to inform new data maps. Integrations that are built quickly with fewer errors result in faster time to value.

Distributed Run-Time Engine

As mentioned earlier, traditional middleware implementations are based on a hub-and-spoke model where all integration data is routed through a single bus. In an iPaaS environment, all development and management is performed in the cloud. Once developed, the integration process is packaged into a run-time engine, which

can be deployed in the cloud or on-premises, depending on security and latency considerations.

Easy-to-use, Centralized Management

A web-based console for managing a variety of integrations across the enterprise is a powerful productivity tool. iPaaS resides in the cloud and features a modern, intuitive console for creating, deploying and managing integrations. Customers gain a singular, centralized view of all integration processes, across their hybrid IT environment.

Predictable Pricing

iPaaS is procured as a subscription service in which customers "pay as they go," for a predictable and manageable expense. When customers purchase iPaaS, they only purchase the capabilities and services they need. iPaaS also grows to their future needs as they can add new services based on changing requirements.

iPaaS Suitability for Hybrid IT

Based on the capabilities listed above and its ability to support both cloud and on-premises integrations iPaaS provides unique benefits as an integration platform for hybrid IT.

- iPaaS solutions are based on a multi-tenant architecture, so software maintenance and management of the platform and its hardware infrastructure is provided by the iPaaS vendor and those resources are shared across the entire customer base. Customers can focus on using the platform to support integration for their business rather than investing in IT operations to support the platform and underlying infrastructure.
- iPaaS supports common enterprise integration use cases including B2B, EDI, web services, even MFT and database connectivity. As iPaaS supports integrations across a wide variety of use cases, companies gain economies of skill. Developers only need one skill-set to support a wide variety of integration use cases.
- Enterprises are beginning to leverage the capabilities of iPaaS solutions for real-time integrations as they can be developed quickly to integrate web services and APIs to support business processes to meet strategic integration needs of the business.

- Community collaboration is unique to multi-tenant iPaaS solutions and enhances the speed of integration development and testing and improves productivity for integration developers.
- The use of a distributed run-time engine, deployed either on-premises or in the cloud, results in integration services that can support the security needs of the changing integration patterns inherent in hybrid IT.
- A view of the status, performance, history and each integration process across their distributed environment gives IT leaders the opportunity to proactively manage and monitor the health of their integrations.
- iPaaS service offerings and pricing information are published online to make procurement easy, transparent and predictable.

Based on these capabilities, iPaaS provides a combination of flexibility, elasticity and scalability that is the heart of hybrid IT and supports customer requirements for business agility.

Criteria for Determining your Integration Strategy for Hybrid IT

To determine the best integration strategy for your business and IT environment, Gartner advises: "Because of increased cloud adoption, integration managers must systematically address the challenge of integrating any combination of in-the-cloud and on-premises applications and services."

To address the issues of an evolving IT landscape and implement a hybrid IT integration strategy, use the following criteria:

- a) Take inventory of your cloud services requirements as well as cloud applications already implemented across your organization to determine ways that IT and the business can benefit from having centralized infrastructure through integration
- b) Evaluate if your existing integration strategy can address the growing needs of hybrid IT
- c) Work with iPaaS vendors to develop a proof of concept project for iPaaS and your hybrid IT environment to complement your existing

infrastructure and aligning your integration needs.⁴

iPaaS is Purpose-Built for Hybrid IT in Today's Evolving Integration Environment

As organizations adopt hybrid IT to take advantage of the speed, agility and economics of the cloud, there is an increasingly critical need to look at integration in a new way.

IT leaders charged with addressing the integration needs of their organization are looking for integration solutions to address emerging challenges including real-time integration to support on-demand information requests, B2B integrations to support business partner trading, and a single environment in which to monitor and manage integrations across their organization. Furthermore, they need the capability to manage and measure the performance of integrations across the organization.

iPaaS is purpose-built to help companies handle the integration requirements of today's rapidly changing IT landscape and future-proof their investment in integration solutions to increase the value of their IT investment.

iPaaS customers are realizing significant, concrete cost and speed-of-implementation benefits. We invite you to consider how iPaaS can help you derive greater return on investment, faster time-to-value and increased business success from hybrid IT too.

About Dell Boomi

[Dell Boomi AtomSphere®](#) iPaaS and [Dell Boomi Master Data Management](#) solutions enable customers to connect any combination of cloud and on-premises applications without software, appliances or coding. Organizations of all sizes, from growing companies to very large enterprises, enjoy rapid time to value as a result of drastically reduced implementation times and substantial cost savings over traditional integration solutions. Visit www.boomi.com for more information.

¹ Gartner, Forecast: Public Cloud Services, Worldwide, 2011-2017, 3Q13 Update

² Gartner, Enterprise Software Forecast, Worldwide, 2011-2017, 3Q13 Update

³ November 2008: Boomi [Announces](#) AtomSphereSM: Industry's First Integration Platform-as-a-Service

⁴ Gartner, How to Identify the Right Basic Approach for Your Application Integration Project, 1 August 2013

For More Information

Contact your account executive to learn more about Dell Boomi, or visit www.boomi.com

Dell Boomi Offices

801 Cassatt Road
Suite 120
Berwyn, PA 19312
United States
1.800.732.3602

301 Howard Street
Suite 1950
San Francisco, CA 94105
United States



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