WHITEPAPER

Unlock the value of your .NET architecture with MuleSoft

MuleSoft's Anypoint Platform - The Next Generation Integration Solution

Overview

For .NET centric organizations, the options available to IT for connecting applications and services across diverse code bases on-premises and in the cloud are limited. This whitepaper outlines the critical elements to consider when evaluating solutions to move away from custom integration code while leveraging .NET investments to deliver a next generation service oriented architecture (SOA).

Traditional SOA solutions handcuff IT to .NET

SOA was envisioned (and sold) to help IT organizations optimize agility, minimize time and reduce the cost required to develop software solutions for constantly changing business needs. However, for many, this grand SOA vision has become bogged down in complexity, expense, and rigidity, the very things it was designed to solve. The Enterprise Service Bus (ESB) has evolved as the core infrastructure and tool set required for enabling SOA, but the ESB tools from most vendors fail to deliver on the SOA vision because they:

- Require hefty upfront investments in software, hardware infrastructure, and armies of expensive consultants to implement
- Focus too much on a single vendor or platform, for example; requiring organizations to choose .NET or Java, but not both. Most ESB vendors do not invest sufficiently in adapters for platforms and applications from other vendors
- Use development models and tools that are complex and rigid, making it very expensive to hire and train integration specialists to create or maintain data connections

For .NET based companies this has been particularly burdensome due to lack of competitive integration alternatives built natively in C# or .NET.

Next generation integration platforms deliver SOA, SaaS integration, and APIs

The challenges that SOA attempted to solve are still impacting the enterprise today, however over time the challenges have evolved, and are forcing technology leaders to rethink their IT initiatives. Organizations that have embraced this evolution are part of a new breed of companies; the New Enterprise. The New Enterprise is changing IT architectures to deal with the following mega trends:

Best of Breed apps

To control costs and focus on the differentiating capabilities for their business, enterprise IT organizations are depending more on “off the shelf” or SaaS packaged applications for their mainstream business functions, such as accounting, human resources, and customer relationship management. These systems need to be integrated with each other and with custom applications. Buying all packaged applications from a single vendor is one way to ease integration difficulties between applications, but prevents a company from choosing Best of Breed application for each function.

> **“To control costs and focus on the differentiating capabilities for their business, enterprise IT organizations are depending more on “off the shelf” or SaaS packaged applications for their mainstream business functions.”**

Multi-platform, heterogeneous environments

Enterprise architects often attempt to reduce complexity by confining their organizations to a single vendor, platform, or development language. This approach limits future flexibility. It is inevitable that departments or teams will have preferences or requirements that drive them to adopt an alternative technology. Company mergers and legacy systems introduce additional complexities that require a different approach to account for the many different language patterns, custom applications and connection services.

Cloud

Cloud computing has radically changed how enterprises think about their IT architecture. With business groups banging down the doors to get access to new, more powerful Software as a Service (SaaS) products such as Salesforce.com and Workday, IT organizations have had to rush to customize their infrastructure to keep up with services and security demands. In the new cloud connected world more and more of these applications are based in multiple languages, including Java or other functional languages, and the best solutions may not fall within current developer skillsets.

Multi- language support enables Best of Breed

When looking at options for your next generation integration platform the concept of Best of Breed is the primary consideration, not just for your 3rd party apps, but also for your choice of ESB. Since the ESB is the cornerstone of the connected architecture of the New Enterprise, the ESB you choose will determine the agility you achieve.

Too often, companies limit their ESB choices by making the development language supported by the ESB the primary concern. For example, many .NET teams constrain their search to only .NET centric ESBs, leaving them few options. As it turns out, the development language supported by the ESB is not the most important consideration because:

- At its core an ESB is all about interoperability. A strong ESB will support a broad range of standards, protocols, and adapters, enabling integration of services and applications written in any language or platform. A Best of Breed ESB doesn't care if the services it is connecting are written in Java or C#.
- A Best of Breed ESB will enable the majority of integration work to be done through tools that are easy to learn and provide visibility into what is happening in the ESB, rarely requiring developers to write or debug code.
- When code is required for customizing integrations, the ESB should provide frameworks, APIs, and templates for the customization. So, for example, a .NET developer customizing a good Java based ESB would use a small subset of Java, primarily needing to understand Java syntax, not the full breadth of Java technology. It should also be extendable with other familiar languages, such as JavaScript or Python.
- Java and C#, the predominate languages in the enterprise, are nearly identical in syntax.

> **"Too often, companies limit their ESB choices by making the development language supported by the ESB the primary concern."**

Characteristics of a superior integration solution

Now that we have eliminated code language as a barrier for integration vendor choice, how should you choose the best ESB solution? As you begin the journey to evaluating your next generation heterogeneous integration platform there are critical components that will make implementation faster and your connectivity better:

Easy to use tools, improved flexibility

Productivity is vital to any successful Integration software. How long is it going to take to get your new initiative or application live? The software you choose should use graphical interfaces combined with advanced coding so you can automate when you need speed and customize when you need power. This will drastically increase your developer productivity and reduce the onboarding time for your .NET architects to work with other languages.

With MuleSoft's powerful tooling, enterprises can leverage current IT investments and integration logic without building or re-coding their modules.* MuleSoft's integration strategy lays the groundwork for your IT organization to address immediate integration challenges and develop a robust API management strategy. Mule Studio provides an easy to use graphical design environment that will have your business up and running quickly. Anypoint DataMapper works with Studio to simplify data mapping and transformations. Moreover, with the largest community of developers of any ESB, best practices and guidance are easy to find.

**Visual Studio native integration coming 2014*

Robust connectivity

You shouldn't have to spend your time building connections to an integration platform, look for a robust adaptor and connector network that quickly gets you up and running both on-premises and in the cloud. When the need arises, an open SDK and 3rd party marketplace greatly increases the pool of applications and protocols you have access to. It's critical to ask the question: how frequently are new connectors and adaptors created for my integration platform?

MuleSoft's Anypoint™ Platform addresses the needs of .NET customers in the New Enterprise. Along with over 120 connectors to the most popular SaaS applications and on-premises systems, MuleSoft has developed Anypoint Connectors for Microsoft to address the needs of Microsoft centric IT organizations. Included connectors:

- MSMQ
- AMQP
- Active Directory
- SOAP/WS* (WCF interoperability)
- REST (ASP.NET WebAPI interoperability)
- SharePoint
- SQL Server
- Microsoft Dynamics GP
- Dynamics CRM
- Dynamics Online
- Excel/CSV
- Yammer

Scaling through lightweight federation

Setting up an integration platform shouldn't require you to "rip and replace" your existing IT infrastructure. Look for a solution that allows you to start small by building departmental solutions and then connect to a central core, or the cloud, scaling horizontally when you're ready.

Mule ESB is the world's most efficient Enterprise Service Bus. It is designed to work efficiently on commodity hardware, virtual machines and even developers' laptops. Compared to other ESBs it requires a fraction of the resources in order to run effectively. As an open, Best of Breed platform Mule ESB can be used standalone or with any other component you choose to build your SOA project.

Customer case study: #1 web conferencing service provider

As a large, distributed organization, this major IT services provider is no stranger to complex integrations. As the firm's core business evolved they started to leverage cloud services. With their .NET stack infrastructure (SQL, Windows Server, System Center), it proved difficult to find a vendor that supported their hybrid cloud and on-premises integration needs. The firm turned to MuleSoft, and its CloudHub solution, to provide the robust Saleforce.com and Marketo connectivity that it needed. With MuleSoft's broad range of connectors the provider was able to connect its SaaS services and bring them back on-premises for full data reporting and analytics.

> **"Setting up an integration platform shouldn't require you to "rip and replace" your existing IT infrastructure. Look for a solution that allows you to start small by building departmental solutions and then connect to a central core, or the cloud, scaling horizontally when you're ready."**

Highly reliable, scalable

Mission critical performance and scale demands that your integration software seamlessly execute on its transactions. When your company grows your integration solution should be able to scale, and do it securely.

Customer case study: MasterCard

Over several years the Key Management Security group at MasterCard inherited many applications from other teams. Each application was developed using different operating systems, databases, frameworks and programming languages. Their main key management application, for example, had been developed using Java and Eclipse RCP. A second was developed using Python and WSDL/SOAP. A third was written using C++ and .NET. While there was much overlap in functionality between the applications, maintenance was difficult because the technologies were so different. This resulted in duplication of work and high costs. To simplify application connection and maintenance MasterCard selected Mule ESB to enable robust connectivity, easier management and improved security, all with the advanced application development that MasterCard required.

Unified integration platform

The New Enterprise approaches integration with the goal of a unified platform in mind. A unified integration platform allows for the capability to rapidly test different components and services, whether connecting new cloud services, simplifying logic on-premises or building APIs. This adaptable architecture enables productivity, reducing the time it takes to succeed in a new IT initiative or forces you to fail fast. Your integration solution shouldn't require you "bolt on" another integration engine to work with Best of Breed applications, but instead empower your business with a robust adaptor network and easy to use connector framework. Connectivity needs around SaaS integration, SOA and API solutions will converge over time and companies will need a single platform to solve their enterprise connectivity challenges.

MuleSoft's Anypoint Platform provides a unified, lightweight integration platform to rapidly connect, orchestrate and enable any internal or external endpoint. The result is a rapid time to real enterprise value, connecting systems and data across organizations. The Anypoint platform delivers an exceptional, unified user experience in concert with robust technical features and performance.

> **"Connectivity needs around SaaS integration, SOA and API solutions will converge over time and companies will need a single platform to solve their enterprise connectivity challenges."**

Capture more value from .NET with MuleSoft's Anypoint Platform

The proliferation of apps has challenged the landscape for integration services. Applications that you need to connect to now and in the future will be in a variety of languages and likely not in your datacenter. Limiting your next generation integration server by code base or deployment architecture will handcuff IT innovation, limiting your company's ability to respond to future opportunity. Choosing the Best of Breed ESB will reduce connector headaches down the road and allow your business to start using IT as a revenue driver.

The Anypoint Platform is the world's leading Integration solution

and is trusted by many organizations taking a modern approach to integration. Mule ESB is used, in production, at over 3,500 organizations, including Walmart, MasterCard, Nokia, Nestle, Honeywell, DHL as well as 5 of the top 10 banks and over 35% of the Global 500. MuleSoft can help you evaluate your key SOA challenges and develop an agile architecture to help you succeed for years to come.

Ready to get started?

Mulesoft has a team of expert consultants conversant in .NET and Java to help you develop your New Enterprise IT roadmap. We have field tested experience in integrating .NET applications, cloud services, and multi-platform applications in addition to the design and publishing of modern APIs. For those looking to learn more, these two webinars provide a deeper look into MuleSoft's technology:

Mule 101: Rapidly Connect Anything, Anywhere

What if you could deliver an integration project up to 8 times faster? With the Anypoint Platform from MuleSoft, you can. Join MuleSoft founder Ross Mason and Sr. Product Manager Steven Camina for a demo-driven walkthrough and discussion on how you can integrate faster with the Anypoint Platform.

http://www.mulesoft.com/webinars/esb/mule101rapidlyconnectanythinganywhere

Connect the New Enterprise

The mega-trends of SaaS, mobile and Big Data are converging, generating a new wave of business opportunity for enterprises. The convergence demands a new kind of platform – one that connects and takes advantage of the explosion of endpoints and data caused by organizations each choosing a uniquely diverse set of Best of Breed applications to power their business. Ross Mason, MuleSoft founder, will discuss his vision for this new platform and demonstrate how MuleSoft's solutions are making it a reality.

https://www.mulesoft.com/webinars/esb/connecting-new-enterprise

About MuleSoft

MuleSoft's mission is to connect the world's applications, data and devices. MuleSoft makes connecting anything easy with Anypoint Platform™, the only complete integration platform for SaaS, SOA and APIs. Thousands of organizations in 54 countries, from emerging brands to Global 500 enterprises, use MuleSoft to innovate faster and gain competitive advantage.

For more information:


www.mulesoft.com


info@mulesoft.com


Mule ESB: http://www.mulesoft.com/download/