The Last Mile of Integration

A Simpler Way to Connect Existing Systems to SOA

What is the Last Mile of Integration?

In the telecommunications industry, the term the "last mile" refers to the final leg of delivering connectivity from a communications provider to a customer — the line from the pole to the house. It's typically the most expensive, time-consuming to build, and hardest to maintain part of the network — yet it is also the most critical part, because from the customer's perspective it is the first mile they must travel to browse the web, watch television, and talk on the phone.

IT organizations in all industry sectors face a similar challenge. They need to integrate their existing business applications with new applications, or re-use them to meet changing business requirements. For these organizations, the "last mile" often means figuring out a reliable, SOA-based way to integrate existing business apps with new infrastructure in support of new business initiatives. Simply put, they need to rapidly connect old and new systems using easily maintainable, standards-based approaches.

Requirement	Reason	Advantage
Support for variety of integration protocols	Infrastructure may require various APIs, including SOAP, JavaBeans, .NET, JMS, MQ	Integrate with a variety of middleware platforms and applications
Support for variety of platforms	Computing for a complete business process often crosses platform boundaries	Enable business logic and data consolidation from multiple platforms (mainframe, midrange, Windows)
Composite services	Flexible orchestration of multiple systems without compromising business logic in each	Create reusable fine-grained and course-grained services non-invasively
Performance	Meet development timelines and deployment SLAs	Develop quickly and scale to handle very light to very heavy workloads
High availability and disaster recovery	24/7/365 uptime required to support the business	Natural fit for HA and DR solutions on-site and in data centers
Maintenance and automation	Provide agility to implement changes in a highly automated way	Wizard-driven change management and automated build capabilities

Table 1. Requirements to integrate existing applications in an SOA

To address this challenge, many organizations implement some form of integration middleware, like an enterprise service bus (ESB) or message-queuing middleware (MQM), or a business process management (BPM) suite. These solutions are proven for connecting new applications and infrastructure — standardizing messages, improving process flows, and orchestrating interactions. But they fall short when they have to integrate with so-called legacy systems. Business applications running on mainframes, midrange systems (IBM i, OpenVMS), and even Windows and web platforms are at the center of your existing

operations. But the pre-SOA infrastructure on which they are designed is not suited for sharing or re-using business rules and data.

Integration middleware cannot always easily access these assets. While middleware providers claim to support legacy integration, during implementation customers sometimes discover that the off-the-shelf "legacy connector" that was included in their integration solution turns out to be a template for hand-coding APIs to existing business applications. This means that to finish that critical last mile of integration, the customer ends up writing a lot of custom code at the legacy end of the connector. By hand-coding these connectors, organizations re-create the problem that they were trying to eliminate by implementing new SOA middleware in the first place — point-to-point integration. Hand-coded connectors take too long to build, hamper agility as business needs change, and are resource-intensive to maintain. The last mile remains the greatest challenge.

LegaSuite: SOA Enablement for the Last Mile of Integration

Research from Gartner and Forrester Research has estimated that up to 35 percent of development time is devoted to creating interfaces and points of integration among applications and data sources.[1] Connecting different systems together shouldn't take so long or add additional layers of complexity. There is a better way. Organizations that need to integrate existing business applications with new infrastructure can use LegaSuite to achieve the elusive last mile of integration — rapidly, affordably, and in a flexible and easily maintainable way.

LegaSuite enables enterprises to quickly create standards-based APIs for any existing business application or data set. Instead of hand-coding, LegaSuite lets developers or subject matter experts walk through applications and record the flows a user would perform, specifying inputs, outputs, events, and exception conditions. These recordings are then published to a LegaSuite integration engine as standards-based APIs like web services, JavaBeans, XML messages, and .NET assemblies. ESB, BPM, and MQM solutions and other calling applications use these APIs to perform business functions.
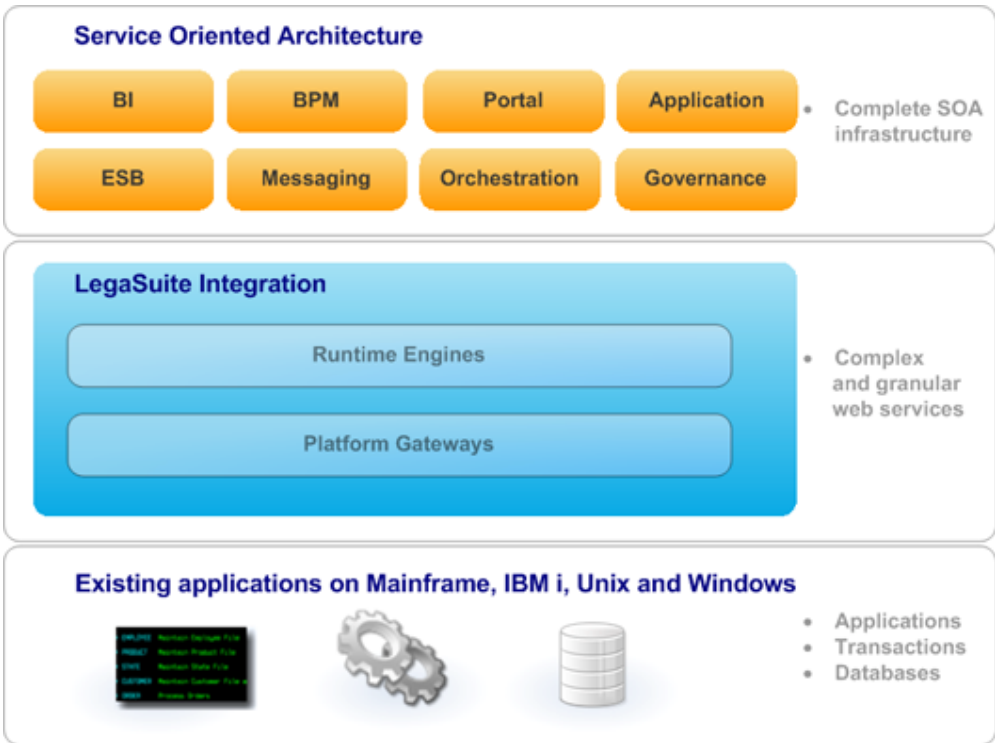
LegaSuite: Deploy business logic and data from existing platforms to your SOA infrastructure.

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[1] "Increasing ROI with Enterprise Application Integration: Insights from the Front Line", Michael J. Schroeck, *Information Management Magazine.*

LegaSuite services can be accessed independently or orchestrated with other SOA middleware components to create composite services. Customers can also incorporate data from any JDBC or ODBC data source. The result is the ability to seamlessly blend business functions and data from multiple platforms and provide it all in a SOA-accessible way. The business logic still executes unchanged on the original platform, but to middleware and calling applications, the platforms and applications themselves become transparent. The middleware only knows that it is dealing with a web service.

Since LegaSuite supports a wide variety of platforms, it is easy to incorporate business services from new platforms as the need emerges. LegaSuite is extremely adaptable — if the business requires a change to a service, a developer or SME simply walks through the source application(s) and follows the path that reflects the required change. All created services and data access methods can be versioned and managed via standard source control and application lifecycle management solutions. New and changed services can even be hot-deployed for near-instant response to business requirements.

LegaSuite is also extremely scalable and available — it is designed to meet mission-critical requirements. LegaSuite integration engines can run on a wide variety of platforms, including natively on the mainframe, IBM i, UNIX, and others. The integration engines are designed to support the latest trends in infrastructure computing, including high availability, virtualization, and cloud computing. Read on to learn how IT organizations have achieved the last mile of integration for a wide variety of mission-critical applications.

Insurance: Integrating the Mainframe with ESB and BPM

This national health insurance company has been a leader in the individual health market for more than 60 years and offers a wide variety of health insurance plans, including Health Savings Accounts (HSAs), a plan they pioneered. The company is known for outstanding service — for example, they process more than 94% of all health insurance claims within ten working days. Maintaining this high case management throughput requires them to constantly evaluate and improve technologies associated with underwriting, claims processing, and customer correspondence.

To improve the claims payment process, the company implemented TIBCO Business Works (ESB) and iProcess (BPM). After gaining proficiency with SOA and the TIBCO tools, they uncovered new opportunities to improve underwriting, submitting, and data entry processes. The technical challenge to improving these processes was that they were supported by legacy mainframe applications.

The insurance company selected LegaSuite to provide the last mile of integration — a scalable SOA interface that enables the mainframe to participate as an equal player in the

> **Insurance company enables the mainframe to participate as an equal player in ESB and BPM initiatives.**

company's ESB and BPM initiatives. They are now able to publish mainframe-based services to TIBCO Business Works, then leverage those services to assemble and maintain composite applications and business processes in iProcess. With minimal time and coding, LegaSuite enables straight-through processing using direct SOA access to policy documents and application business processes and rules that live and run on the mainframe.

The most impressive benefit they derive from LegaSuite is time to market. The initial project was performed by a systems integrator in approximately two months. Now that the company can easily SOA-enable any mainframe asset or application, they have the ability to adapt to changing conditions or new initiatives much faster. They also derive additional value from both their TIBCO and mainframe investments any time they need a new or changed process that involves the mainframe.

Publishing/Media: Integrating the Mainframe and IBM i with CRM Solutions

The largest publisher of books for school-aged children has built a highly successful business model organizing and conducting book fairs. These fairs are complex events to pull together; they can be a part of larger events like charity or sporting events and can include workshops, special presentations and guest speakers. The company is also constantly challenged to provide the proper book inventory to fit the theme of each fair.

To improve customer service for the schools and other organizations that conduct book fairs, the publisher decided to implement PeopleSoft CRM. The new CRM system dramatically improved the book fair planning experience for customers, but fell short in one very important way — integration between the CRM and the underlying mainframe and IBM i book ordering and inventory management systems. It turned out that integrating PeopleSoft and their core systems required a lot of development work, making it hard to implement and maintain. As a result, orders were often entered manually into these systems, causing customer service representative (CSR) inefficiency, creating confusion around available inventory, and reducing overall order accuracy.

The publisher selected LegaSuite to provide the last mile of integration — a scalable SOA interface that enables a CSR to enter order information directly into PeopleSoft and uses both

Publishing company integrates PeopleSoft and WebSphereMQ with mainframe and IBM i applications in real-time

direct connections and WebSphereMQ to direct those orders to the underlying mainframe and IBM i applications in real-time. CSRs can now process and complete book fair orders while their customers are on the phone with them, and all parties can be assured of order accuracy and available inventory. Per-call revenues have also increased, as CSRs can now focus more on working with their customers to identify the right products for their fairs.

Financial Services: Integrating the Mainframe with Online Banking

One of the ten largest banks in the world operates a division that serves the unique financial needs of active and retired US military personnel. The division wanted to offer improved online banking services to its customers, so they decided to implement Sybase Financial Fusion. This state-of-the-art platform delivered the desired online banking experience, but it lacked real-time connectivity to the mainframe CICS applications where the account data resides.

The bank wanted these special customers, who might need to access their accounts at any time and be anywhere in the world, to be able to see up-to-the-minute account information. Adding to the sense of urgency, the bank began advertising this ability nationally as a competitive differentiator, though it was not yet possible for the military bank division. An analysis determined that the project would take approximately 32 person-months of hand-coding to complete. The bank had all of the

Multinational bank enables real-time integration between online banking and mainframe

pieces to achieve real-time account updates, but needed a fast and reliable way to put the pieces together.

The bank selected LegaSuite to provide the last mile of integration — the bridge between CICS and WebSphereMQ that enabled real-time integration between the mainframe and the Financial Fusion online banking site. The project took only one-and-a-half person months, enabling the bank to meet customer expectations in a fraction of the time and for a fraction of

the cost of hand-coded connectors. The project was so effective that the bank then further leveraged LegaSuite to improve the online account opening process. The bank cut the account opening time from approximately 35 minutes to 15 minutes and reduced clerical errors by 75% due to the elimination of redundant data entry.

Education: Migrating from the Mainframe to Oracle

Since 1999, a large Midwestern university with more than 30,000 students has been using LegaSuite to integrate their web-based online portal with their CICS-based student management systems. The portal enables students to register for classes, view grades, and perform other common tasks. It also saves the university money by reducing registration and student service costs. While the solution has been very effective, the university recently

University migrates from their mainframe to Oracle using a phased, SOA approach

decided to migrate to packaged ERP and student registration system solutions. They selected the Oracle-based Banner ERP application and Oracle Secure SSN Vault. While the university calculated that this investment would save money over the long term, the technical staff had serious concerns about migrating to a new platform and application set. In particular, they did not want to interrupt or reduce the level of service for students.

The university found fresh value in LegaSuite by using it as a migration enabler. Since 1999, LegaSuite had been acting as the last mile of integration between the mainframe and the website. Now it became the last mile of integration between the mainframe and Oracle. The university's first step in their migration was to implement SSN Vault, but since class registration and other processes remained on the mainframe, they needed a way to enable the mainframe to securely retrieve confidential student data from the Vault. Using LegaSuite's outbound web services capabilities, any mainframe-based process that needs to retrieve or update data in the Vault now uses secure web services to perform these tasks.

Non-Profit: SOA-Enabling Legacy Windows Applications

A U.S. non-profit health and wellness organization is committed to making it easy and straightforward for citizens in need to register for all available state and local assistance programs. The program objective is to enable people to fill out a single set of eligibility and enrollment forms, either online or in a local public health office, and then automatically enroll the applicant in all state and local assistance programs for which they are eligible.

Non-profit service-enables Windows systems for public health agency Web portals

The organization provides a web portal that can be deployed by state and local governments both in office and on the web. The portal includes connectors for some common state systems. However, the challenge the organization faced revolved around the local government assistance systems. Most of the county governments used either homegrown or

packaged Windows applications to manage local assistance programs, and the NPO did not have the staffing or funding to custom-code connectors for each county's systems.

The NPO selected LegaSuite to provide the last mile of integration — a flexible integration framework that enables the implementation team to rapidly service-enable Windows-based local government assistance systems so that their capabilities can be incorporated into the web portal. The implementation team now has the capability to rapidly incorporate local systems as counties join their program, and county governments and caseworkers have reported as much as a five-fold decrease in the time it takes for citizens to complete the benefits application and eligibility declaration process.

Conclusion

LegaSuite helps customers achieve the last mile of integration by providing SOA-based access to applications and data that are not, by their design or platform, SOA-ready. By SOA-enabling these assets, IT makes them compatible with a larger integration strategy supported by ESB, BPM, and other enterprise integration initiatives. LegaSuite solutions are flexible and scalable and can be delivered extremely rapidly. In contrast, hand-coded connections between older systems and new infrastructure are expensive, brittle, and time-consuming to build. LegaSuite gives your business new agility, new functionality at reduced risk, and faster time to market for new solutions — making that last mile feel a whole lot shorter.

About Rocket Seagull (a Rocket Software brand)

Seagull Software, a Rocket Software brand, specializes in tools and expertise to modernize and integrate applications running on mainframe, IBM i, OpenVMS, UNIX and Windows platforms.

Thousands of organizations rely on our LegaSuite software as a proven and cost-effective way to modernize legacy applications and integrate legacy systems. LegaSuite lets you:

- Speed legacy modernization and integration projects to market
- Web-enable green-screens to improve usability
- Service-enable legacy applications for Web self-service
- Easily include legacy data and apps in an SOA strategy
- Reduce the cost and risk of migrating legacy apps

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