

SOA: the perennial legacy issue

Everything old is new again. This is especially true of Service Oriented Architecture (SOA) thanks to the powerful growth of web services. Two technologies that are mutually beneficial and key to the mainstream adoption of the other.

With the maturation of web services standards, there has been increased buzz about SOA, which saw its beginnings in the 1990s, for its ability to reuse critical data and logic and make it accessible within web applications, portals, intranets and self-service offerings. **Ron Grevink**, director of integration strategy for AttachmateWRQ tracks SOA's rise to fame.

With increasing demands on IT to become more agile, developers are faced with ever shorter project timelines. In the early 80's the IT delivery time on average was round 30 months (Figure 1, internal AttachmateWRQ research).

This delivery time was more than sufficient to support the change in business processes in the 80s. In 00s however, business processes change on average every six months. This has placed a tremendous demand on IT to deliver project timelines of on average three months, or a factor 10 faster than the early 80s.

CIOs need to react quickly to changing business requirements and ultimately want an

applications. To drive ROI, organisations with legacy assets are turning to host integration software to extend their SOA benefits, speed services delivery and increase productivity.

- 2) SOA-based host integration platforms increase productivity and agility within the IT department, enabling faster response to address new initiatives, maximising IT resources and extending ROI with legacy assets.
- 3) With SOA, developers can create services quickly and reuse these services across multiple projects to realise initial benefits faster.
- 4) The ability to encapsulate functionality at multiple levels creates more useful services that can be reused across a wide range of new applications.

- 5) Existing applications can be migrated to new technology platforms, or even replaced, without affecting new applications that rely on their functionality.

Logical reuse

The application that once required complex employee training can be easily integrated into a web application that requires little or no training. For instance, data and logic can be reused from a mainframe-based call centre application. Similarly, a web-enabled billing application can be reused to develop a self-service application that enables customers and partners to check account information or submit a payment via the web. Once complex, highly-specialised functions

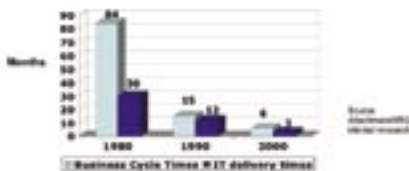


Figure 1. In the early 80's the IT delivery time on average was round 30 months

IT environment that is flexible enough to be proactive. As a result, CIOs and IT development teams are leveraging SOA and host integration software to deliver new business initiatives.

A survey done by IDC at their SOA conference in 2005, confirmed that the most important driver for implementing and SOA was the need to, "respond to business change". Other important drivers of implementing SOA were, "reuse of IT investments" and, "application integration effectiveness."

Host integration technologies that leverage SOA enable developers to take full advantage of the efficiencies created by reusing application components.

The implications of an SOA implementation are as follows:

- 1) The business case for Service Oriented Architecture (SOA) is based on the ability of enterprises to reuse application components in new web services, portals and packaged

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locked within mainframe applications can now be reused repeatedly as services on a project by project basis.

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SOA and the host

Many organisations have accumulated nearly 25 years worth of legacy assets that are essential to driving their business. These assets reside on the host, making host systems among the most powerful and often the most complex systems in your IT environment. Companies have made and continue to make large investments in user training because these host applications, although complex, provide vital business functions required for day-to-day operations.

However, accessing the information can be cumbersome and expensive due to the monolithic nature of the applications. Many of these applications are only accessible via the terminal interface, which severely limits the ability of the developers to directly leverage the business logic and data.

Therefore, if an organisation wishes to push forward with modern web-based and enterprise applications, they must either reengineer, discard or integrate these host applications. Reengineering is often costly due to the complexity of the code and the lack of available legacy programming skills (e.g. COBOL, Assembler, RPG).

Discarding the application means discarding the business rules and processes built up over time that now need to be re-implemented, adding not only cost but significant risk. The integration approach is the lowest risk if the integration tools enable a non-intrusive and systematic approach to the integration process (See Figure 2).

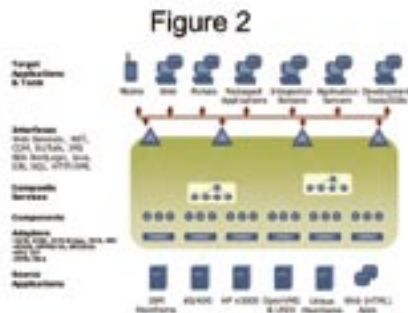


Figure 2: SOA-based host integration modernises host-based applications so that developers can reuse their functionality in a wide variety of web-based applications.

This approach can result in solutions that significantly reduce training costs and improve end user workflow by streamlining and simplifying business processes.

By reusing host assets instead of discarding them, developers can take advantage of the best of both the mainframe and web worlds, enabling them to deploy cost-effective web services,

portals and packaged applications. By promoting or adhering to SOA, organisations can publish standard interfaces or web services that abstract the underlying complexity of the host system, thus service-enabling the host, removing the barriers and making it available to new projects or technologies.

The project you complete today can be used next month, next year or later. There's no longer a need to recreate all the logic and data in order to start a new development project.

Golden nuggets

The use of web services and their implementation, availability and security help contribute to general acceptance of SOA. As a result, you can leverage newer technologies, like integrating nuggets of host business logic with a customer relationship management (CRM) package or presenting data from the host within a new portal initiative.

For example, BT Retail in the UK needed to improve service and reduce costs by integrating their Siebel front end with their legacy systems, which included a mixture of UNIX, HP and IBM mainframe systems.

By leveraging the appropriate host integration tool, the developers at BT Retail could quickly abstract what was a monolithic, terminal-based application into a set of services. The end result was enhanced customer satisfaction, reduced costs with better internal efficiencies and critically important: a rapid-development platform in place for ongoing projects.

Host integration speeds self-service web application, web service and portal development by enabling an organisation to leverage existing business logic and data. To further shorten the development cycle of new projects, an integration tool should auto-generate the required services plus customisable applications or portlets.

Additionally, an organisation embracing an SOA approach will expose all of its business process functionality via services. Packaged applications, databases and host applications typically require significant understanding of different technologies. By creating web services, you need not understand each technology, only how to access the web service.

SOA in multiple development environments

Development environments like Microsoft .NET, BEA WebLogic and IBM WebSphere can work with legacy integration tools and ultimately increase developer productivity. By leveraging host integration tools that enable the developer to use the development platform of their choice, developers can integrate information from the originating systems without having to learn an additional development environment.

For example, creating a web-based application to automate a business process like purchasing or billing for the majority of companies is often highly dependent on customer account information from the host.

With a significant percentage of customer information residing on legacy systems, developers need a host integration tool that

provides access to business logic and data without requiring customer programming or re-engineering of legacy applications.

Using a host integration solution that supports SOA, developers can create web services and .NET or Java components and utilise those services in the web development platform of their choice. With this approach, these newly created SOA-based applications can support new business initiatives that can provide support to thousands of users in real-time, transaction-intensive environments.

This leverages both the modern development environments' inherent benefits as well as the business critical information locked up in a variety of host systems including IBM, Unisys, HP, OpenVMS and UNIX legacy systems.

Figure 3 shows how SOA based integration tools can be used in e.g. Microsoft environments to present legacy assets as web services, portals or self-service applications.

Additionally, because host integration solutions are non-invasive to the host, these tools can be used to generate results without disrupting business or compromising the robustness, security or stability of the company's legacy systems.



Figure 3: SOA-based host integration platform ties mainframe resources to Microsoft .NET or BizTalk applications and present legacy assets as web services, portals or self-service applications.

While company users are using new web services, portals or other applications to increase business, developers can leverage SOA-based host integration tools to reuse business logic and functionality work from those new initiatives to tailor new services and applications within their preferred development environment.

For example, if developers have created a self-service application for internal users to enter purchase order information on a single web page, instead of using a different host screen to enter each order line; they can reuse that data and logic to develop a web self-service application that allows external users such as field agents, customers and partners to submit their purchase order and billing information.

In a few months, developers can have both internal and external users entering all details of a purchase order or bill on a single web page so the company's accounting department can easily view, approve or correct billing information across multiple purchase orders simultaneously.

Similarly, representatives reduce the time spent on the phone with each customer or employee by using web, portal and real-time applications because they gain a 360 degree view of information on one screen - a modern

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The host with the most

An effective host integration tool will help ensure success of your first project, and allow you to reuse information for every other project down the road.

When considering the various vendors, ask your host integration vendor to demonstrate what it means to encapsulate your information in a host application. A host application itself should typically be represented by a set of services (See Figure 4).

The tool you select must be able to get those services to represent pieces of the business process, instead of treating individual host screens as pieces of data. Each business process should be leveraged within a web application or service.

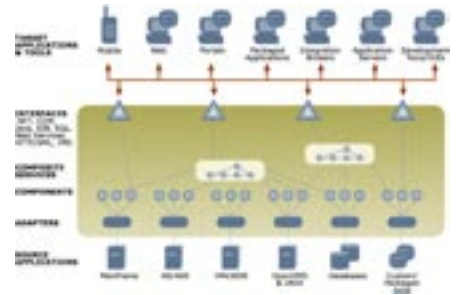


Figure 4: When selecting host integration software, make sure to select one that is easy to use and maintain, leverages multiple-host assets and extends SOA benefits.

A legacy integration tool should leverage SOA across multiple development environments. Rarely is an organisation built on just BEA WebLogic or .NET, for example. You need to be able to leverage all existing development platforms, while integrating data and logic into your most important business applications.

Most importantly, your SOA-based host integration tool should ensure that your developers can continue to work in the environment that they're most familiar with to reuse host data whether that is .NET, J2EE or LAMP.

Your tool also should include features to make your developers' jobs easier, like a way to edit XML schemas and generate web services description language (WSDL). Other key features to look for include:

- ▶ Ease of use
- ▶ Session pooling
- ▶ Ability to automatically generate components for different technologies such as .NET or Java
- ▶ Debugging and testing
- ▶ Resilient to change
- ▶ Performance and scalability

Above all, remain focused. Most web services, portal or self-service application projects only need to integrate with a couple of applications. SOA enables IT organisations to select best-of-breed tools.

One should take advantage of that and select a host integration product that meets the specific needs of the imminent project while providing the flexibility to support other development environments for future projects.

day alternative to toggling through five or one hundred different green screens. Less training is necessary to develop these applications with SOA and this quickly leads to increased productivity and customer service that adds to business agility.

Preparing for an SOA-based host integration project

When considering developing web services, portals or web applications, companies often look at ways to overhaul the entire infrastructure. But that takes time, a lot of money and it will often disrupt their entire organisation.

An SOA project-oriented approach solves a specific need, like automating the purchase order process.

Here are steps to consider when preparing for an SOA-based project for the first time:

- ▶ Examine your organisation's key business initiatives for the next six months to a year.
- ▶ Focus on one (and only one) web services project that requires you to interact with data from the host. The project should be perceived as high value by the business stakeholders.
- ▶ Set a timeline. Your first SOA project, the proof of concept project, should not last more than three months.
- ▶ Select a technology platform such as Microsoft .NET, J2EE or LAMP (Linux, Apache, MySQL, PHP). Ensure your development team has experience with the selected technology and platform.

- ▶ Select a host integration tool that supports SOA and also supports a non-invasive approach. Additionally, the host integration tool should seamlessly integrate with the technology and platform selected for the SOA project.
- ▶ Maintain a "laser focus" (i.e. as sharp an eye as possible) on the project. It is essential as with any project to contain feature-creep. One of the traditional reasons for feature creep is the realisation that the next release of a business application might be a year or more out and the end-users cannot wait that long for a requested feature.

With the SOA approach, features can be added incrementally in just weeks or months so it is easier to put those additional features on the to-do list for the next increment. If your users only have to wait another month instead of another year, you may find them more agreeable.

- ▶ Demonstrate the solution to your key stakeholders. Once presented with a successful project in the agreed to timeframe and budget, obtaining funding for the next project becomes significantly easier.
- ▶ Once you complete the initial project, incrementally add capabilities that are in line with the company's business initiatives.
- ▶ Understand that transitioning to SOA is a multi-year process. But investing that kind of time is directly related the benefits you'll reap from SOA - like the ability to automate a process that used to take three days.

Conclusion

Where once the majority of host integration projects took years, IT departments can leverage SOA-based host integration to create non-evasive, “on-demand” applications and services that reduce business cost while speeding business agility.

Today’s new economy requires that organisations complete projects for a fraction of the cost and time and quickly implement new initiatives that are proven to earn ROI at many times the rate of home-grown projects.

In the past, development teams were accustomed to setting aside two to four years to develop new applications. By leveraging an SOA approach to integration and selecting an SOA enabled host integration tool, IT managers can complete and implement the application in months instead of years and with the commensurate ROI.

While IT budgets and staffs are remaining conservative, companies are looking for ways to get more bandwidth out of implementing new projects that will increase business productivity.

For IT departments to become more agile, organisations are increasingly taking an SOA approach to portals, self-service and enterprise applications, knowing they’ll benefit from SOA’s ease of integration, ability to reuse data and logic, and automation.

A host integration tool that supports SOA should be easy to use, as well as non-invasive. It should support all the major development environments equally well while eliminating the timely, costly process of recoding.

By following this SOA strategy and leveraging the in-place host applications, IT organisations can revisit project plans quarterly. They can then pivot if necessary to support evolving business needs, thereby maintaining the flexibility required in today’s global economy.

And that’s the reason for all the SOA buzz! ■■

About the author

Ron Grevink is director of Integration Strategy for AttachmateWRQ and a strong proponent of service-oriented architecture (SOA).

He seeks ways to help customers address current integration needs while building a foundation for future SOA initiatives.

At AttachmateWRQ, he helps to shape the future of the AttachmateWRQ Verastream and Synapta product line. Before joining AttachmateWRQ in 1996, Grevink worked for nine years at Unisys, where he held different posts, both in the Netherlands and the UK.

60% To 70% Of Companies Worldwide Intend To Leverage Existing Legacy Systems

Independent research into the host access and integration market has been conducted on behalf of AttachmateWRQ by Girvin & Millward Brown. Over 1150 companies were surveyed worldwide.

Key findings:

1. 60% of North American companies and 70% of European companies surveyed intend to leverage their existing legacy systems in some way.
2. 60% of respondents in North America and Europe think that legacy integration, once defined to them, is relevant to their business requirements.
3. The Europeans are more likely than their North

American counterparts to continue to leverage their legacy systems.

4. EU customers are more likely to use web services to extend legacy functionality.
5. European customers are more inclined to value staying up to date with leading technologies and system functionality. They are more likely to keep the legacy systems and invest in further development in the legacy environment.
6. On the other hand, customers in North America are more concerned with a single, unified user experience and ease of use. They are more likely to be influenced by exceptional customer service/support as well as the need for little customisation.

Case Study: AttachmateWRQ Verastream host Integrator enables AT&T to dial up fast legacy system access



Communications giant AT&T used Verastream Host Integrator to expedite billing, inquiry and service calls from the hundreds of thousands of AT&T customers who have toll-free numbers.

Business needs

AT&T needed to reduce time and costs spent on customer calls by simplifying Customer Service Representative (CSR) access to information.

One of AT&T’s 1,100 CSRs could take as long as a quarter-hour or more to retrieve the appropriate information from more than 1 million records in three different legacy applications.

The cost of training CSRs in the three systems, the time it was taking to respond and the less-than optimal customer service all begged for an effective solution.

The challenging goal was to slash callers’ wait times to a range of five to 30 seconds.

Solution

The challenge at AT&T is a familiar one for corporate IT executives these days – to marry the speed and flexibility of the Internet to the tremendous value of large volumes of data captured on decades-old legacy systems.

The ideal solution would be a non-invasive process that would not impact host system structure or operations, yet would unite access to billing, carrier and customer profiles, and administrative information systems.

AttachmateWRQ Verastream Host Integrator comprises server software and development tools that provide a non-invasive way to unlock host information and integrate it with service, supply-

chain, and other customer-facing applications.

AT&T now gets a single, Windows-like front end to AT&T’s applications and the Verastream implementation let AT&T change their business processes without code changes or re-engineering of the applications.

Results

Speed, openness and flexibility – Chris Byler, rapid applications development manager at AT&T Global Customer Care in Kansas City, Mo., explained, “We had the ability in-house to write the legacy apps with no problem. But the challenges we were facing included speed. Verastream Host Integrator is much faster than green-screen scraping.”

Answers in seconds, not minutes

The new approach builds on the value of AT&T’s considerable legacy investment by reducing the typical information gathering and response cycle to less than 30 seconds – quite an improvement from the seven to ten minutes it used to take.

Customers are getting their questions answered in seconds rather than minutes and CSR productivity has risen dramatically.

- ▶ CSR turnover runs around 15 per cent a year and generates quite a high tab for training operators
- ▶ Implementing AttachmateWRQ’s Verastream solution cut about one week out of the 12-weeks CSR training time saving at least US\$250,000 per year in training costs and another US\$500,000 per year in the overall cost of serving customers

“We have seen a dramatic increase in my reps’ productivity, because now they don’t spend so much time looking through green screens,” Byler said.