



Speeding up Mainframe Integration

The five time-saving features you need

CONTENTS

Mainframe Integration	1
Choosing the Right Method for Your Needs	1
Checklist for IT	2
Ongoing Benefits	3
About Attachmate	3

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Chief information officers, line of business managers, and other corporate executives know that mainframe legacy applications contain a wealth of information. Furthermore, organizations relying on legacy applications know that those assets contain their strongest competitive edge: business logic and data.

Additional value can be added by enabling legacy applications to directly access each other's capabilities. And business agility can be augmented by creating composite applications that seamlessly combine the features, data, and business logic of disparate legacy applications. The challenge, however, is to transform the legacy application functionality so it can be integrated with new business logic and used in new composite applications, web applications, or portals.

If you're in the market for a mainframe integration solution, this paper can help you make an informed decision. With service-enablement as the underlying context, this paper highlights the five features you should look for when speed of deployment matters.

Mainframe Integration

For many large organizations and government agencies, the mainframe continues to be a focal point for data and applications that run day-to-day operations. But using that information beyond the confines of the mainframe has historically been a high-risk, resource-intensive process. Depending on the type of your mainframe platform and the design of your applications, there are basically four service-enablement methods that can suit your mainframe integration needs:

- **Screen integration**

Developers encapsulate data and logic via the screen interface. In general, the process of integrating mainframe applications through the screen interface happens in three steps: Step one is modeling the mainframe application, which involves selecting screens, defining data inputs and outputs, and recording user interactions. The result is a service that encapsulates varying degrees of mainframe functionality, depending on the product used. Step two is deploying that service to a middle-tier server. And step three is integrating it with your target application. Regardless of the underlying mainframe architecture, as long as the interface

(e.g., 3270, 5250, VT420, or HP700) is supported, you can transform your legacy applications into reusable services to build composite applications with a new look and feel.

- **CICS 3270 Bridge integration**

Using a native adapter that runs in the CICS Transaction Server and leverages the power of the IBM mainframe, developers can service-enable CICS functionality for reliable, high-performance integration of CICS applications.

- **Transaction-level integration**

This method combines data and logic from existing programs developed for the CICS and IMS environments and turns them into reusable services for new application development by accessing the transactions through ECI (CICS) or OTMA (IMS).

- **Direct data integration**

This approach accesses mainframe-based data sources (e.g., VSAM, DB2, IMS/DB, Adabas, and Natural) so developers can build new composite applications.

All the above integration methods occur without any changes to the mainframe application. The underlying code remains in place and functions as before. An exception might be direct data integration. In those rare cases when the mainframe application is well-structured and you can access meaningful data, direct database access is a valid option. However, direct data integration has the disadvantage that the business rules governing data use and updating are completely bypassed. For a given operation, mainframe applications commonly write to several fields within a database. Arbitrarily changing one entry without going through the application logic could introduce irrevocable errors into the system.

Choosing the Right Method for Your Needs

The mainframe integration option you choose is dependent on many factors, including the design of your legacy application, the necessary authorizations to install software on your mainframe, and various IT requirements.

With CICS- and IMS-based applications you usually want to look at transaction-level integration or CICS 3270 Bridge integration first. However, not every CICS-based application can be integrated using

transaction-level or CICS 3270 Bridge integration tools. In situations where no ECI interface is available to access the CICS transactions, or no software can be installed on the mainframe, you need to look for other integration methods. And if direct data access is also not feasible, integration through the terminal screen is probably the most practical choice.

Checklist for IT

Claims for mainframe integration capabilities vary widely, not only in the integration methods they support, but also in their support for standards (including J2EE and .NET), their ability to support SOA initiatives, speed of deployment, ease of use, and programming skills required. When evaluating mainframe integration solutions, your checklist should include these five time-saving features:

1. High-level abstraction

The whole point of the encapsulation process is to hide the technical details of the mainframe from application developers. The more that mainframe experts can abstract through encapsulation, the less application developers need to know. But most solutions provide only low-level APIs for accessing the application. That means application developers need to have a detailed understanding of the mainframe application in order to get to the functionality they need.

But more advanced products automatically generate services that contain all the information needed for connecting to the mainframe, navigating transactions or screens, and accessing or depositing data. That's how these solutions save development time and bridge the skills gap between mainframe experts and application developers. Mainframe experts don't have to learn to create services; application developers can easily use services in their target applications.

2. Automatic web-app generation

Sometimes you just need to take mainframe functionality directly to the web, without adding any new logic. When this is the case, building a web interface on top of your services is more efficient than building an entirely new web application. It's also just as effective.

With the right integration product, mainframe experts can automatically generate web pages from services. The links between web and mainframe functions are already established. You might want to check whether the proposed mainframe integration tools support the generation of ASP.NET or JSP web

applications and user interface. Once web developers get the ASP.NET or JSP web pages, they can use their web design tool of choice to customize the pages with logos and other graphic elements. They don't need to write any additional code.

3. Service repository

Because mainframe applications serve as the foundation for most critical business processes, their functionality is often required across multiple projects. But re-encapsulating that functionality every time you need it is not a good use of time. A better approach is to reuse services that have been created for other projects, and you can only do that if you know which services already exist.

To that end, make sure your mainframe integration product either supports standards-based third-party repositories or includes within the product some form of a centralized repository. This ensures that the reusable services and components can appropriately be managed.

4. Visual design tools

Encapsulation is the most important part of any integration process. It's also the most complex, which is why someone with advanced mainframe programming skills is typically involved. The problem is, if you have seasoned mainframe programmers, they're always busy on other critical projects.

The ideal solution includes design tools with point-and-click interfaces. Because no programming is required, anyone familiar with the mainframe application can encapsulate functionality. Depending on the integration method that best suits your needs, look for a design tool that supports the following characteristics:

- For screen integration – the ability to identify essential fields and data elements so the design tool can automatically manage the complex details of navigation, error handling, and record sets.
- For CICS 3270 Bridge integration – the ability to inspect mainframe interactions, suggest ways to combine them into larger units of work, generate the streamlined code, and show how to interact with the mainframe in the most efficient manner.
- For transaction-level integration – the ability to capture COBOL copybooks with drag-and-drop ease so there is no hand coding. Because developers can isolate the tasks that are needed, they maintain granular control.

5. Advanced screen recognition

Advanced screen recognition is an important feature to seek out when you decide on a screen integration method. The reality is that mainframe screens are constantly changing. Without the right screen integration product, you have to keep updating your encapsulation work to account for those changes. This takes time you probably don't have.

Mainframe integration products with advanced screen recognition capabilities solve this problem. By identifying screens based on patterns rather than fields at fixed coordinates, these products recognize screen changes and minimize the need to recreate corresponding services.

About Attachmate

Attachmate helps businesses extend, manage, and secure their IT investments. We offer a broad range of solutions—from terminal emulation, legacy integration, and PC lifecycle management products to innovative systems and security management tools. With our technology, more than 65,000 customers worldwide are putting their IT assets to work in new and meaningful ways. Learn more at www.attachmate.com.

Ongoing Benefits

The success or failure of a new business initiative often boils down to the speed at which the initiative can be executed. By choosing a mainframe integration product that includes the features described above, you can cut your integration timeline in half—taking it from months to weeks, or even days.

But that's not all. You can reuse your existing services, without modification, over and over again. As a result, you can dramatically reduce the time it takes to implement subsequent projects.



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