

Conversion of Legacy System/36 Applications to run *Native* on the iSeries Platform

Background and Overview

The IBM System/36 and its predecessors, the System/34 and earlier machines, proved to be solid computing platforms on which to build the customized software applications that would meet the unique needs of many businesses and organizations over the past twenty-five or more years. Significant investments of resources ensured that these software applications provided exactly what was needed for the organization being served.

When IBM introduced the AS/400 in 1988, an upgrade path was provided for users of the S/36 to migrate their applications with little effort to the *S/36 Execution Environment (S36EE)* – a special emulated operation mode of the AS/400 where the custom S/36 applications could continue to run. This was the logical next step for the majority of businesses who had relied upon the S/36 and the application software in which they had invested. As an interim mode, the S36EE did not allow the applications to take advantage of the capabilities of the new hardware, software, and database architecture. In addition, the S36EE did not allow the IT staff to take advantage of the much more productive development environment offered with the native AS/400.

Conversion of the legacy S/36 applications that reside in the S36EE is the next logical step in protecting and modernizing the investment in customized solutions. Converting will extend and re-invigorate the life of the applications, bring increases in the applications' performance, increase programmer productivity, take full advantage of the iSeries machine's capabilities, and protect against future uncertainties of the S36EE's existence. These issues are addressed in further detail below.

Protection of your Custom Software Investment

Converting your current S/36 business applications extends their life and protects your software investment. Because your organization has spent a lot of time, effort and money developing and perfecting your computer applications to meet your specific business requirements, it is very significant that you don't have to throw away your existing S/36 business software and start from scratch in order to move forward. Your investment is retained and built upon, allowing you to move forward with current technology and employee skill sets.

Improved Performance of Custom Applications

A converted application will ensure better overall system utilization. After conversion, your applications will be faster and more efficient because the extra layer of the S/36 Environment has been removed. IBM "RAMP-C" performance tests have shown that native applications can run as much as 51% faster than under the S36EE.

When S/36 applications are converted to native mode, a variety of performance optimization techniques can be employed. For example, it was common at runtime in S/36 OCL procedures to delete and re-create many of the temporary data files. However, deleting and re-creating files are resource-intensive activities. So, after conversion, the application's database files will be created only once, and when they need to be reset they'll simply be cleared. Also, compiled CL programs execute faster than interpreted S/36 OCL procedures on the AS/400, so converting OCL procedures to CL programs will automatically improve the speed of your application.

Increased Programmer Productivity

The iSeries was designed to be a productive environment for IT staff, with simplified programming techniques in a relational database setting that cuts down on coding requirements during new program development and program maintenance. One study has shown that programming staff can experience up to a six-time increase in programming productivity when working in the native environment as opposed to the S36EE.

In addition, it has become difficult to find personnel with the legacy skills to work with S/36 applications and coding techniques, whereas the skill sets that comprise current iSeries development technologies are much more readily available. Therefore, after conversion it will be easier to find and retain programming staff for your organization. And, if your current staff are proficient with the S/36 but not as current with the modern iSeries environment, they will be able to grow in knowledge and become more technically up to date with the move out of the S36EE.

Converting S/36 based applications is not only a move forward for your applications, but also for your current and future IT staffing.

Making use of the iSeries -- Operating at Full Capacity

When you run your applications in the S/36 Environment, the iSeries is being used in a limited capacity. Because of this, using the S36EE should be regarded as a transitional "in between" stage. You can only fully exploit your hardware and software investment by converting your S/36 applications to run native.

Once the application is converted, the extra overhead and limitations of the S36EE will be gone. You'll then be able to take advantage of iSeries features such as the relational database, Query, field level database access, and much more.

The ability to modernize your applications

Moving the legacy application from the S/36 Environment into the native environment sets the stage for further modernization in the future. Predefined external database file definitions allow easy access to the database using QUERY/400, various report writers, PC based programs such as Access or VB using ODBC other data access methodologies, etc. Once outside the limitations of the S36EE, the converted applications can be further transformed using available tools to provide web based interfaces or many other more modern technologies that expand upon the existing "green screen" interface.

Other Consideration: The End of S/36 Support from IBM is on the Horizon

Since the introduction of the AS/400 in 1988, IBM has provided the S36EE as an interim environment for S/36 applications to run on the AS/400. This has allowed an easy transition for many companies. Soon thereafter, the S/36 SSP operating system was added to the AS/400 as a *guest* OS. This was initially offered in only a limited fashion in certain entry-level machines, but then expanded to all AS/400 models. After many years, support for the S/36 guest OS has been dropped by IBM.

IBM has now announced that V5R4 will be the last release of OS/400 to support the S/36 compilers. This means that the next OS release will effectively *force* companies who have invested in customized S/36 applications to abandon, rewrite, or convert their applications.

Conversion v. Manual Re-write

Conversion of your existing applications using automated tools and experienced staff is the most economical option, saving a significant amount of time and money. Conversion offers a distinct advantage over a manual rewrite because it requires much less programmer time and effort.

Conversion lets you move to the native environment as quickly and inexpensively as possible, without unnecessarily rewriting or replacing existing applications that do what they were designed to do. Rewriting a custom application that has been designed over a period of years to meet your organization's unique needs would be an enormous job, requiring a significant investment of resources in both manpower and money.

Conversion is the practical process of moving the S/36 programs and data out of the antiquated S/36 Execution Environment for better performance of the application and better productivity for the IT staff, while keeping the same functionality of the original application.

Converting your application protects your investment in customized software and extends the life of the application; it upgrades and modernizes the source code for the programs, and it utilizes the advantages of the iSeries native environment.

The end result of a good conversion is a solid, cost-effective, native-mode iSeries application that can be brought into production at far less cost and in far less time than an application rewrite would ever afford. Your investment in your software and in your staffing will be renewed and ready for many more years of service.