

eBook

Productive on Power: Bringing the Latest User Experiences to IBM i



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Introduction

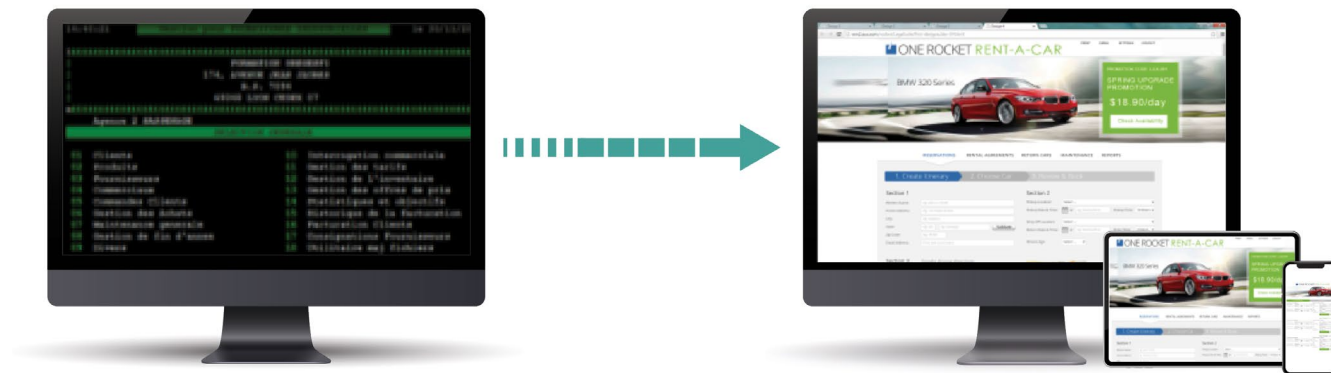
There are companies willing to invest millions of dollars and take enormous business risk to move their legacy applications and data to new platforms. Yet most don't take the time, or invest the minimal effort needed, to examine the existing options for delivering the latest user experiences on IBM i. If they did, they would find that their understanding of IBM i is—ironically—outdated. There is almost no interface that can be built on Windows, Linux or UNIX systems that you can't do as well—if not better and cheaper—on IBM i. And there is already a thriving ecosystem of tools to help companies modernize quickly.

In this eBook, we'll discuss how to take advantage of productivity tools to improve user experiences across the IBM i platform.

User experience modernization

Many modernization projects start with the goal of “eliminating the green screens,” which is a completely reasonable idea in most cases. Green screens tend to be the first thing executives point to when they express their frustration with the state of IBM Power running IBM i. However, like any other IT project, IBM i owners need to consider the most cost-effective approach for achieving this goal. Most IBM i applications have thousands of screens for various setup, administration, data entry, and inquiry functions. Redesigning and rewriting all of them in new technology is a daunting, expensive, and time-consuming project. But there are tools available that will automate much of the process for you—all on IBM Power.

Consider the company’s modernization objectives holistically and choose the right tool for each modernization challenge. In most IBM i environments there are some screens being used constantly, and others (often the vast majority) that are rarely accessed. There are automated transformation tools that simply transform a green screen into a web page for simple, high-speed modernization that might be appropriate for the infrequently used screens. For screens that are in constant use, a more sophisticated tool that allows for significant customization of the look and feel and the application workflow is often the better choice.



Web services enablement

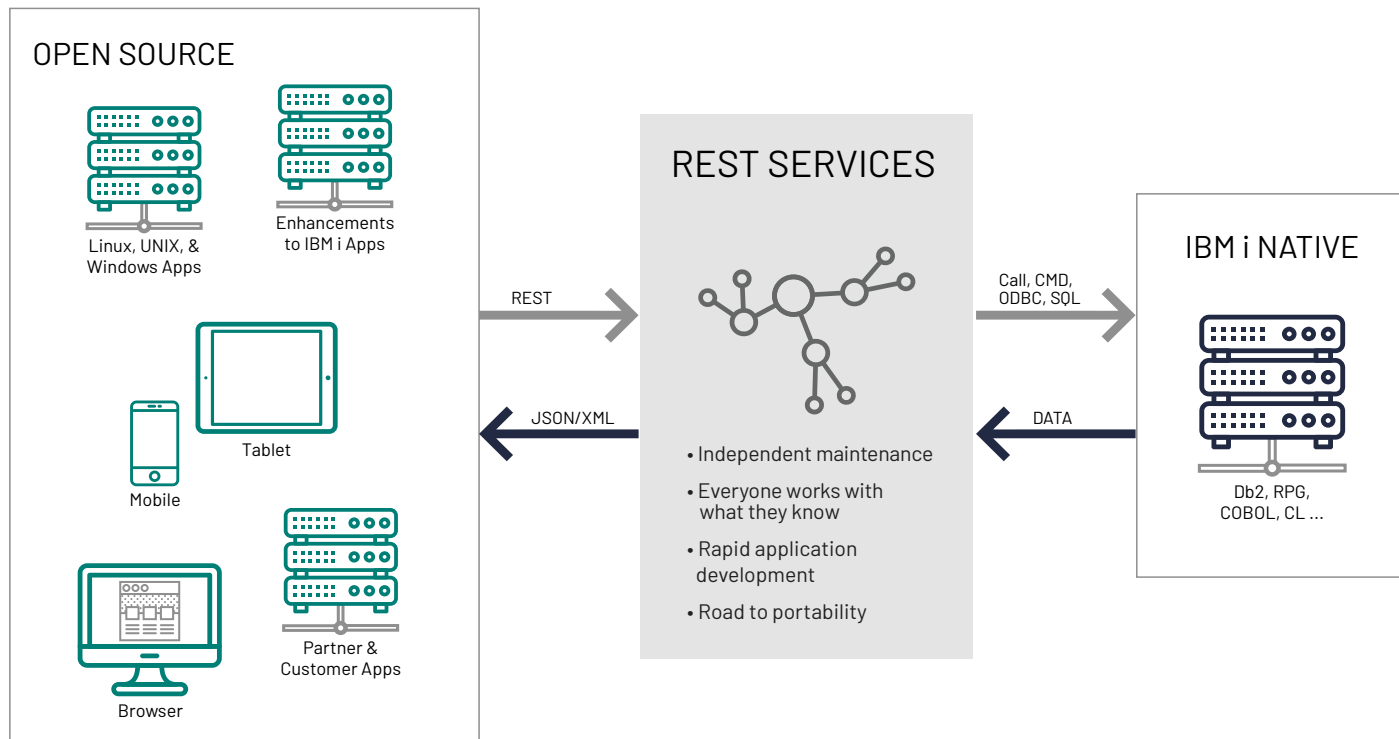
Enabling your IBM i applications with web services gives you greater flexibility when it comes to building advanced UIs and makes it easy to integrate disparate applications together.

When modernizing the user experience for frequently used screens, developers need tools that offer the kind of flexibility their diverse user groups require. Web and mobile business workflows are often different from workflows used by desktop-bound terminal users. Though some transformation tools are quite powerful, most are still tied to the 5250-display conversation and are limited by their own specific capabilities. By using the power and productivity offered by web languages like JavaScript, you can develop a completely custom UI with new workflows that suit the web and mobile work environments. You also can write completely new web-based applications (such as eCommerce tools) that access your existing IBM i functions.

We once worked with a customer that wanted to build a sophisticated mobile order entry application for their salespeople, and a self-service portal for their customers, using Python. However, they had a very complex pricing and fulfillment system written in RPG. They had neither the resources, nor the desire, to rewrite its thousands of lines of RPG code. Their challenge was to integrate the new web and Python based eCommerce applications with the RPG functions. The solution was to web service enable their RPG application.

Web services enablement (cont.)

Web service enablement tools are invaluable in these situations. Web services enablement tools allow developers using newer languages (eg. Java, JavaScript, PHP, Python) to access IBM i resources using familiar techniques. They simply use web services technology like REST to access the functions they need. The tools translate those calls into functions that access native resources on IBM i. The results are then returned to the caller in a message format they can use, like JSON or XML. IBM i users can use these service tools to provide access to native RPG programs, procedures, commands or databases.



Web services provide a translation layer between new languages, technologies, and IBM i-native resources. IBM i developers can continue working in their areas of expertise, while the web and open systems developers can work in theirs. Simultaneously, the two sides are sharing functions and data.

Web services enablement (cont.)

One of the challenges in providing web service access to IBM i is that the output web developers need is “processed data”—not data sitting static in a database, or data that comes from the execution of a single program. The web application often needs data that derives from the execution of an entire business process.

This was the case with our customer who wanted to provide pricing information via web services. The pricing algorithm had to run a query against their warehousing system to:

- Find which of their warehouses had the necessary items
- Find the customer data to determine the customer’s discount schedule
- Query their inventory system to understand the volume discount structures
- Look at their current ongoing special-sale information

The whole process involved dozens of programs. But the user input was fairly simple: enter the customer information, the items and the quantities, then return a quote.

For this customer (and many like them), the right solution was one that exposed a user interaction as a web service. In other words, they needed a way to interact programmatically with the application as if they were a user. These user-process automation tools are used to expose complex application functions through a single service. The service is then used to automate functions that had previously required a user to enter data.

Once individual functions like these have been exposed via web services, it’s easy to use an orchestration tool to tie multiple services together into brand new workflows.

We worked with a customer with a large staff of customer service representatives who used these service-enablement tools to streamline their workflow and simplify the training of new staff. In the green-screen environment, when customers called in, these reps would access multiple systems to respond to their queries. Each time they moved to a new application, they had to re-enter the user information. The support representatives typically had multiple screens running simultaneously to find the information they needed. To make matters more complicated, some of those systems were internal applications, and some were external partner and government systems.

Web services enablement (cont.)

Because all the systems were accessible via terminal UIs, the organization was able to service-enable each of the interactions, then use an orchestration tool to tie all the services together. Now their service representatives can key the customer information in once, and that information is passed from service to service until all the information is gathered from all the back-end systems. The results are then displayed in a single, modern web user interface. These days, their reps enter the information on one screen, and get the results back in the same place. This service enablement has dramatically reduced the time it takes to respond to a call and makes it significantly faster and easier to bring on new staff.

Service enablement can also provide direct access to RPG programs, the Db2 database, command-line commands, and other IBM i-native resources. It gives developers the ability to use standard web service calls to access anything they might need to pass data from one system to another, or to expose IBM i functions and data through the latest UI technology.

Node.js and Angular: using JavaScript to create advanced user experiences on IBM i

There's an outdated idea in the marketplace that IBM i is limited to green-screen RPG applications. We spoke with a customer recently who, after seeing a powerful Node.js and Angular application demo, asked what platform it was running on. When we told them that it was IBM i, they were shocked and said that they had no idea that was possible. The reality is that IBM i supports all of the latest languages for building exciting, user-friendly user experiences for your applications. On IBM i, you get the best of both worlds; you can continue to take advantage of the rich functionality built into your IBM i RPG applications, while exposing those functions through highly effective, easy-to-use web applications using JavaScript frameworks like Node.js and Angular or React.

Security and web services

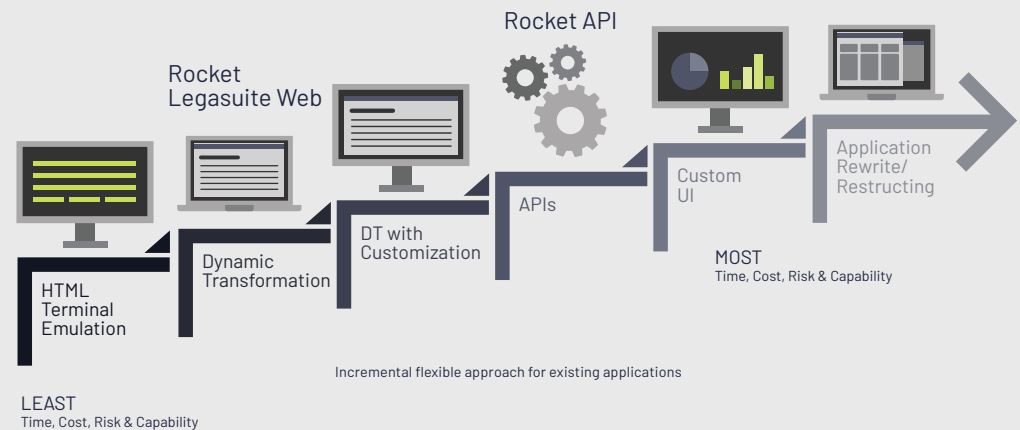
Another advantage of these web service enablement tools is that they let IBM i users make IBM i functions available via web without compromising their IBM i security. The tools create a single path to IBM i for funneling all requests, and it can be set up so to only accept requests coming in from the web service server, while the web service server can be configured to only accept validated, authorized requests that conform to the appropriate format. The web service server can even run on IBM i so that only requests originating from an IBM i server will be given access to the native programs, functions, and data. Exposing your application functions via web services means you can safely choose whatever technology you want to create the user experience you desire.

“Smart modernization” means picking the right tool for each job

The great news for IBM i users is that there are suites of comprehensive modernization tools available built to work together. Development staff are free to use the right tool for any complex job at-hand.

When planning a user experience modernization project, start by considering the key value that must be delivered. Using that value and the organization’s priorities, choose the tools that will quickly, and cost effectively deliver the greatest value to the business. As new opportunities and challenges arise, add the right tools at the right time. That is the core of smart modernization—making sure you are efficiently delivering on the highest priorities the fastest.

Smart modernization and picking the right tool for the job: Depending on the goal for each modernization challenge, users can choose the tool that is best suited to help. Whether it’s dynamic transformation of 5250 screens, dynamic transformation with customization, or building web services for a custom user experience, these tools can simplify, save you money, and speed up the process.



The real IBM i: Your platform for the future

When making strategic decisions about your business' future computing platforms, IBM i should be evaluated for its real potential. Executives should define the business challenges they want to address and the opportunities they want to exploit before deciding which platform most cost-effectively meets their needs.

If you want to offer a leading user experience, IBM i has the tools and technologies to help you create it.

If you want to make application functions and data securely available to your customers and partners, IBM i's support for standard web services can get you there.

IBM i organizations can take on the future confidently without the significant cost and risk of rewriting or replacing your existing applications.

Modernizing existing IBM i applications can get companies to their desired future state faster, at a lower cost, and with lower risk than possible by moving off the platform. At Rocket Software, we've helped hundreds of companies move to the front of their industries by adding these new capabilities to their IBM i systems.

IBM i provides:

- Advanced, secure system architecture
- A long history of proven reliability
- Support for the latest open-source languages
- A wide variety of powerful modernization tools
- Advanced DevOps
- Comprehensive cloud capabilities
- The lowest total cost of ownership on the market

To top it all off, IBM i runs all existing core applications.

When looking at modernizing the IBM i environment, consider what problems must be solved and for whom. In addition, choose the most cost-effective way to use precious IT resources. That analysis generally leads to the conclusion that IBM i provides an exciting path forward.



Rocket Software

Rocket Software has decades of experience helping organizations bolster their legacy infrastructure, and bring about legendary results. Rocket helps customers implement low-risk, effective modernization strategies and solutions so they can take advantage of all the latest technologies. Contact Rocket today to get ahead of your competition, and stay there for the next decade.

[Rocket BlueZone® Web](#) for mobile and remote terminal emulation

[Rocket LegaSuite®](#) for creating modern web interfaces for host-based applications

[Rocket® API](#) for creating create new workflows across multiple host-based applications

[Rocket Aldon® Lifecycle Manager](#) for enabling ALM and DevOps best practices with your legacy applications



About the Authors

Rocket Software empowers organizations to create legendary impact in the world through innovation in legacy technology. With deep expertise in IBM Z, IBM Power, and embedded database systems and application servers, Rocket solutions power tens of thousands of global businesses, solving real problems and making real-world impact. Rocket is a privately held U.S. corporation headquartered in the Boston area with centers of excellence strategically located in Europe, Asia, and Australia.

Eradani has a team of IBM i and open source technology experts who provide IBM i users with comprehensive services to ensure that they can take full advantage of the latest in modernization, DevOps, and cloud technologies.



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