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Understanding RPA Scalability

The Blue Prism Example

Sponsored by Blue Prism

Contents

RPA and Scalability

Robotic process automation (RPA) is the best way to automate many business processes. The core idea of RPA is simple: let software robots implement a process by accessing existing applications through their user interfaces. Figure 1 shows how this looks.
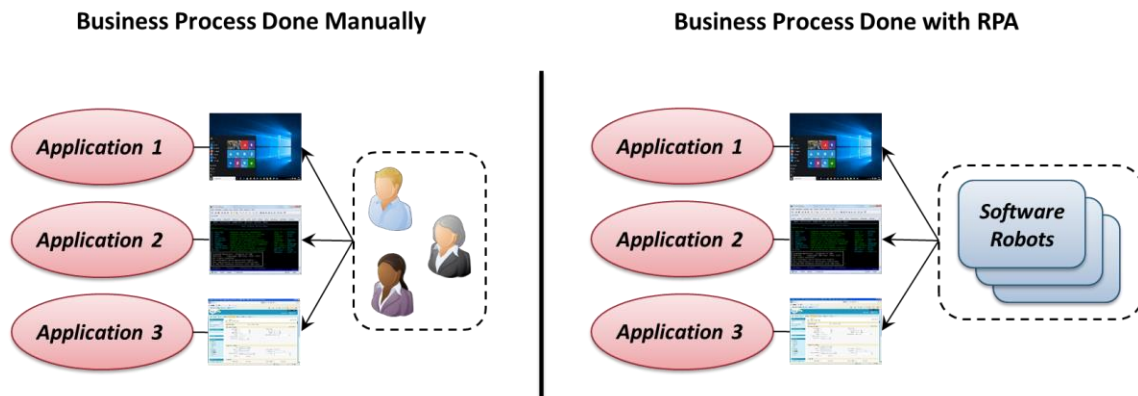

Figure 1: RPA lets software robots drive business processes.

When choosing an RPA technology, however, it's important to think about scalability. No matter how good a product might be in other ways, it's not the right choice if it won't scale to meet your requirements. For example, suppose you automate a core business process using RPA, then find your business growing rapidly. If that automated process won't scale as needed, the RPA technology you rely on could become a bottleneck for growth. Or what if the RPA solution you adopt works well for one part of your organization but can't be easily reused in other departments? What should be a boon would instead become a blocker.

Understanding RPA scalability is important, and so what follows looks at this topic from several perspectives. To keep the discussion as concrete as possible, we'll use Blue Prism's RPA offering as an example throughout.

Aspects of RPA Scalability

What is RPA scalability? One way to think about it is to focus on three aspects:

☐   Handling increased load. This includes support for large numbers of RPA robots working together to carry out many instances of a business process. It also includes a way to easily change which business process each of your robots is executing, letting them work on different processes at different times.

☐   Expanding the scope of usage. This aspect of scalability means support for broadening how and where RPA is used in an organization. You might start by automating a process in one part of your business, for example, then expand by creating RPA solutions for processes in other business units.

☐   Increasing the breadth of access. Automated business processes often need to access new technologies, such as new applications or integration technologies. Your processes might also themselves need to be accessed by

other software. These kinds of expanded access can be viewed through the lens of scalability, because both let your RPA solutions be used more broadly.

All three of these are important, and all are worth examining in more detail.

Handling Increased Load

As an RPA technology, Blue Prism uses software robots to implement the logic of a business process. Each robot emulates a single human user, accessing applications just as a person would, and each one runs in its own Windows virtual machine (VM). These VMs run on one or more server machines, as Figure 2 shows.
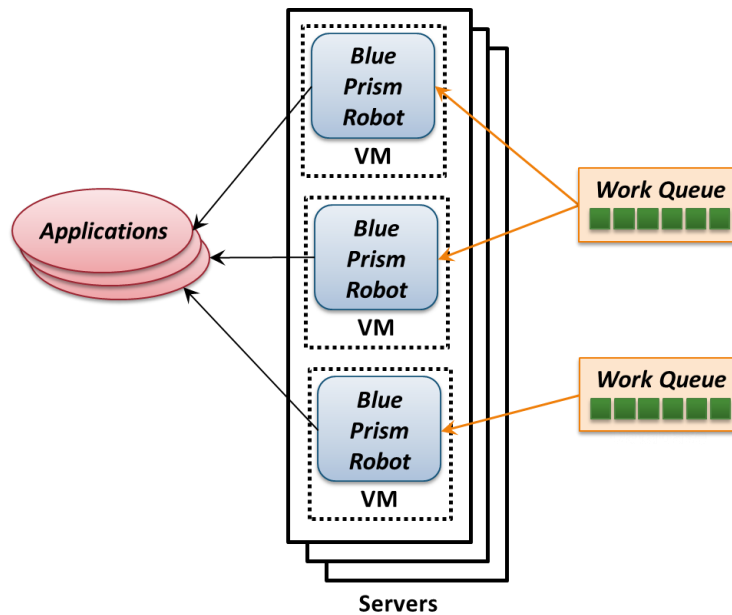

Figure 2: Each Blue Prism robot runs in its own VM, letting your organization run as many server machines as required for the robots you've licensed.

As the figure suggests, Blue Prism lets you scale the number of robots up or down as needed. Since Blue Prism licensing is per-robot—it's much like hiring a specific number of employees—this also helps you manage your cost appropriately. And to provide business continuity, back-up robots can take over if one or more primary robots fail.

At any given moment, a Blue Prism robot runs a specific automated process. This process typically reads from a work queue, as Figure 2 shows, that provides the data for what it will work on next. For example, think of a simple process that pastes a value from an Excel spreadsheet into a field in Salesforce CRM. The work queue for this process could contain a group of Excel spreadsheets, each read by a process running in a robot. Each process would copy the appropriate value from a spreadsheet, then go on to the next spreadsheet in the queue.

Since you're paying for each one of them, you want to use your robots as effectively as possible. An important part of this is assigning them to the most important tasks at any given time. To help you do this, the same Blue Prism robot can run different business processes at different times. (This is like having a human employee do different tasks at different times, based on whatever is most important at that moment.) Figure 3 shows an example.
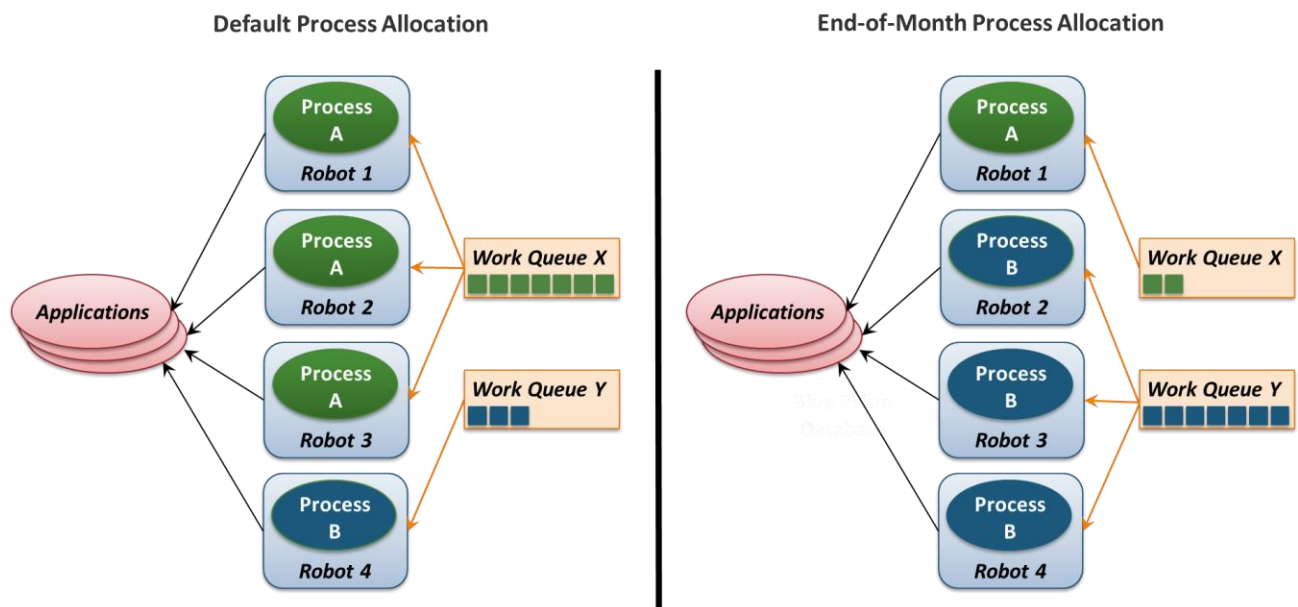
Figure 3: You can assign processes to Blue Prism robots as needed to handle changes in load.

In the scenario shown here, the default process allocation for an organization has three robots running Process A and one robot running Process B. There's a separate work queue for each process type, with all the robots running Process A reading from the same queue. At the end of the month, however, the work done by Process B becomes more important. Accordingly, the end-of-month process allocation has three robots running Process B and only one running Process A. This kind of flexibility, which relies on a clear separation between robots and processes, lets you scale Blue Prism to match your organization's requirements as needed.

It's possible to manually assign processes to robots, changing the allocation as needed. It's also possible to create a manager robot that does this automatically. In the default process allocation shown above, for example, the manager robot might monitor the lengths of the work queues. If Work Queue Y gets too long, i.e., if it exceeds some defined threshold, the manager robot might load Process B into Robot 3, causing it to begin processing items from Queue Y rather than Work Queue X. (Once again, this is much like re-directing a human worker to work on a different higher-priority task.) This flexibility helps you scale the work done on a business process up and down as necessary. It even makes it possible to automate the transition between the two process allocations shown in Figure 3, with robots running different processes at different times based on queue lengths. However you use it, the ability to intelligently allocate processes to robots is an important part of scalability.

Expanding the Scope of Usage

Most organizations start using RPA in a single scenario. A bank might automate some part of loan processing, for instance, while an insurance company might start with some other back-office scenario. Once this first effort is successful, the use of RPA commonly spreads into other areas and other business processes. How well an RPA technology supports this kind of expansion can be viewed as an aspect of scalability.

To understand how Blue Prism supports this type of scaling, the place to start is by looking at how the product implements a business process. Figure 4 shows the big picture.
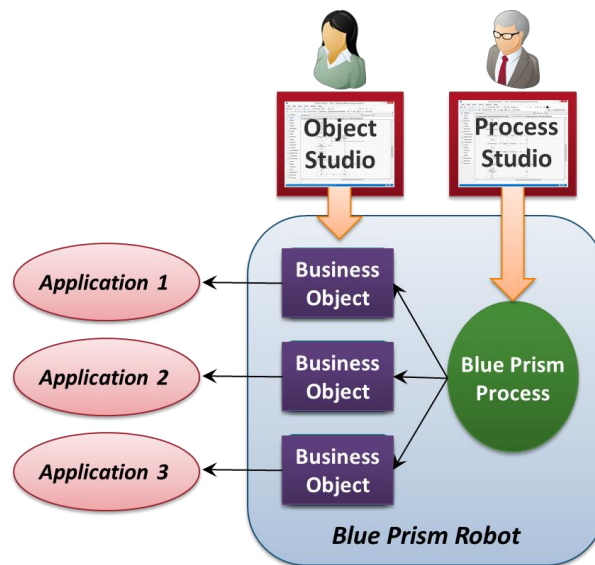

Figure 4: Blue Prism provides graphical tools to create business objects and processes.

As the figure shows, every business process automated with Blue Prism relies on one or more *business objects*. These objects handle the detailed work of interacting with the user interfaces of different applications. For example, one business object might be able to log in to Salesforce CRM, copy data into specific fields in this application, then log out. Another business object might interact with a legacy application running on an IBM mainframe, while a third might know how to access a cloud service. Business objects are driven by a *Blue Prism process*, which implements the actual business process being automated. Together, the Blue Prism process and the business objects it relies on will be executed by a Blue Prism robot.

The Blue Prism approach to implementing automated business processes helps expand the scope of usage in two ways. First, as Figure 4 shows, the product provides graphical tools—Object Studio and Process Studio—for creating business objects and Blue Prism processes. This lets new processes be created by business analysts, not just developers, making it easier for other parts of your organization to begin using RPA. Figure 5 shows an example of a simple automated process defined using Process Studio.
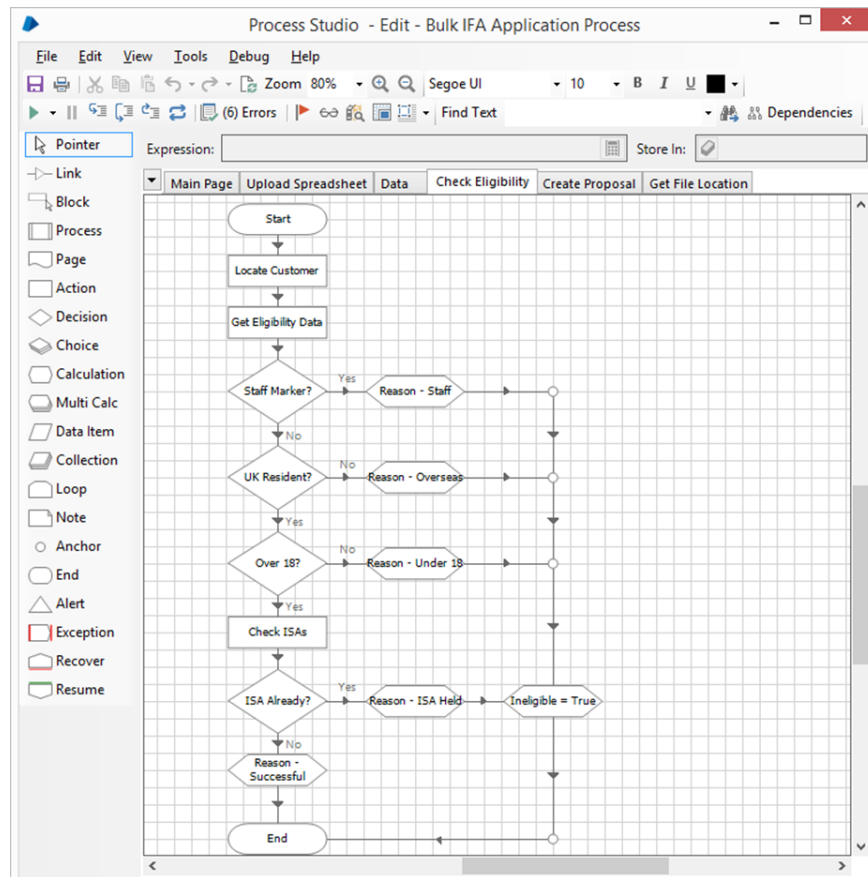
Figure 5: Blue Prism's graphical tools can be used by business analysts as well as developers.

The second way that Blue Prism's approach to creating processes helps expand the scope of usage flows from the fact that business objects are reusable. Whether an object is created by you, a consulting firm you're working with, or someone else, many different Blue Prism processes can use the same business object. This reusability, analogous to what's done in low-code development environments, lets you create processes significantly faster, since you can build on what's already been done.

This reusability also makes it easier for new groups in your organization to get started. As Figure 6 shows, you can create a shared business object library that new processes can draw from. Users in different locations throughout your organization can access and share these assets as needed.
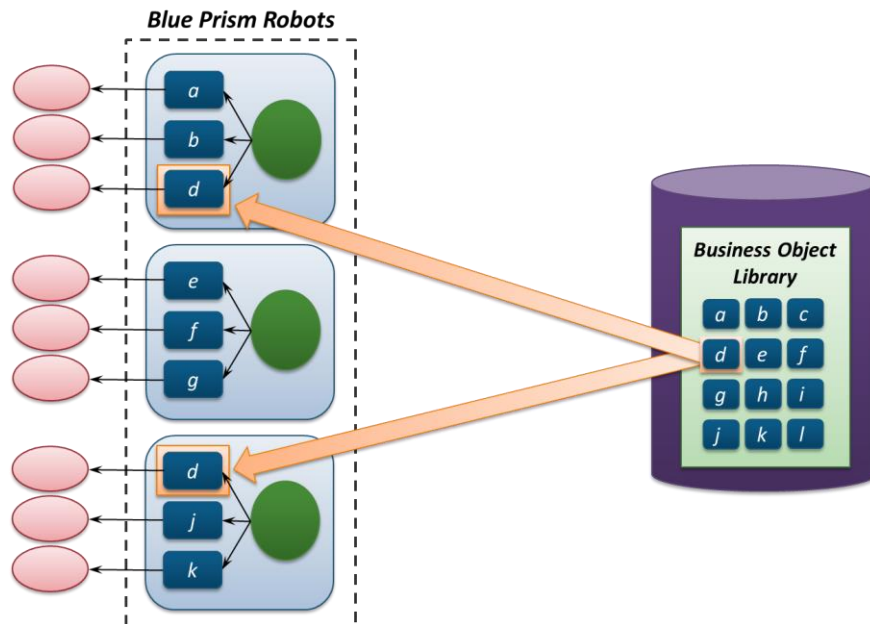
Figure 6: Existing business objects can be reused in new processes.

Your organization can also limit access to its business objects. For example, Blue Prism's support for multi-team environments lets you control which groups have access to specific objects. Maybe only certain people have access to objects that work with HIPAA data, for example. Whatever you choose to do, the key point is that as with any kind of software development, the ability to reuse existing objects helps you create new solutions in less time and for less money. Put another way, it helps you scale out usage of your RPA solution.

RPA Centers of Excellence

As RPA spreads across your organization, it's useful to create an RPA Center of Excellence (CoE). By centralizing the knowledge and experience gained by your RPA pioneers, you can help make the spread of RPA simpler and less expensive. Among other things, the CoE might be responsible for reviewing (or even building) more complex processes and for creating and maintaining your business object library. However you choose to do it, providing this shared RPA resource will give you a leg up on scaling RPA across your organization.

Increasing the Breadth of Access

One more aspect of RPA scalability is also important: increasing the breadth of access for the RPA solutions you create. This challenge has two parts; Figure 7 illustrates how Blue Prism addresses both.
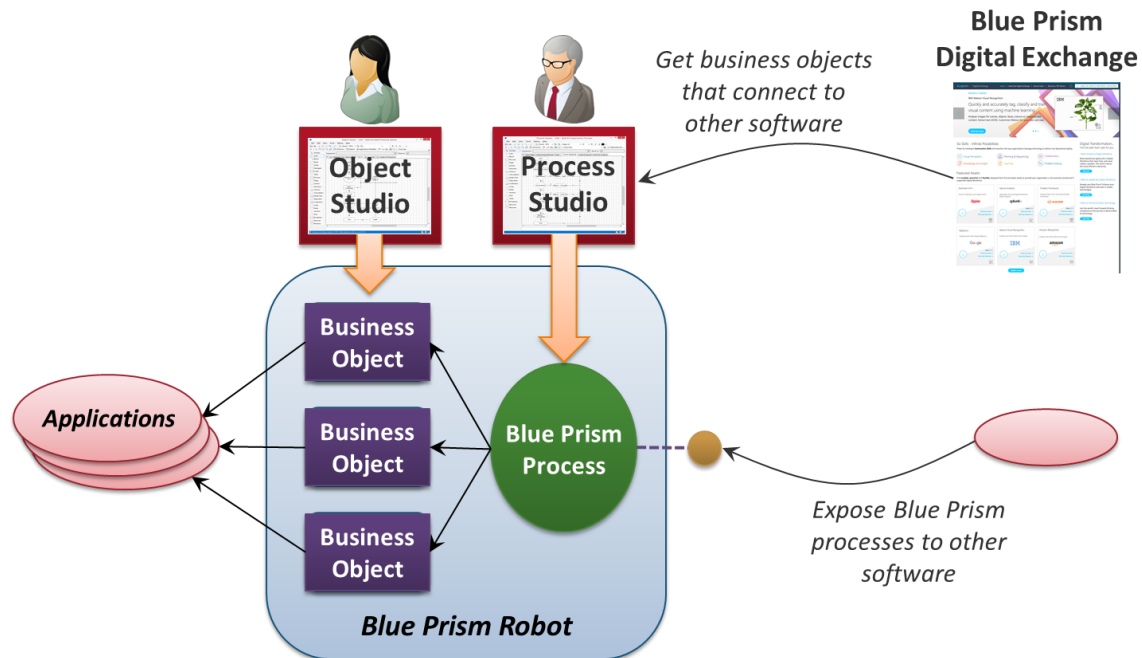

Figure 7: Blue Prism lets you access connectors to other software as well as expose your processes to other software.

The first challenge stems from a problem faced by all RPA software: How should a software robot connect to the applications and other software it needs to automate a business process? As described earlier, Blue Prism encapsulates this access in business objects, hiding what can be a great deal of complexity behind a simple façade that business analysts can work with.

But how can the people creating Blue Prism processes find and access the specialized business objects they need? The answer is the Blue Prism Digital Exchange, a web portal that lets business analysts and developers search for and download business objects provided by Blue Prism partners and others. These objects act as connectors to applications and other services. For example, the Digital Exchange includes business objects for using artificial intelligence-based cognitive services from IBM, Google, and others, accessing the Appian platform for low-code development, and more. These objects can be dragged and dropped directly into Blue Prism's graphical tools, making them available for use immediately. The goal is to make it as straightforward as possible for you to find and download the business objects you need to connect to a broad range of software and cloud services.

Increasing the breadth of access for RPA also requires meeting a second challenge: exposing your RPA solutions to other software. Once you've automated a business process, how do you make it accessible programmatically to other software? In other words, how do you make it callable via an application programming interface (API)?

As Figure 7 shows, Blue Prism answers this question by supporting web-callable endpoints. A Blue Prism process can expose whatever functions its creator chooses through these APIs. Other applications can then invoke these functions using HTTP-based protocols such as REST and SOAP. For example, an organization might implement an automated credit check process using Blue Prism, then make that process accessible to other software through a web endpoint. Allowing this kind of broad access makes it easier to adopt Blue Prism by helping connect your automated processes to other software. It's also an important part of increasing the breadth of access, which is itself a fundamental aspect of RPA scalability.

Conclusion

Using RPA to automate business processes is often a good idea. But choosing an RPA solution that won't scale as needed can unnecessarily constrain the processes you create. One way to avoid this is to take a broad view of RPA scalability, one that encompasses all three of the aspects described here:

☐ Handling increased load;

☐ Expanding the scope of usage;

☐ Increasing the breadth of access.

Choosing an offering that provides solid support for all three, such as Blue Prism, is an important part of succeeding with RPA.

About the Author

David Chappell is Principal of Chappell & Associates (http://www.davidchappell.com). Through his speaking, writing, and consulting, he helps people around the world understand, use, and make better decisions about new technologies.