Combining Workflow and Automation for More Effective Application Lifecycle Management

Written by Ben Cook, senior systems consultant at Dell Software, and Justin Pickup, co-founder of AppTracker

Abstract
Effective application lifecycle management (ALM) is critical in reducing application delivery time and costs. It also improves customer experience through faster application delivery, reduces the time required to migrate to different platforms and technologies, and greatly improves flow of information. This technical brief explains how combining workflow and automation can help you effectively manage your ALM processes and reap these benefits.

Introduction
In many corporate environments, applications are only loosely managed—only six percent of enterprises surveyed have a complete application readiness solution.1 The reasons include:

• Lack of automated application delivery – Most environments have standard processes for managing applications from purchase through testing, packaging and deployment, but only seven percent of enterprises surveyed have fully automated these processes.
• Lack of documentation – Typically either records of individual applications are not kept at all, or a spreadsheet or proprietary database is used to document them.
• Siloed systems – Organizations often have multiple systems in place that are very siloed, which makes it difficult to get the application-related information needed for a given task. For example, 48 percent of organizations surveyed needed to access 4-10 systems just to process a request for a desktop application that is new to their organization.
• Changing technologies – Many environments struggle with the ever-changing technologies available for application deployment. The past ten years have seen a big move towards VDI environments, desktop virtualization, application virtualization and BYOD, all of which introduce new challenges for efficient application management.

Overcoming these challenges requires effective, ongoing application management as part of a broader automated workflow solution. This document explains how you can streamline critical ALM processes to reduce costs, speed application delivery and improve business agility.
Combining workflow and automation can help your organization manage your ALM processes more effectively. In particular, you can:

- Use a workflow tool to drive and manage the application-related processes in the business, including processes for requesting new software and processes for making software available to users.
- Centrally manage all application-related data by means of open integration with other application management tools, such as inventory and reporting solutions.
- Use an automation engine to automate application management processes such as application virtualization, other packaging processes, and testing.
- Integrate the workflow tool with the automation engine to manage the move to a new virtual or BYOD environment, which will result in significant time and efficiency savings.

Figure 1 illustrates how to implement these best practices. Specifically, the application lifecycle management process includes six standard steps: identification, technical discovery, packaging, quality assurance (QA), user acceptance testing (UAT) and release. By introducing tools to streamline these processes at the key points shown in Figure 1, and adopting a broader workflow solution, you can create a powerful automation engine that will reduce application delivery time and costs, speed migration and the adoption of new technologies, and improve the flow of information.

Let’s examine each step more closely and explore the opportunities for streamlining the ALM process.

### Identification

The first step in ALM is identification—understanding what applications you have in your environment. You will also want to be able to receive requests from users who require new applications or upgrades to existing applications. Some of the challenges here include:

- Identifying the user and determining what applications he or she should have access to
- Linking applications to users so you know who has what
- Linking applications to machines so you know where applications are deployed
- Linking upgrades to existing application so you can manage supersedence
- Determining the best format (such as fat installer or virtual application) for each application

Tools such as Dell™ Asset Manager can automate much of the identification step. Asset Manager can discover applications installed on the desktop or server, track their use and automate license management.

### Technical discovery

Second, you need to perform a comprehensive assessment of applications for compatibility with end platforms.

Applications can be automatically imported into Dell™ ChangeBASE™ in order to facilitate:

- Analysis of known compatibility issues
- Customized compatibility analysis (based on rules developed for any specific Windows environment)
- Automatic packaging analysis
- Automatic App-V or MSI creation

![Figure 1. The automated application lifecycle management process](image)
Using a workflow tool such as AppTracker, you can set tasks to automatically analyse the results from both the identification and technical discovery steps and progress the application to the next step in the workflow.

Packaging
Around 30 percent of application packaging can be automated in some way. For example, application installers that require manual steps such as clicking “Next – Next – Finish” buttons can easily be made “silent” with the ChangeBASE auto-clicker, thus rendering the install “hands-free” and enabling it to complete as part of a bulk processing task (without user interaction).

Getting around user interaction requirements is especially advantageous in any packaging projects where the expectation is to get initial results fast. There is a real benefit to enabling a business user to upload the source files for a new application, have it automatically packaged in the background into a standard Windows installer or a virtual package, and pass user acceptance testing in a couple of hours.

Quality assurance
From an application packaging perspective, quality checking usually consists of a basic pass/fail test: to pass, the application must simply install to the correct location without errors and be able to be repaired and removed cleanly and without error.

The tasks associated with this phase of the process can be driven via scripts from the workflow tool. The results can be logged and stored in a central knowledgebase and the outcome can be fed to drive the next steps. This seamless approach can improve the speed, accuracy and consistency of the process; reduce documentation overhead; and better utilize testing staff, who should need to intervene only for the more complex or spurious results.

For example, an application package can be run through a series of scripts to validate the package, set up the correct Active Directory (AD) groups, import the application into System Center (SCCM), fire up a clean virtual machine session, run the test, document the results, and deliver the application back the user for testing. All the QA technician must do is give the application a quick once-over to make sure that it runs up to login point and behaves as expected and then sign off to move the application on to UAT.

User acceptance testing (UAT)
UAT is the first step in the packaging cycle where the user engages with the packaging process and inspects the quality of the product. The challenge here is to schedule the user and then provide an appropriate environment for testing.

Since the SCCM installation and virtual machine session were already created in the QA process, it makes sense to do the same in the UAT environment. Once the test is scheduled, an iCal link is sent automatically to remind the user when they should be testing, along with an RDP link to enable the user to easily access the system remotely and test the application. A shortcut on the desktop of the RDP session will point to a UAT questionnaire where the user can report on their experience and either sign off on the product or reject it.

Release
Release, or the move into the live environment, requires documentation for the Operational Management, Service Desk and Change Management teams. Because the whole process has been documented already through scripts, questionnaires and manual input, it will be relatively easy to gather the required information and export to a Word document or another management database. The workflow tool can even move the application through the Live Release sub-processes and automatically raise change requests to ensure that everything is carried out in a timely manner.
Understanding your staff

On balance most environments will have a mixed application portfolio in terms of difficulty to package and troubleshoot. A typical easy-medium-complex ratio is 30-50-20.

This often leads organizations to think that they can get away with a team of inexperienced packagers, rounded out by a couple of packaging experts to handle the 20 percent of apps that are complex. However, this doesn’t quite work out considering the psychological profile of the typical packaging team:

• **Discovery** – Your discovery team will generally be enthusiastic, technically minded, but inexperienced people who want to break into the packaging world. They will understand at a macro level how an application is installed and configured and how it all pulls together.

• **Packaging** – A typical packager is a jack of all trades, capable of understanding an application from a network protocol, programming and database level. The enthusiasm of these team members lies in learning new techniques, information and technologies; they enjoy the challenge of fixing problems and troubleshooting particularly difficult applications. Getting the typical packager to properly finish an application and understand the need for repetitive attention to detail and process is more difficult. They’ll want to charge forward and get as many packages completed as quickly as possible to meet contractual service level agreements (SLAs). There can be a “project mentality” with no interest in tomorrow’s support problems.

• **QC and UAT** – Testers, on the other hand, want everything to be perfect. They may allow small issues and subtleties to delay the rollout of the application in order to ensure the user gets the best experience possible. Their confidence and attention to detail is absolutely necessary in order to hold back the “let’s just do this” packagers. Establishing a good feedback loop is essential to prevent issues from recurring because the symptoms of a fault were addressed, rather than the root cause.

• **Release** – People working in this area are often methodical and will work at a stable, thinking pace, ensuring that application release is done properly with an eye on what could go wrong tomorrow.

Automation is not about replacing these staff members with robots; it’s about enabling people to work at what they are best at by eliminating the more repetitive and boring tasks. For example, automation can be used to:

- Alleviate the drudgery of documentation and quality review for the packager
- Speed up the QA process by reducing repetitive detailed analysis
- Improve UAT by allowing the tester to concentrate on the users and issues rather than process
- Speed the processes of release and change management
- Improve the overall process by providing a mechanism for feedback

Consider a scenario in which your QA team requires 1.5 people to fulfill the weekly QA process manually. You could steal someone from UAT to cover for a week or so, or you might be able to hire two low-cost people and allow them to be less productive. However, workforce attrition will create recurring, unpredictable peaks in your cost model. By automating some of the QA process instead, you can probably reduce the resource requirement and still speed up the workflow. From a cost perspective, it will create a predictable peak at setup time but an overall decline over time—lowering your OPEX rate. All in all, it will set you up for success and allow your processes to run more seamlessly.

By concentrating your automation efforts on areas such as those listed above, you can achieve your business requirements of speed and quality while maintaining controls, checks, documentation and process audit.
Conclusion
Streamlining your application lifecycle management process offers significant benefits, including reduced costs, better business agility, and happier users and team members. Strategically incorporating tools like Asset Manager and ChangeBASE into a broader workflow management solution like AppTracker can help you establish an effective application packaging workflow for your enterprise.

About the authors
Justin Pickup, co-founder of AppTracker, started his career with Software Portfolio Management as one of the founding directors of a niche packaging company. While tackling some of the complexities of application packaging coupled with the challenges of process management, he recognized that the industry was lacking a good workflow management tool. After the initial launch of AppTracker, Justin teamed up with Richard Hynes to completely redevelop the product. AppTracker is now the go-to workflow tool for application and user migration projects.

Ben Cook is a senior systems consultant at Dell Software and an expert in SCCM and App-V. For the past ten years, he has focused on application packaging and deployment, specializing in MSI packaging. He joined the ChangeBASE team in 2011. Since starting out on XP migration projects, Ben has worked on large-scale desktop deployments in both the public and private sectors. He has experience in pre-sales and post-sales, and works closely with sales staff, customers and partners. He also works closely with the ChangeBASE development team, feeding them new ideas and feature requests.

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1 The statistics cited in this paper are taken from the Dimensional Research survey, “Desktop Application Lifecycle Management” (February 2014).
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