

WHITE PAPER

VMware Software Lifecycle Automation Solutions



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VMware Software Lifecycle Automation Solutions

Summary

Software systems are the ultimate delivery vehicle of IT value. Software embodies and automates the lifeblood of an organization – its business processes – and manages the information on which those processes depend. The rapid delivery of new and enhanced software systems, and their efficient and effective management once in production, is a critical IT process.

An organization's software lifecycle process can be a comparative business agility advantage if executed better than the competition; software-supported business processes can be rapidly adjusted in response to changing market conditions. But if this process is poorly executed, an organization can be stifled in its ability to adapt.

In addition to the tremendous efficiency gains achieved through server consolidation and increased utilization of data center resources, organizations that deploy VMware Infrastructure technology in the data center lay the foundation for fundamental enhancements to their software lifecycle process. VMware Lab Manager, VMware VirtualCenter and VMware Workstation work together to form the industry's only complete, closed-loop system for software lifecycle automation by leveraging the encapsulation, mobility and insulation properties of virtual machines hosted on the VMware Infrastructure platform.

From development and test, through integration, staging, deployment and management, VMware offers a comprehensive framework for virtual software lifecycle automation that streamlines these adjacent yet often disconnected processes, and closes the loops between them. Examples of the capabilities provided by VMware software lifecycle automation solutions include:

- Share software configurations between distributed development centers reducing duplicative provisioning
- Provide remote lab access and desktop hosting for offsite or offshore development resources, minimizing duplication of lab equipment at each site
- Close the loop between software development and quality assurance – capture and move defect state configurations to reproduce and resolve defects on demand
- Clone a configuration in production using VirtualCenter and effortlessly move it back to a VMware environment for security patch testing by QA

- Push a staged configuration into production following user acceptance testing – minimizing errors injected rebuilding systems for production
- Migrate running configurations between data centers or physical resources to recover from failures, ensuring business continuity

The Software Lifecycle

The enterprise software lifecycle, illustrated below, refers to the iterative set of processes resulting in the creation, deployment and management of production software systems.



Starting from the left, the process stages include:

Develop: software developers or development teams write new software or modify existing software systems

Test: QA teams test new or modified software systems to ensure they behave (functional testing) and perform (performance testing) as expected

Integrate: IT teams, often working with systems integration partners, integrate and customize purchased software systems with software systems created internally

Stage: Software and hardware come together and are prepared for production deployment – user acceptance testing (UAT) usually occurs at this point. In UAT, end users of the software systems interact with, and ensure they are getting what they need from, this business system

Deploy: Once accepted as “ready for use by the business” the software is put into production

Manage: Once in production, the software systems are monitored to ensure they are performing correctly, patched to ensure security compliance and backed up

The process is iterative. For example, software systems already in production are frequently enhanced or otherwise modified – thus they are “pulled back to the development stage” at times. Likewise, defects in systems being tested or integrated require troubleshooting and correction, which happens “back” in the development stage.

Solutions That Span the Software Lifecycle

VMware Infrastructure, VMware Lab Manager, VMware VirtualCenter and VMware Workstation are the key ingredient products of VMware’s software lifecycle automation solutions.

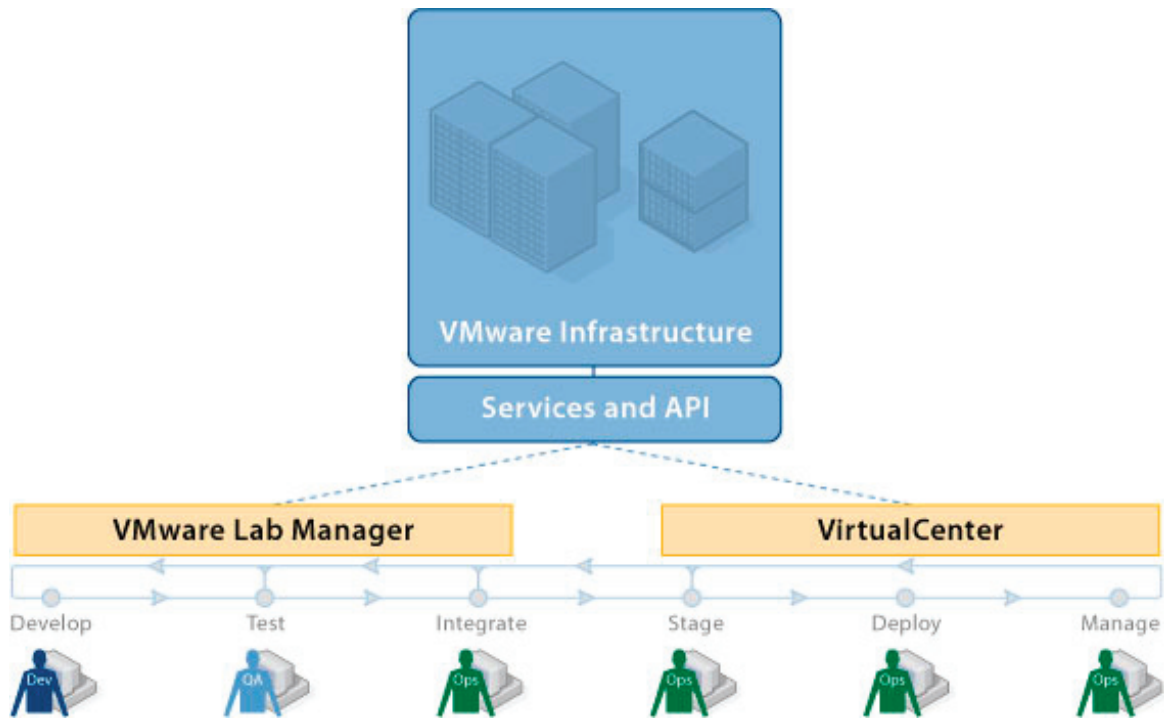
VMware software lifecycle automation solutions range from those targeted for use by a single developer to solutions addressing the needs of large, globally distributed software development teams; and with components that improve IT processes at every stage of the software lifecycle.

As shown below, VMware Infrastructure is central to a scaled out VMware software lifecycle automation implementation.

This centralized pool of virtualized resources is shared by users across the software lifecycle. VMware Lab Manager supports development, test and IT teams engaged in software development, test and integration tasks; while VirtualCenter provides staging, deployment and management capabilities to the IT teams placing systems into, and managing systems once in, production.

VMware virtual appliances (pre-configured or captured virtual machine images fully populated with operating systems and applications) provide the transport mechanism between process stages and across VMware product boundaries.

Integration between systems, and sharing of a pooled infrastructure base, enables dramatic improvements in the efficiency of software lifecycle processes. For example, systems in production can be quickly cloned in VirtualCenter, cleansed of privacy-sensitive information and moved to VMware Lab Manager for use by QA teams testing operating system and application patches – ensuring tests are being run on systems “as close to production as possible” but without putting production systems at risk.



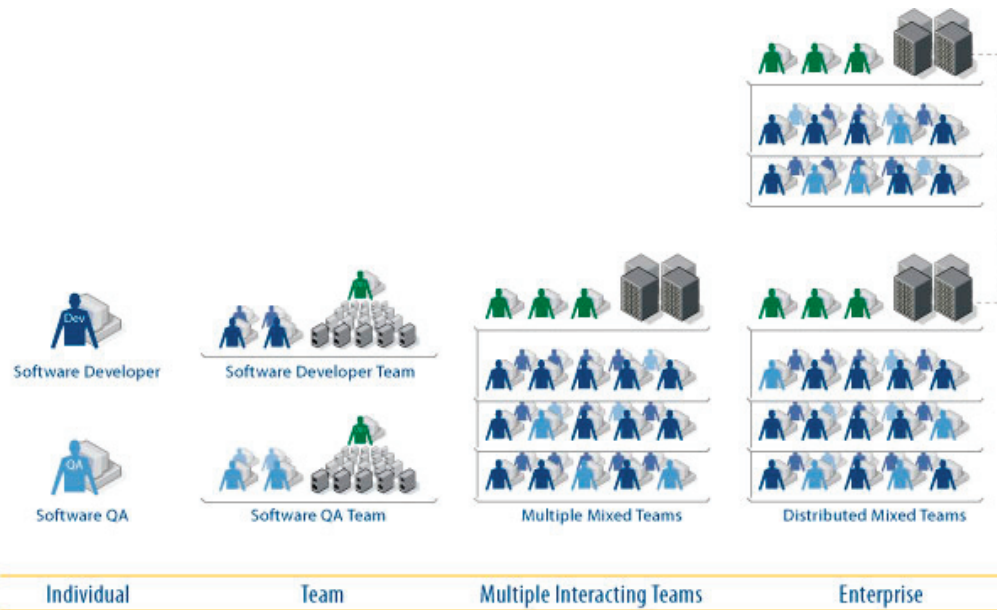
VMware solutions span the complete software lifecycle

Solutions That Span Deployment Scopes

VMware software lifecycle automation solutions are also available to match varying planned scopes of adoption: from VMware Workstation, which can be purchased and used by an individual developer or QA professional to enhance her own development activities, to a multi-datacenter deployment of VMware Infrastructure 3 Enterprise Edition with multiple instances of VMware Lab Manager and VirtualCenter providing process support across the entire software lifecycle and across the globe.

The appropriate set of VMware products used to implement a software lifecycle automation solution is driven by the initial scope of deployment (number and distribution of users) and the desired coverage of software lifecycle process stages.

Following are a few narrative examples, followed by a chart summary of solutions. Your VMware account representative can help you assemble the right solution for your particular needs.



VMware solutions span the range of deployment scopes - individual through enterprise

Scenario 1

A single software QA professional in an enterprise software quality organization may find she is spending time repeatedly re-installing an operating system in order to get a clean test bed after each new software build is made available for test.

Adoption scope: one individual

Lifecycle coverage: test

Solution: VMware Workstation. Service and support for all components.

Result: The QA professional snapshots a virtual machine at the starting point for testing. At any time, the QA professional can restart that snapshot providing a known clean starting point for testing. OS installs are a thing of the past and QA cycle times are reduced.

Scenario 2

An enterprise software development organization with two dozen programmers and ten QA professionals currently provides each developer with three servers to enable development work to proceed without relying on IT to provision systems in response to developer requests – IT was becoming a bottleneck, so the development team took matters into its own hands. The test team leverages lab resources and still struggles with IT provisioning turnaround.

Adoption scope: multiple development teams

Lifecycle coverage: development and test

Solution: Products: Shared 15-CPU VMware Infrastructure 3 Standard Edition resource pool; VMware Lab Manager agents; VMware Lab Manager; VMware Workstation for each individual. Services: VMware Lab Manager Jumpstart service, providing installation and training for the IT organization managing VMware Lab Manager. Service and support for all components.

Result: Servers are centralized, versus sitting under the desks of each developer, and virtualized, reducing server count by 50%. Developers can “check out” resources as needed and have them instantly provisioned to a desired state without doing it manually themselves. Each developer also now has direct access to more virtual resources as needed – not just limited to what is under their desk. QA can now self-provision systems, reducing IT-induced delays. The development and QA teams can share images, snapshot system states that enable reproduction, troubleshooting and correction of defects.

Scenario 3

An enterprise with multiple software development groups including an outsourced software QA team, each with its own underutilized development and test labs, wants to consolidate lab resources and increase the effectiveness of its test processes as many software defects have been cropping up in production – ideally there could be an automated replication of production systems to the development and test environment, ensuring tests are performed on systems “as close to production as possible” and once systems have been staged and tested, they can be forward deployed to production without error-prone reconfiguration of systems.

Adoption scope: enterprise wide

Lifecycle coverage: development to production

Solution: Products: Five 20-CPU VMware Infrastructure 3 Enterprise Edition pools supporting development, staging and production systems; VMware Lab Manager agents; VMware Lab Manager servers for each of three geographically co-resident groups of development and test teams; VirtualCenter for each VMware Infrastructure 3 farm supporting the staging, deployment and management of production systems and the movement of systems back to VMware Lab Manager for near-line production testing. Services: VMware Lab Manager Jumpstart services, providing installation and training for the various teams that will be managing and using VMware Lab Manager, other VMware service offerings as appropriate. Service and support for all components.

By design, the family of VMware software lifecycle automation solutions enables stepwise, protected investments. For example, a QA professional may initially adopt VMware Workstation and begin to build a library of test images. If later the organization expands adoption of VMware technology and deploys VMware Lab Manager against a VMware Infrastructure 3 pool, the images developed in VMware Workstation can be uploaded to VMware Lab Manager and shared with other team members. If VMware VirtualCenter is then added to the mix, systems tested and integrated in VMware Lab Manager can be cloned or “promoted” to a staging environment in VirtualCenter and, once accepted, instantly deployed to a production resource pool.

The chart below illustrates the VMware products appropriate for a software lifecycle automation solution, given the scope of initial deployment.

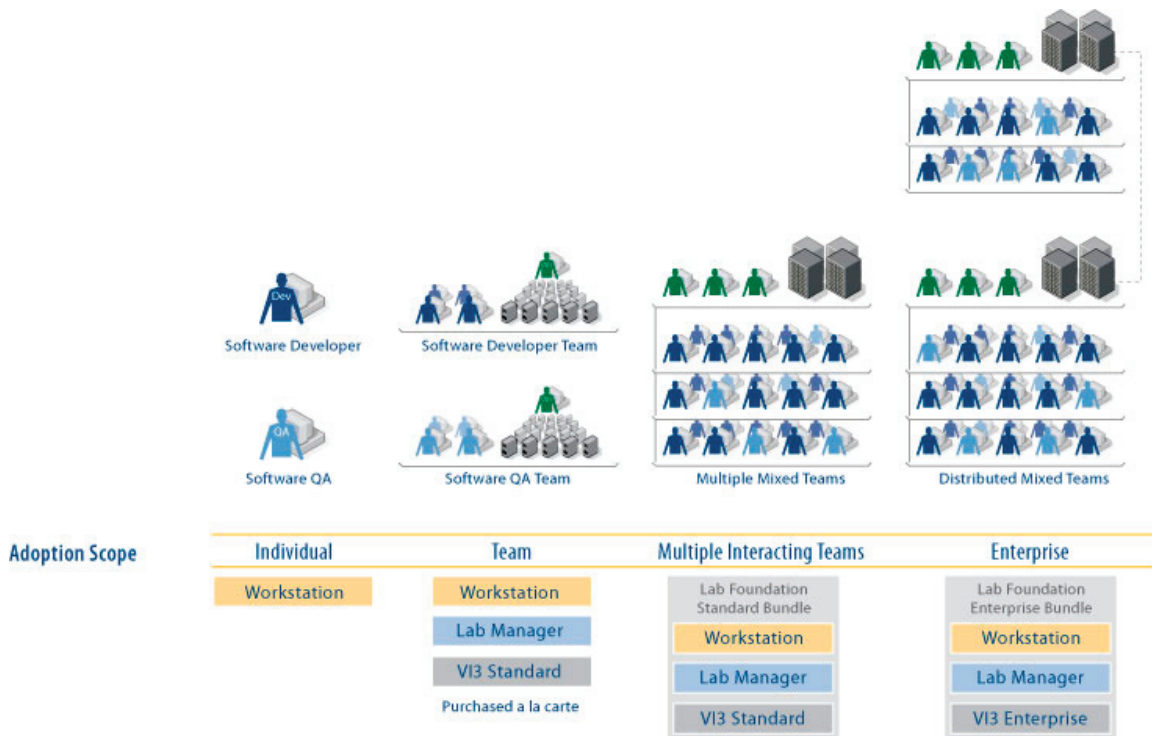
Conclusion

The rapid delivery of new and enhanced software systems – and their efficient and effective management once in production – is a critical IT process. An organization’s software lifecycle process can be a comparative business agility advantage if executed better than the competition. VMware software lifecycle automation solutions, which support a wide range of deployment scenarios from individual users to large multi-site teams, leverage the power of VMware Infrastructure to ensure this critical business process delivers competitive advantage to your organization.

About VMware

VMware, is the global leader in virtual infrastructure software for industry-standard systems. More than 4 million users and 20,000 corporate customers of all types and sizes use VMware software, including 99 of the Fortune 100 companies. VMware’s virtual lab automation system, VMware Lab Manager, enables enterprise software development teams to more efficiently utilize software development and test lab assets, accelerate software development cycles, and increase the quality of delivered software systems.

To learn more about how your organization can benefit from virtual software lifecycle automation, visit the VMware website at <http://www.vmware.com> or contact VMware at 1-877-4VMWARE.





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