Lab Management Automation
Available with HP Application Lifecycle Management and HP Performance Center

The promise of DevOps:
Application agility and better quality through better collaboration

Faced with the growing enterprise appetite for applications, development teams are moving ever faster to feed the demand for application agility. But the increasing frequency of application releases underlines the growing gap between development teams, who want to build faster, and operations teams, who need more stable and quality builds. Bridging the gap between these two opposing requirements requires a corresponding movement in which development and operations (DevOps) rally around values of quality, automation, and collaboration.

HP supports the DevOps movement through lab management automation—available in HP Application Lifecycle Management (ALM) or HP Performance Center (PC)—which allows development and testing teams to schedule, provision, and deploy their lab, tests, and other assets in a hybrid delivery environment—physical or virtual, in a traditional data center, or in the cloud.

The challenges of application agility
With a nod to Agile, the DevOps movement calls for a new measure of coordination and communication—a defined pipeline of release stages and application candidates moving systematically from development to testing, and from QA to operations. With Continuous Delivery, every code change that passes automated functional, performance, and security testing could, conceivably, be immediately deployed. But the application delivery chain—plan, deliver, run, retire—still contains latencies that prevent IT from achieving continuous delivery. Establishing environments for developing and testing applications constitutes a recurring challenge. Whether they’re unit tests, integration tests, or even functional, performance, or regression tests, all pose a potential strain on resources for a host of reasons, including:
- Reliance on other teams
- Unavailability of infrastructure resources
- Unpredictability of build readiness
- Error-prone deployment of the test environment

Such dependencies can become roadblocks, especially under the high-velocity expectations of Agile development. The solution lies in an automated process that allows development and testing organizations to set up and tear down labs on demand.

Lab management automation
HP ALM and HP Performance Center (PC) support lab management automation via integration with HP Continuous Delivery Automation (CDA). This allows development and testing teams to:
- Manage and schedule testing assets and resources.
- Define infrastructure topology, application configuration, and associated components (i.e., middleware, databases, etc.) as a model.
- Provision a test lab themselves in a hybrid delivery environment (bare-metal or virtual, in-house or in the cloud).
- Deploy the appropriate application build on the environment, as needed.
- Schedule tests along with lab deployment, enabling execution when a new application build is ready for testing.

This model-driven approach helps eliminate user errors in lab configuration, thereby making the testing efforts more relevant and accurate. Consequently, in the spirit of the DevOps movement, HP lab management automation can bring development, test, and operations teams closer since the same model can be used across the application lifecycle.

Manage and schedule testing infrastructure.
HP equips QA professionals with a range of new options for efficient planning of test executions, including:
- Pooling and centralized management of testing resources
- Automatically allocating testing resources to projects based on volume and priority
- Creating timeslots dedicated to running automated functional or performance test
- Reserving testing resources necessary for the test run for the scheduled time
- Ensuring secure communications with testing hosts over a firewall

Automated lab deployment
The automated lab deployment capability is based on two underlying methods: a model-driven approach and an extensible, pluggable architecture.

- A model-driven approach
A data model represents the definition of the application and environments. The model centrally stores and versions artifacts in a definitive software library, then orchestrates automated tasks, such as platform provisioning and application deployment. This approach provides flexibility and portability of applications across platforms, and allows for dynamic re-use of artifacts. Model definition includes:
  - Platform—the compute, storage, network, and software necessary to fully define the target environment for an application
  - Application—the build artifacts, scripts, and commands per layer that are required to deploy the application
  - Topology—a dynamic relationship between composite application layers and compute resources within a platform. This defines a unique deployment mapping.
• Extensible, pluggable architecture
HP offers the flexibility to automate the lab deployment delivery around the tools and environments in use by your organization. It provides configuration of delivery providers in several key areas:

− Software deployment—Translate application models into deployment steps for products like HP Server Automation and Chef, or leverage existing deployment content from libraries.
− Monitoring—Automate the configuration of system and application monitoring policies for tools such as HP SiteScope, HP Diagnostics, or Nagios through the plug-in layer.
− Hybrid infrastructure—Provisions the right systems in the right environments—the private or public cloud, or traditional or virtualized infrastructure.

Schedule tests and lab deployment.
HP ALM and HP PC allow development and testing teams to schedule the execution of their tests as well as the lab deployment based on completion of a build. You can:

• Define build verification suites consisting of multiple test sets—including functional and performance tests
• Decide whether to run tests on an existing environment or dynamically provision and deploy the lab before running tests
• Schedule these tests and lab deployment to run after completion of a build
• Choose to break down the environment on completion of the tests, subsequently freeing up resources and giving a status of the build

Continuous benefits
DevOps is a movement. But movement requires force. HP’s support for lab management automation enables complete automation of a complicated process—taking a build of an application through deployment and testing. The result is benefits across the application lifecycle:

• Error-proof configuration of environments
• Support for heterogeneous environments
• Increased utilization of hardware
• Improved collaboration between development, test, and operations teams
• Efficient testing in Agile and Continuous Delivery environments

For more information
To learn more about how HP supports the DevOps movement through lab management automation, visit hp.com/go/devops.

HP Services
HP Software Professional Services offers a range of services for DevOps. HP Lab Management Foundation Service uses our lab management automation capabilities to enable continuous testing for higher quality from the outset by promptly running tests on new changes as they are introduced. This service includes the deployment or upgrade of HP Application Lifecycle Management, along with all steps required to truly leverage the benefits of lab management automation.