Jenkins Plugin for HP Operations Orchestration

Enabling DevOps for your application lifecycle

HP Operations Orchestration Overview

HP Operations Orchestration (HP OO) software is a leading product in the IT Process Automation market. HP OO automates the tasks and processes in the data center using workflows that help IT teams execute change with greater speed, quality, and consistency. HP Operations Orchestration software includes HP OO Studio, an intuitive and easy-to-use tool for authoring and designing workflows. HP OO comes with a large OOTB content library, offering the ability to integrate with many other HP software products and 3rd party vendors like VMware, Microsoft, etc.

An industry-leading solution
- IT process automation
- Runbook automation

Scalable and auditable workflow based automation platform

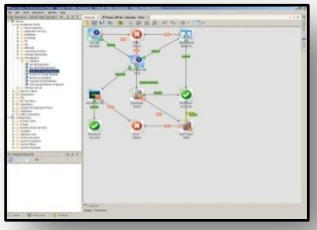
Out of box content library with 4000+ flows and operations

Generate content with easy-to-use wizards – get started in hours!

Intuitive authoring experiance with drag-and-wire interface, which enables rapid time-to-value

HP Operations Orchestration key components:

- **Studio**
  - Flow authoring & debugging
  - Document generation
  - Script import



- **Central**
  - Flow execution
  - Dashboard & reporting
  - HP OO Administration

- **Content**
  - Over 4000 OOTB operations, which allows you to integrate many industry leading vendors

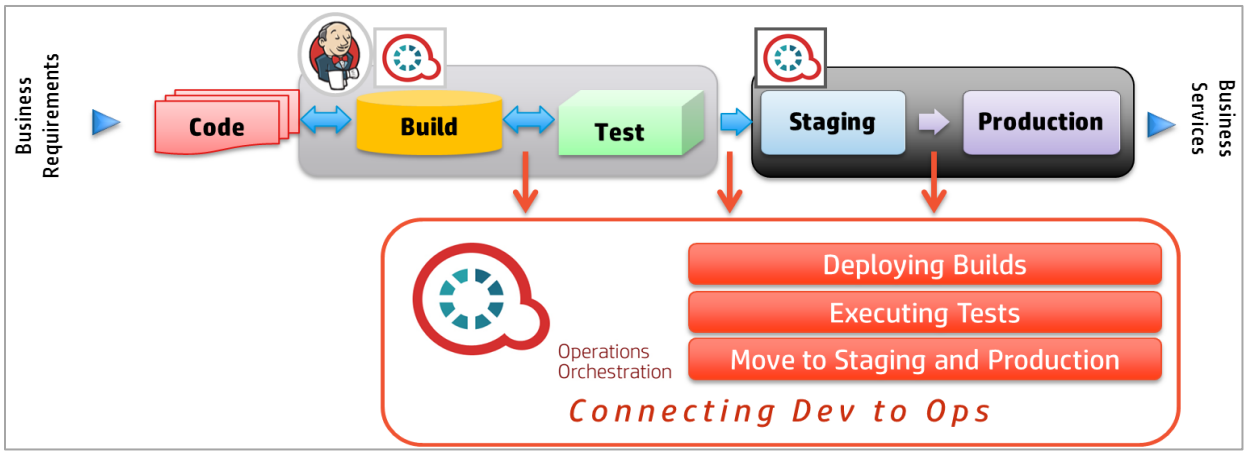
- **Portal**
  - Business User gateway to automation

- **RAS** - Remote component that enables flow execution in remote networks and over firewalls

For more details and to download a trial version, go to the HP Operations Orchestration product page

How do Jenkins and HP Operations Orchestration connect?

Looking at the DevOps story, Jenkins and HP OO can connect using the **HP Operations Orchestration Automation Execution Plugin**.



Deploying Builds

Using the Jenkins **HP Operations Orchestration Automation Execution Plugin** you can trigger an HP OO workflow at the end of the build process to do the actual deployment of the new bits on selected machines. The deployment can be done on an existing machine or you can even provision a new one. The workflow can be designed according to the specific needs of your organization.

The value of using HP Operations Orchestration in this use case:

- Removes the dependency of the Dev team on IT/LAB-IT availability.
- IT teams gain control of what is being deployed and where.
- Removes the need for developers to handle manual or script-based deployment.

Example of HP OO content that can be leveraged: VMware, KVM, MS HyperV, Amazon EC2, OpenStack, HP SA, SSH operations, etc.

Executing Tests

Using the Jenkins **HP Operations Orchestration Automation Execution Plugin** you can trigger an HP OO workflow at the end of the deployment process to start functional and/or load testing using various applications or even your own scripts.

The Value of using HP Operations Orchestration in this use case:

- Triggering through HP OO will execute any tool you need, either by SOAP/REST API, CLI (SSH/WMI/PowerShell/etc) or using your own Java/.NET code.
  HP Operations Orchestration provides tools which allow you to integrate with any other application with zero or little coding.
- The HPP OO flows that orchestrate the tests can later be reused in the staging environment testing.

Move to Staging and Production

Using the Jenkins **HP Operations Orchestration Automation Execution Plugin** you can trigger an HP OO workflow that will do deployment of the release build on the staging environment and later on in production.

At this phase of the DevOps process, the value of HP OO is easy to see:

- **Saves effort**: Workflows created in the previous phases can be leveraged here. Deploy →Test→Go live!
- **Increases efficiency**: Standardize your deployment to production.
- **Disables error-prone processes**: Reducing manual work reduces the chance of mistakes.
- **Win-win situation**: IT will have control of the deployment and Dev will realize faster service.
- **OO is already there**: HP Operation Orchestration is commonly used by many IT organizations.

HP SaaS Continuous Delivery Case Study

Project Goal

Have a SaaS offering that continuously changes under the hood with no downtime and a short development + QA cycle time, following the principles of Continuous Delivery:

- The process for releasing/deploying software MUST be repeatable and reliable
- Automate everything!
- If something's difficult or painful, do it more often
- Keep everything in source control
- Done means "released"
- Build quality in!
- Everybody has responsibility for the release process

Project Challenges

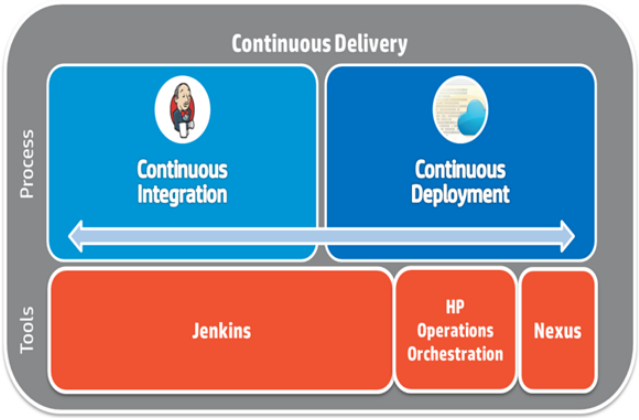
- Cooperation between two teams from two different internal organizations
- No standard building process
- No standard deployment process
- Short time frame
- The current development environment and the project target deployment environment are managed by different IT teams and have different policies

Implementation

After examining several options and considering all challenges, the following implementation was chosen.
In particular, **HP Operations Orchestration** is used as the deployment tool. Not only does it have the necessary features and a rich set of out-of-the-box integrations but it is commonly used in IT organizations today (including in HP SaaS).

Tools Used

- Jenkins
- HP Operations Orchestration 9.05
- Nexus Pro
- Deployments were on VMware-based virtual machines.



Continuous Integration

SVN was chosen for managing the source code and Jenkins as the CI and build platform.
This process included: Unit tests, REST system tests, UI selenium tests, upgrade tests, performance tests (single user experience) and static code analysis – "FindBugs".

Continuous Deployment

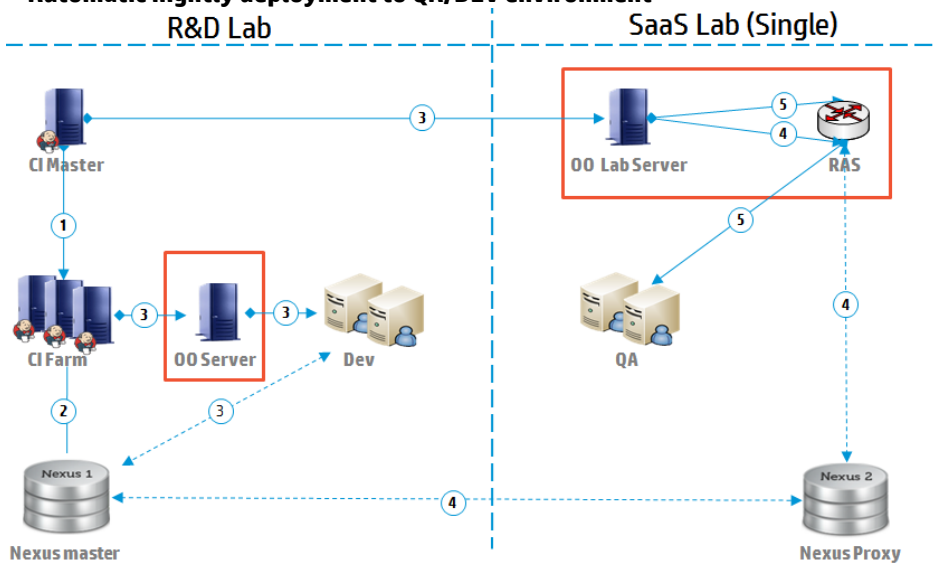
Since it is a SaaS based application, deployment is very important and must be done in a very precise way without any options for mistakes that could cause service disruption for customers.
The deployment included three stages:

1. Nightly deployment – Automatic or by request.
2. Staging deployment – Manually approved by R&D QA.
3. Staging to production – By request, approved manually by SaaS QA.

All of these deployments are performed by using **HP Operations Orchestration.** A workflow was built for each one of the deployments.

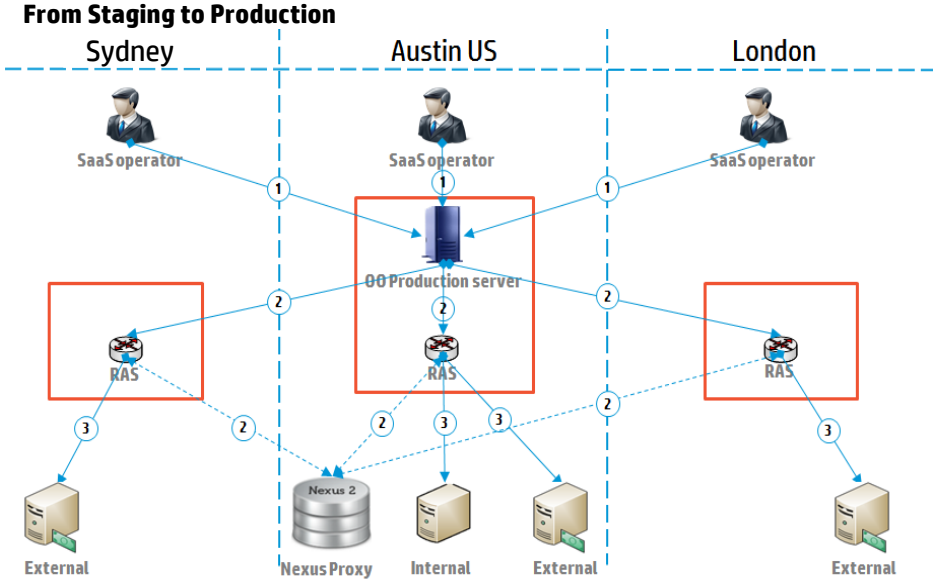
Deployment processes examples

- **Automatic nightly deployment to QA/DEV environment**



(1) Time scheduled/manual build
(2) Upload build to QA repository
(3) Start deploy QA/DEV
(4) Sync Nexus proxy and upload artifact to RAS
(5) Deploy build

- **From Staging to Production**



(1) Trigger request to deploy build to production
(2) Upload build to appropriate geography RAS
(3) Deploy release to production

For more details, contact us using the community:
https://hpln.hp.com/group/operations-orchestration

For more details on HP Operations Orchestration:
http://www.hp.com/go/oo