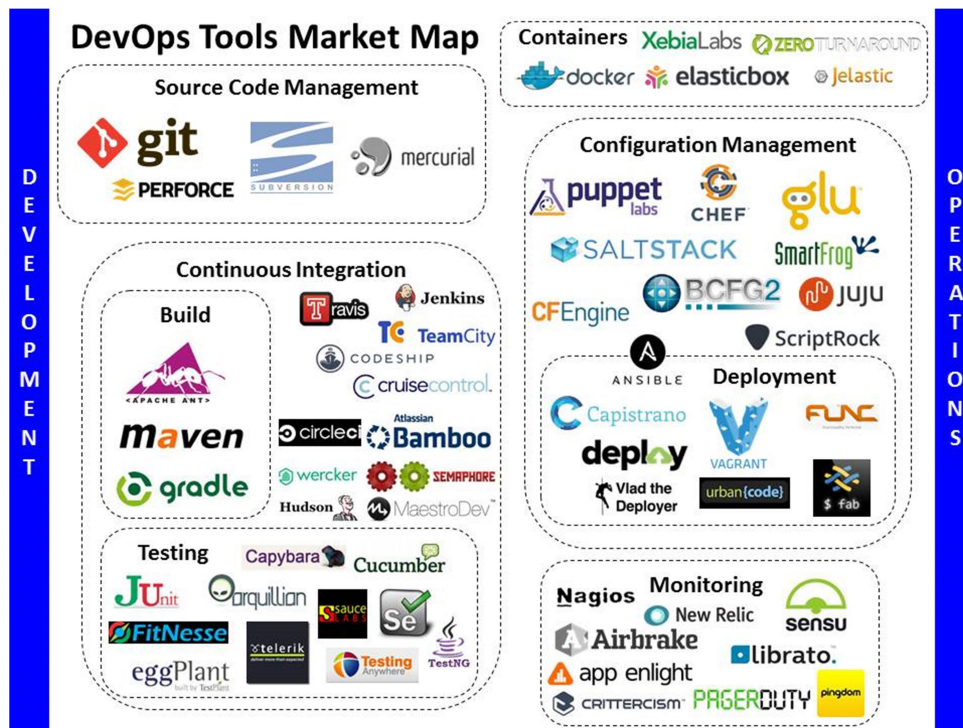


Proposed TOC/Agenda for DevOps with Jenkins 5 days Training: Accenture

1. Introduction to DevOps (1/2 day)

- Comparison -> Waterfall, Agile & DevOps methodologies
- Understanding the DevOps movement & culture
- DevOps Lifecycle – All About ‘Continuous’
 - Continuous Development
 - Continuous Testing
 - Continuous Integration
 - Continuous Deployment
 - Continuous Monitoring
 - Continuous Feedback
- DevOps Principles, Team Topologies
- Adoption Strategy & Milestone based planning – Process, Culture, people skills & tools, KPIs
- DevOps Tools overview



- DevOps Periodic Table Walk through & criteria for choosing various Tools – Atlassian (BitBucket, Jira, Bamboo, Confluence) v/s AWS (CodeCommit, CodeBuild, CodeDeploy, CodePipeline)

PERIODIC TABLE OF DEVOPS TOOLS (V1) XebiaLabs
Deliver Faster

Os	Open Source	Database	SCM	Build
Fr	Free	CI	Repo Mgmt	Testing
Fm	Freemium	Deployment	Config / Provisioning	Containerization
Pd	Paid	Cloud / IaaS / PaaS	Release Mgmt	Collaboration
En	Enterprise	BI / Monitoring	Logging	Security

1 O 12c	2 Fm AWS Amazon Web Services	3 Ch Chef	4 Gt Git	5 En SSH	6 Pu Puppet	7 An Ansible	8 Si Salt	9 Dk Docker	10 Pd Az Azure
11 Mq MySQL	12 Sv Subversion	13 Fr SSH	14 Bl BladeLogic	15 Fr SSH	16 Va Vagrant	17 Tf Terraform	18 Rk Rkt	19 Hk Heroku	20 Pd Pd
19 Os Pq PostgreSQL	20 Fr Mc Mercurial	21 Os Mv Maven	22 Os Gr Gradle	23 En Mr Meister	24 Os Jn Jenkins	25 Pd Bb Bamboo	26 Os Tr Travis CI	27 Fr Ar Archiva	28 Os Fn FitNesse
29 Os Se Selenium	30 Fr Gn Gating	31 Pd Gd Deployment Manager	32 Os Sf SmartFrog	33 Fr Cb Cobbler	34 Os Bc Bcfg2	35 Os Kb Kubernetes	36 En Rs Rackspace	37 Os Mg MongoDB	38 Fr Gh GitHub
39 Os Br Buildr	40 Os At ANT	41 Fm Bm BuildMaster	42 Fm Cs Codeship	43 Fm Sn Snap CI	44 Fm Cr CircleCI	45 Os Nx Nexus	46 Os Cu Cucumber	47 Os Cj Cucumber.js	48 Fr Qu Quint
49 Fr Cp Capistrano	50 Fr Ju Juju	51 Os Rd Rundeck	52 Os Cf CFEngine	53 Fr Pk Packer	54 Fm Bx Bluemix	55 En Db DB2	56 Fm Bb Bitbucket	57 Fm Qb QuickBuild	58 En Ub UrbanCode Build
59 Pd Ta TeamCity	60 Fm Tc TeamCity	61 Fm Sh Shippable	62 Os Cc CruiseControl	63 Os Ay Artifactory	64 Fr Ju JUnit	65 Os Jm JMeter	66 Fr Tn TestNG	67 En Rd RapidDeploy	68 Fm Cy CodeDeploy
69 En Oc Octopus Deploy	70 Os No CA Nallo	71 En Eb ElasticBox	72 En Ad Appendix	73 Fr Cs Cassandra	74 En Hx Haxe	75 Os Msb MSBuild	76 Os Rk Rake	77 Os Lb LunrBuild	78 Os Cu Continuum
79 Fm Ca Continue CI	80 Os Gu Gump	81 Os Ng NuGet	82 Os Ap Appium	83 En Xltv XL TestView	84 En Tc TestComplete	85 Os Go Go	86 En Ef ElectricFlow	87 En Xld XL Deploy	88 En Ud UrbanCode Deploy
89 Os Mo Mesos	90 Os Cf Cloud	91 En Xlr XL Release	92 En Ur UrbanCode Release	93 En Ls CA Service Virtualization	94 En Bm BMC Release Process	95 En Hp HP Codar	96 Pd Ex Excel	97 En Pl Plutora Release	98 En Sr Serena Release
99 Fm Tr Trello	100 Pd Jr Jira	101 Fm Rf HipChat	102 Fm Sl Slack	103 Fm Fd Flowdock	104 Pd Pv Pivotal Tracker	105 En Sn ServiceNow	106 En Sp Splunk	107 Os Ki Kibana	108 Fm Nr New Relic
109 Os Ni Nagios	110 Os Gg Ganglia	111 Os Ct Cacti	112 Os Gr Graphite	113 Os Ic Icinga	114 Fm Sl Sumo Logic	115 Os Ls Logstash	116 Fm Lg Loggly	117 Os Gr Graylog	118 Os Sn Snort
119 Os Tr Tripwire	120 Os Cy CyberArk								

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- Some DevOps Terminologies – Blue Green Deployment, Rolling Updates, Mean Time to Recovery, Configuration drift, Snowflake Server
- Importance of Testing, Automation, % Coverage, TDD
- DevSecOps

2. Source Code Version Control Tools using GitHub (1 day)

- Comparison of various Source Code Tools – Client Server & Distributed attributes
- Various Git Flavors : GitHub, BitBucket, GitLab, GitStack etc & feature comparison
- Git 101 using free Cloud Server GitHub.com -> Server & Client set up – Registration on GitHub.com, installing Git Client (<https://git-scm.com/download/win>) on all participant's machine, SSH Key generation & updating it on Git server, sample repository set-up and basic commands
- Git Code Review using Git Pull requests – Lab exercise to create a Simple Branch for a feature and raise Pull requests for code review & subsequent merge
- Best practice while working with Git - Reset v/s Revert, amend, cherry pick do's & don'ts, rebase etc
- Introduction to Maven, sample maven based Java web application exercise to build, compile and package
- Git Working Model – Clone V/s Collaborative (pros & cons), GitHub Repository Organization Best practices, Overview of Typical Branching Model

3. Continuous Integration & Jenkins (1 ½ days)

- Need for CI & Martin Fowler's definition of CI
- Comparison of various CI Servers & introduction to Jenkins
- Installation of JDK, Maven & Jenkins (Generic War File) on all participants machine
- Lab exercise to set up simple Free Style Jobs and setting up a job to pull your GitHub repository (created earlier) repo , build & execute it
- Jenkins Configuration - Integration with various LDAPs, Granular access permissions, SMTP
- Popular plugins & features – Static Code Analysis (PMD, checkstyle), JUnit, Pipeline, Master-Slave, Deployment, back-ups
- Continuous Integration: GitHub + Jenkins Integration using web-hooks to trigger automated build based on code push
- Jenkins Pipelines, setting up sample pipelines using UpStream Jobs, Groovy DSL pipeline scripts to Git checkout sample maven based repository, Unit test, deploy it and send appropriate notifications

4. Docker & Containers (1 ½ days)

- Docker Introduction, container analogy, difference between containers & VMs
- Docker Workflows
- Docker Architecture – Engine, Container, Docker host, Image, Registry
- Docker Installation on participants laptops (Windows & Mac)
- Docker 101 commands, attaching & detaching from containers, daemon containers, starting, stopping & removing containers
- Sample exercises for running various containers & Applications – Alpine Linux, java, PHP
- Dockerfile detailed syntax – FROM, COPY, ADD, ENV, USER, WORKDIR, VOLUME, EXPOSE, RUN, CMD, ENTRYPOINT, .dockerignore file
- Building & storing images, pushing them to public repositories, Docker hub registration
- Understanding Storage, Layers & inspecting Docker images with exercise
- Linking Containers – Storing data, volumes, mounting volumes, read-only mounts, Docker networking, mapping & exposing ports
- Weaving multiple containers with Docker Compose
- Docker Orchestration with Swarm – Swarm init, join as worker/manager, scale service, drain a node, service update and shutdown service – Demo with simple nginx service
- Docker swarm service rolling update and rollback exercise

5. Infrastructure as Code (IaC) & Configuration As Code using ANSIBLE (1/2 day)

- Brief overview & comparison of various IaC Tools : Chef, Puppet, Ansible, Saltstack, Terraform, Python Boto3 Library
- Demo of Python Boto3 SDK APIs to spin up AWS Instances, Upload files to S3 Buckets, list IAM users etc
- Demo of ANSIBLE set-up required for controlling Linux AMI machines and running simple playbook to install NGINX server and inject index.html file of choice

Please Note: Few Topics can be dealt in detail or skipped as per need/interest

Lab Requirements:

- One Physical Machine per participant (16GB RAM, Core i5 CPU & 500GB Hard Disk)
- Virtualization should be enabled on all the physical machines (BIOS Level HyperV enabled)
- BaseOS Windows 10 or higher x64 Bit Operating System (Windows 10 pro)
- Install 7 Zip. <https://www.7-zip.org/a/7z1801-x64.exe>
- Install Virtual Box. <https://download.virtualbox.org/virtualbox/5.1.28/VirtualBox-5.1.28-117968-Win.exe>
- Install Docker Desktop for Windows <https://docs.docker.com/docker-for-windows/install/>
- Jenkins Windows MSI Installer 2.176.2 version (LTS version) : <https://jenkins.io/download/>
- Oracle Java SE Development Kit 8u221
<https://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>
- Apache Maven 3.6.1 <https://maven.apache.org/download.cgi>
- Git Client for windows : <https://git-scm.com/download/win>
- Good & uninterrupted Internet connection