

Introduction to DevOps

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Agenda

Evolution of software Development
over the years

What is DevOps?
Do we really need DevOps?

How does DevOps work anyways?
Challenges and problems out there

Devops Tools

01

02

03

04



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Business requires new features/changes



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Business need new features/changes

Deployed in days/weeks

Not months

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DEVELOPER

"Dev" is used as a shorthand for developers in particular, but in practice it is even wider and it means that "all the people involved in developing the product," that includes the product, QA and other disciplines.

Dev's job is to add **new features**

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Ops's job is to keep the site
stable and fast



OPERATIONS

"Ops" is a blanket term for system administrators, DBAs, Network engineers, Security professionals and various other sub-disciplines and job titles"

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DEVELOPER

Ops's job is to
enable the
business
(this is Dev's
job too)



OPERATIONS

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but **code/features** changes are **integrated at the end**
of development.

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Integration was a long and unpredictable process



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Lots of **bugs** are found at the **end of testing phase**

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Dealing with ambiguous requirements or realizing it differently



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How long does it take for a **committed code** to move and **run successfully** in the **Production Environment?**

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“Deploys/Changes per day” Vs. “Lead Time”



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But **change** is the root cause of most
outages!



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DEVELOPER

“it’s not my
code, it’s your
machines!”

“it’s not my
machines, it’s
your code!”



OPERATIONS

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Inconsistent Environments

dev, test, stage, production



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DEVELOPER

- » Developers introduce changes
- » They try to implement every new feature introduced

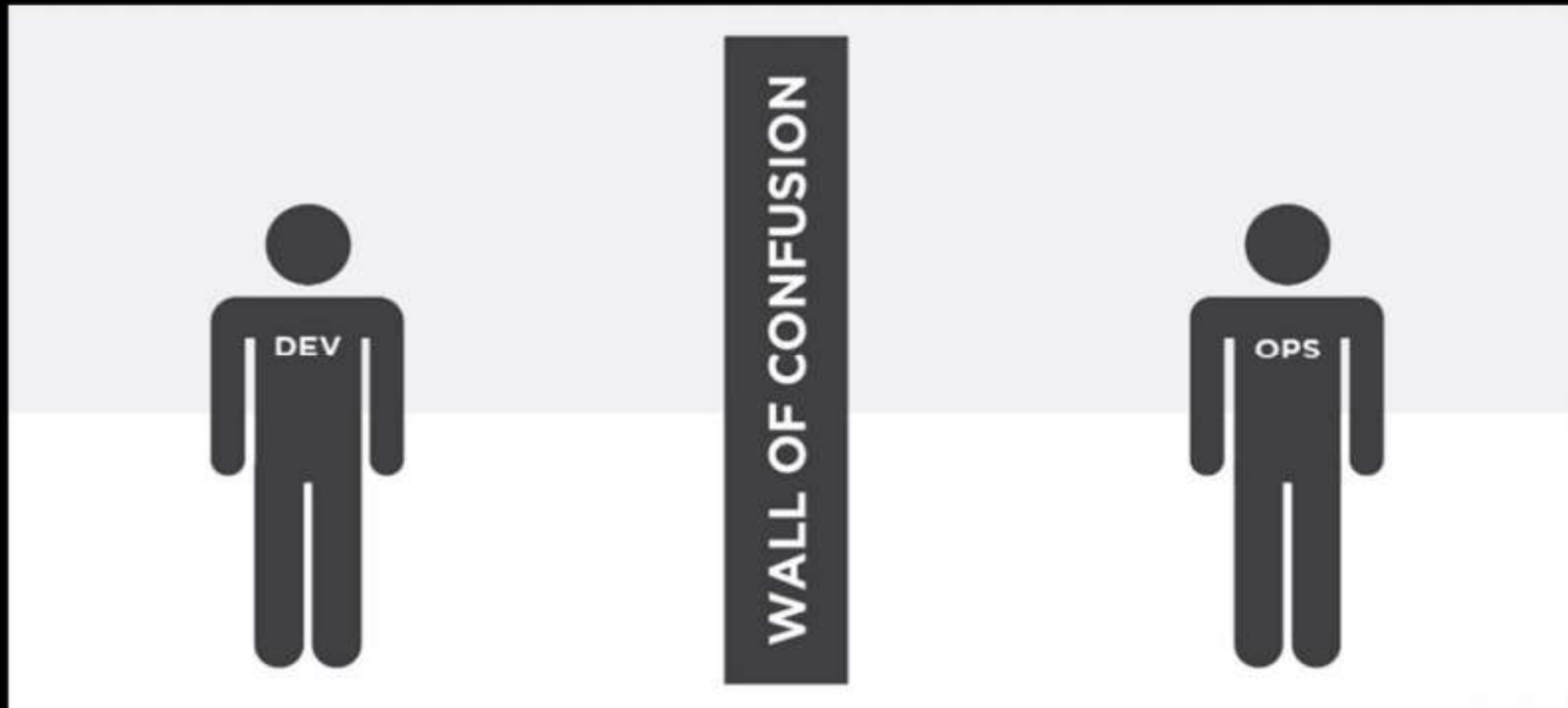
- » Change is the enemy for Operations
- » Changes can lead to instability



OPERATIONS

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DEVELOPER

Sends out artifacts
based on
requirements

Day 1: During Infrastructure setup



Manually hacks the
scripts received and
changes the config
files to reflect
changes in
production which
could potentially lead
to an issue.



OPERATIONS

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DEVELOPER

Day 2: Loss of work

All the artifacts are fine,
the error is because of
some other issue.
QA was given wrong
setup



Developer gave
faulty artifacts



OPERATIONS

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Day 3: After Delivery

There are some database anomalies, code is not fit to be deployed on live server.

I checked at my end, seems like the database deployed on staging server by operations team is running an older version.

I was given wrong artifacts also constant changes in the code can be one of the reasons for failure.



TEST ENGINEER



OPERATIONS

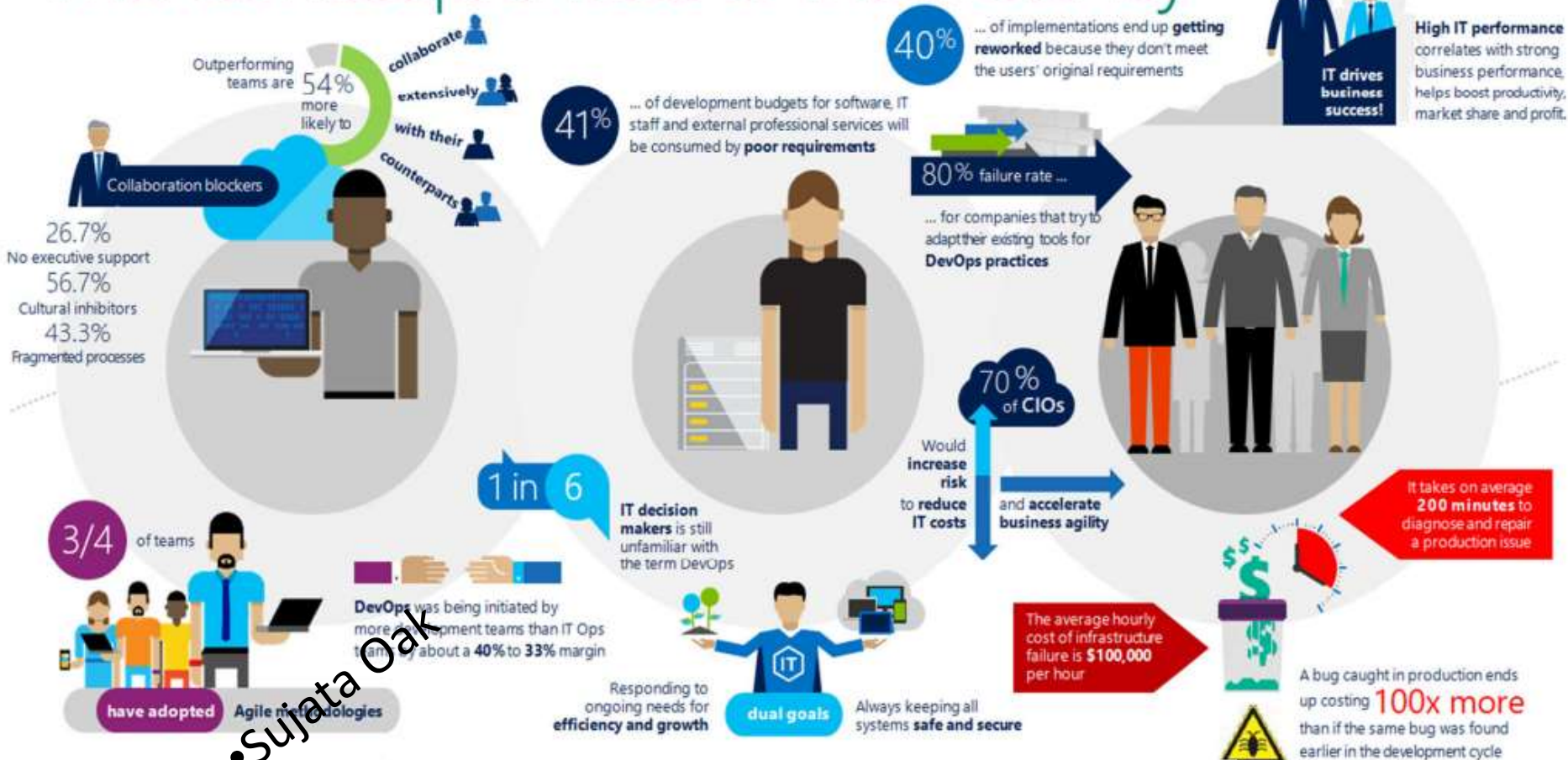


DEVELOPER

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The consequences of inefficiency



WHAT IS DEVOPS



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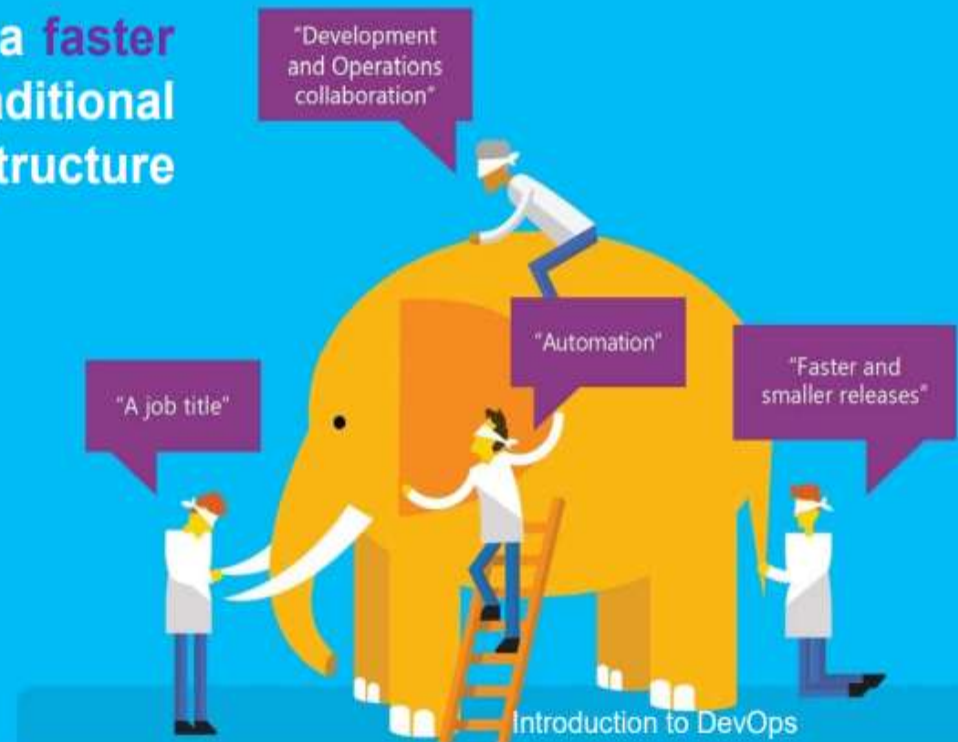


DevOps is the combination of cultural philosophies, practices, and tools that increases an organization's ability to deliver applications and services at high velocity.

Evolving and improving products at a faster pace than organizations using traditional software development and infrastructure management processes.

This speed enables organizations to better serve their customers and compete more effectively in the market.

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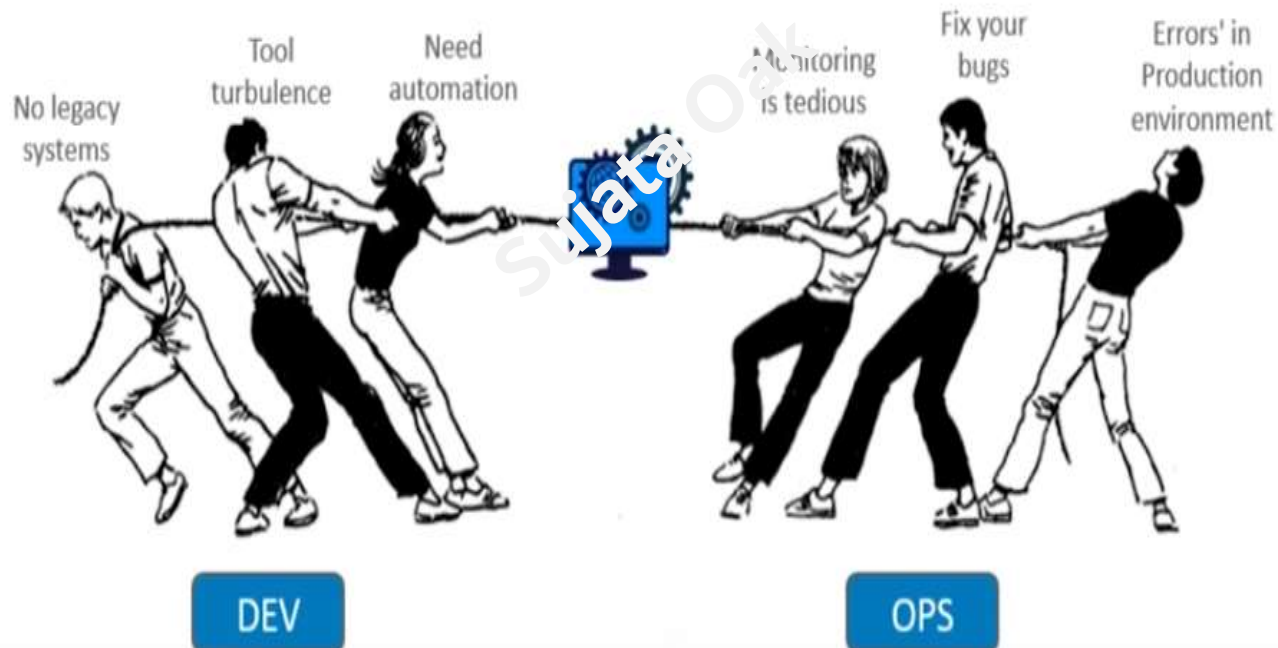
Ops who think like **Devs**
Devs who think like **Ops**

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Software Development challenges

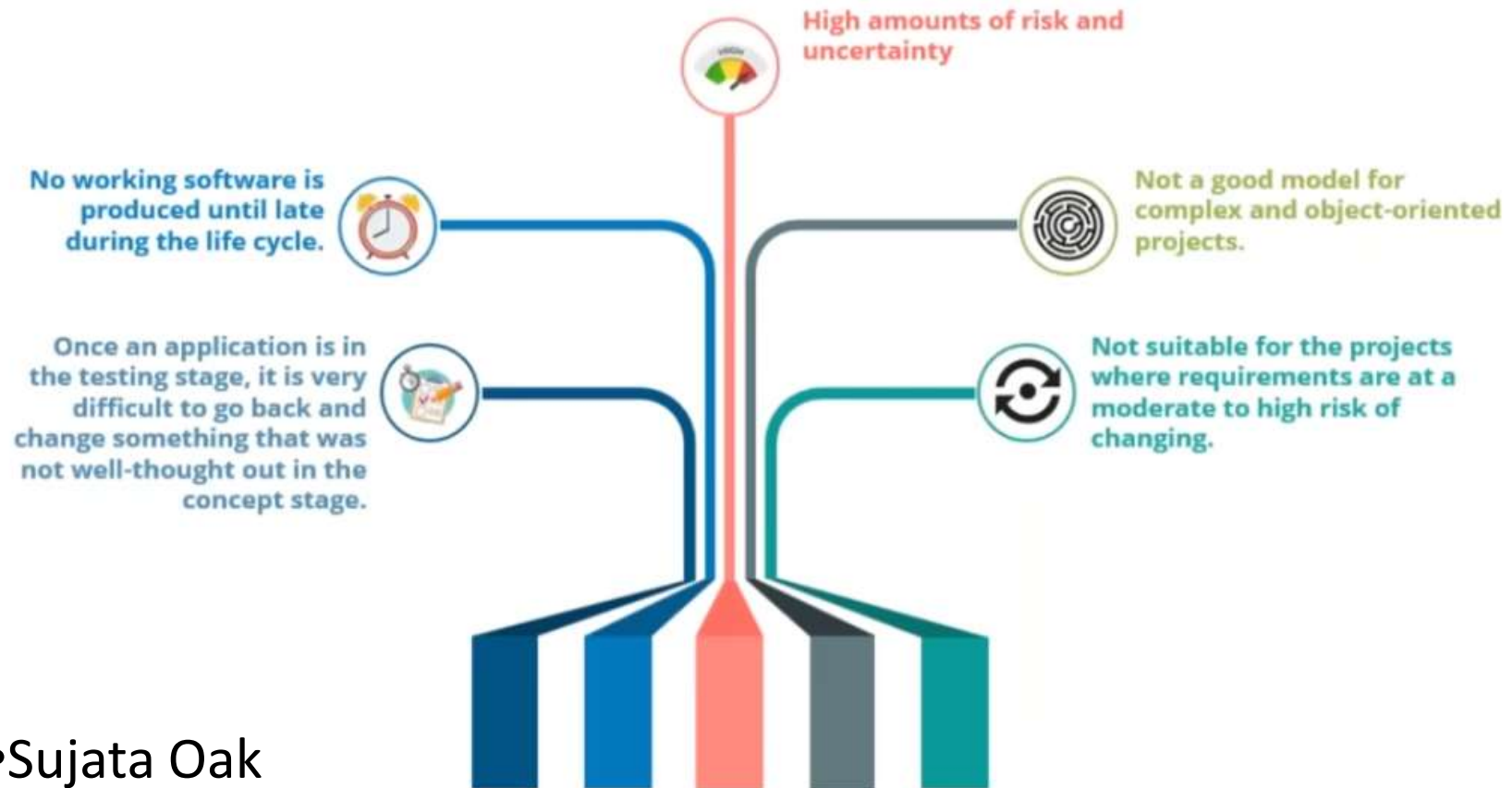
Primary factor leading to challenges during software development is the *Silo* between **development & operations**.



Evolution of software Development over the years

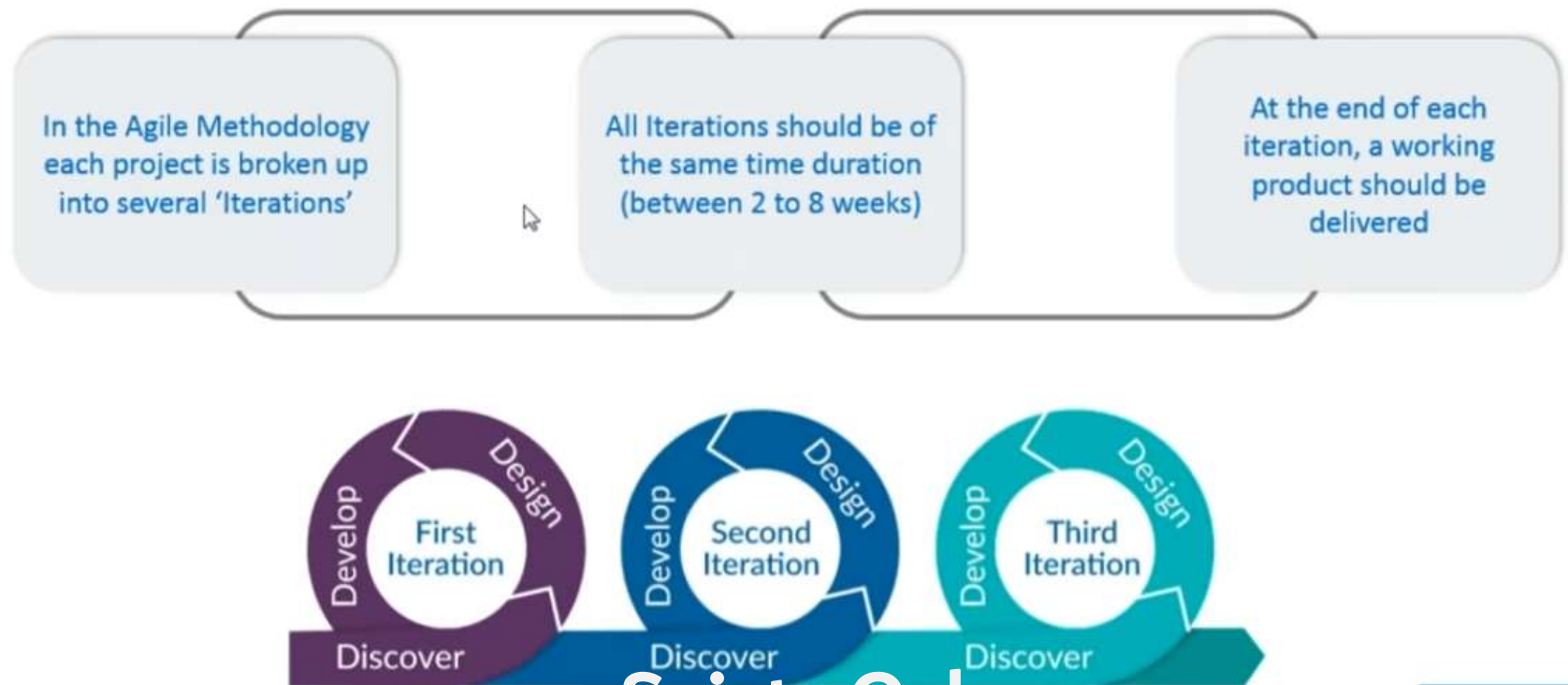


Limitations of Waterfall Model



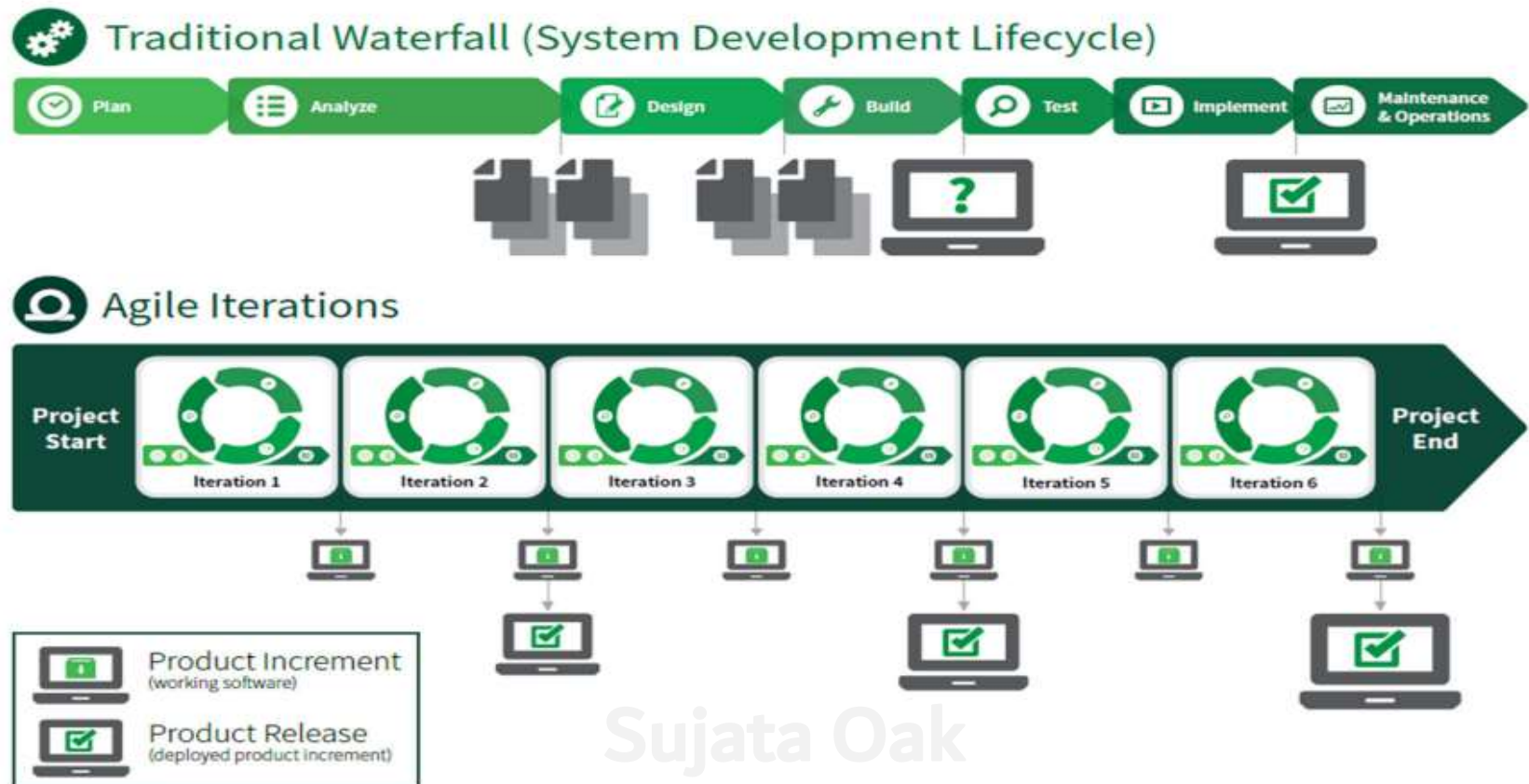
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What Is Agile Methodology



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Software Development challenges



Evolution of software Development over the years

Waterfall



Agile



Agile with Continuous Deployment (Requires DevOps)



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Week 2 : DevOps Life Cycle , Tools and VCS

DevOps Life Cycle

Introduction to VCS

Hands On Git

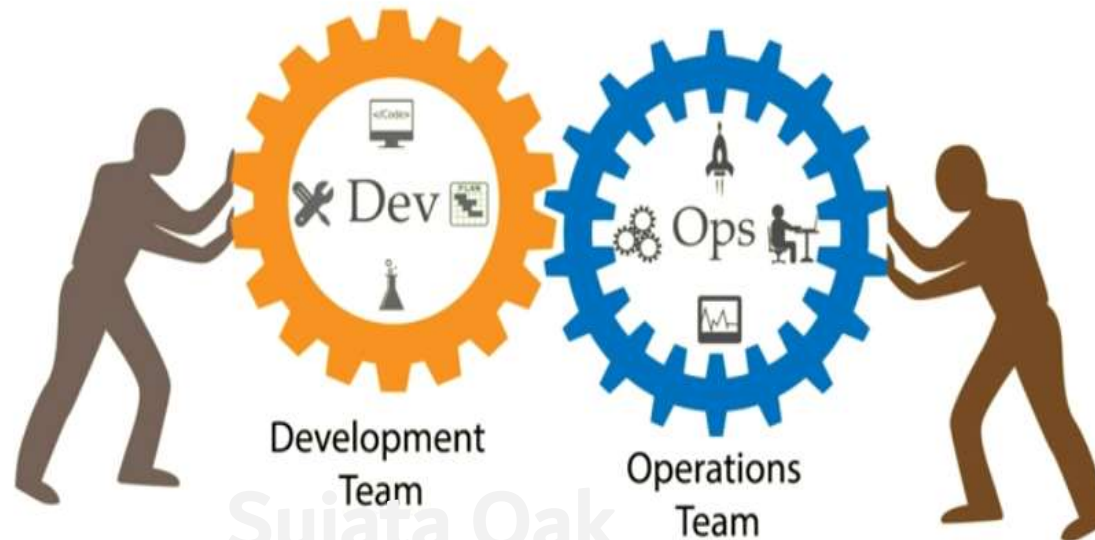
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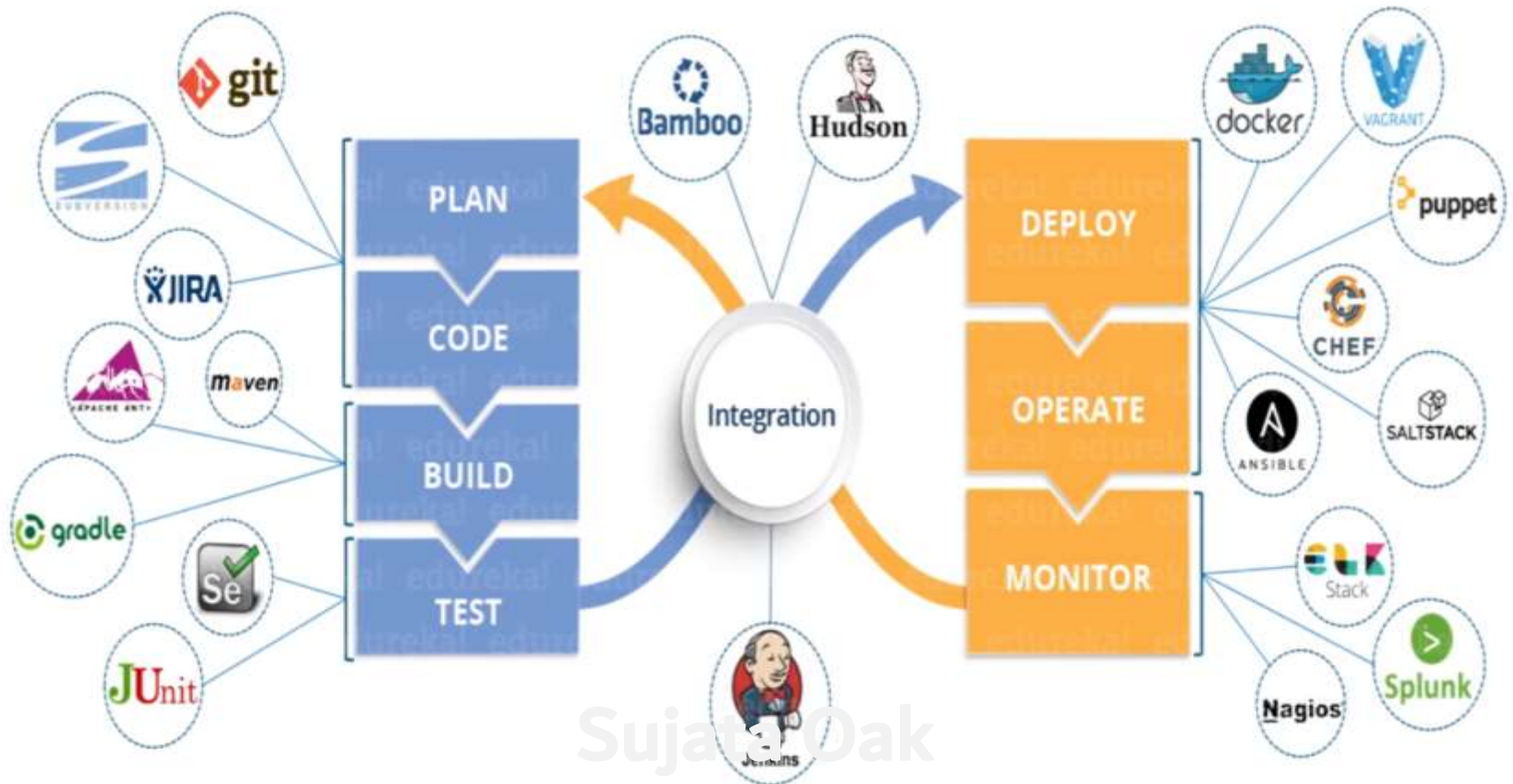
What Is DevOps?

DevOps is a software development strategy which bridges the gap between the Dev and the Ops side of the company

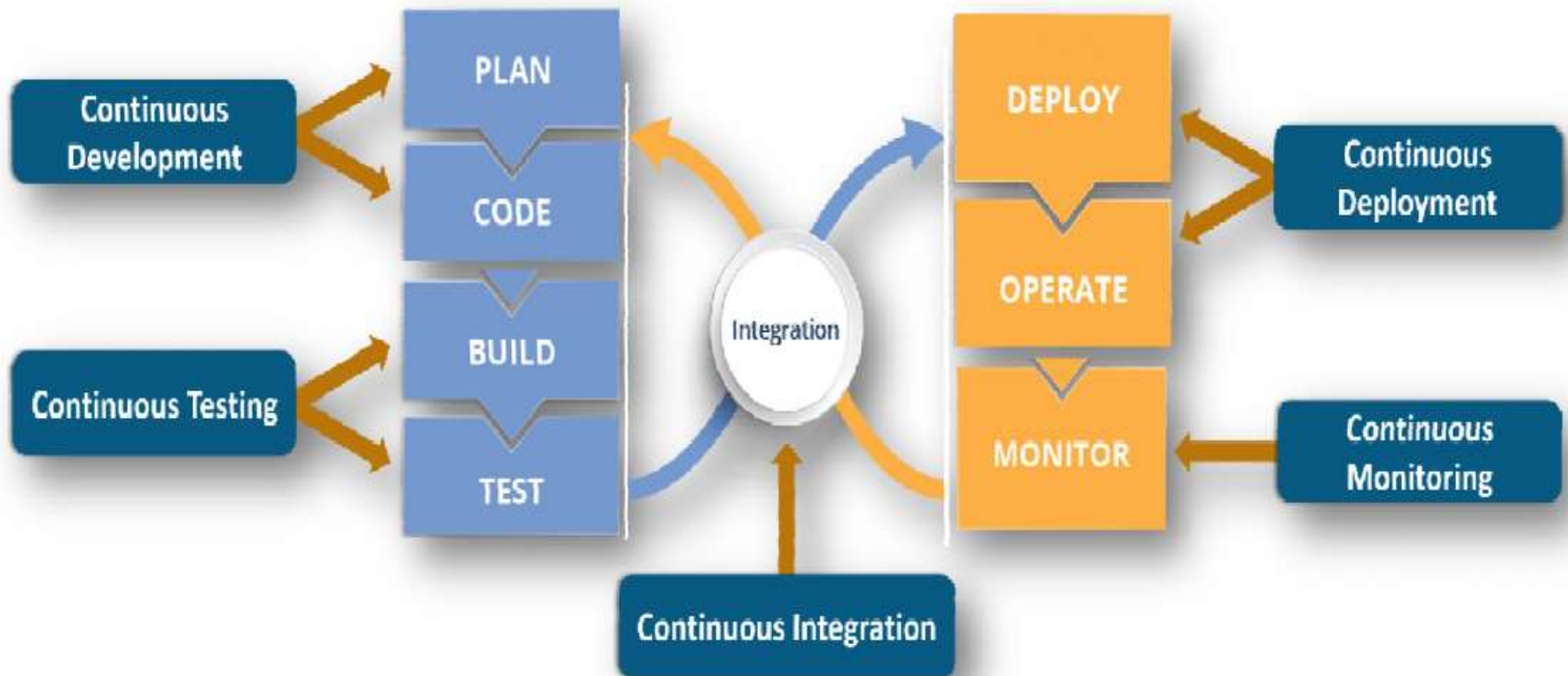
DevOps is a Software Development approach which involves Continuous Development, Continuous Testing, Continuous Integration, Continuous Deployment and Continuous Monitoring of the software throughout its development lifecycle



DevOps Phases and Tools



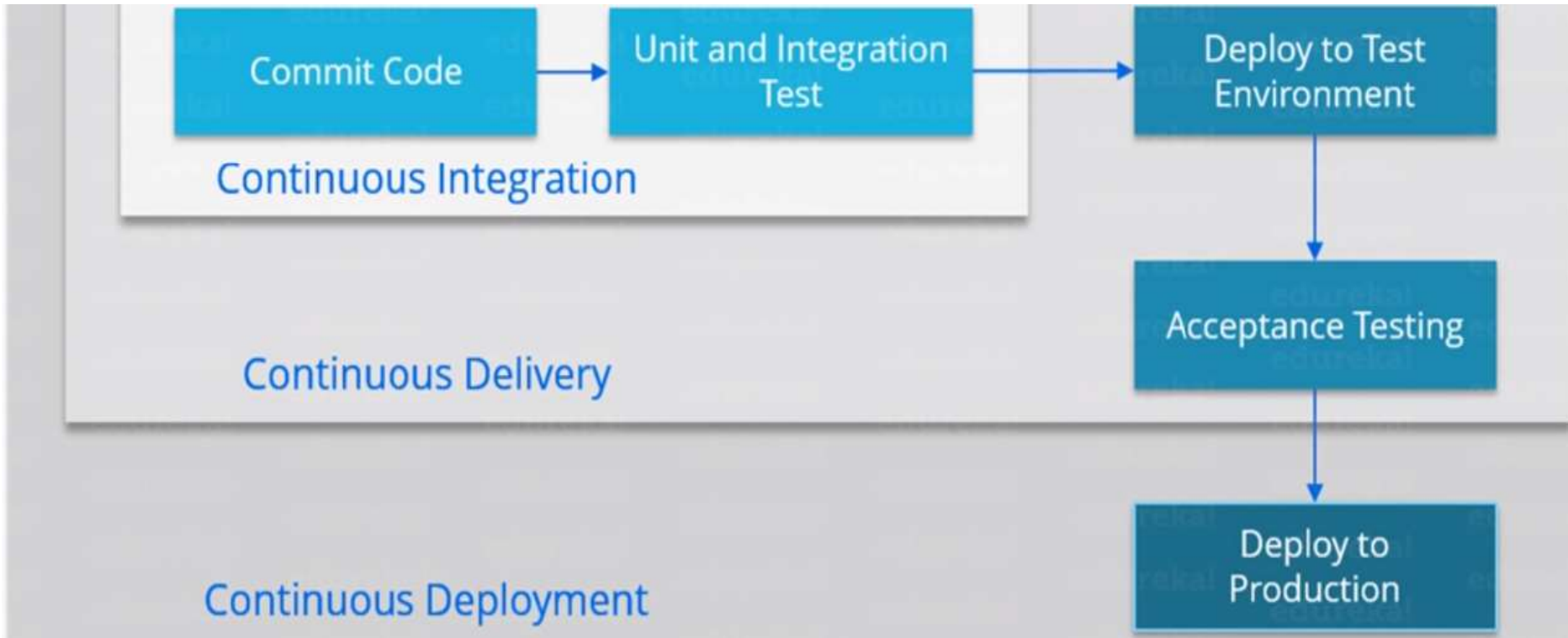
DevOps Practices



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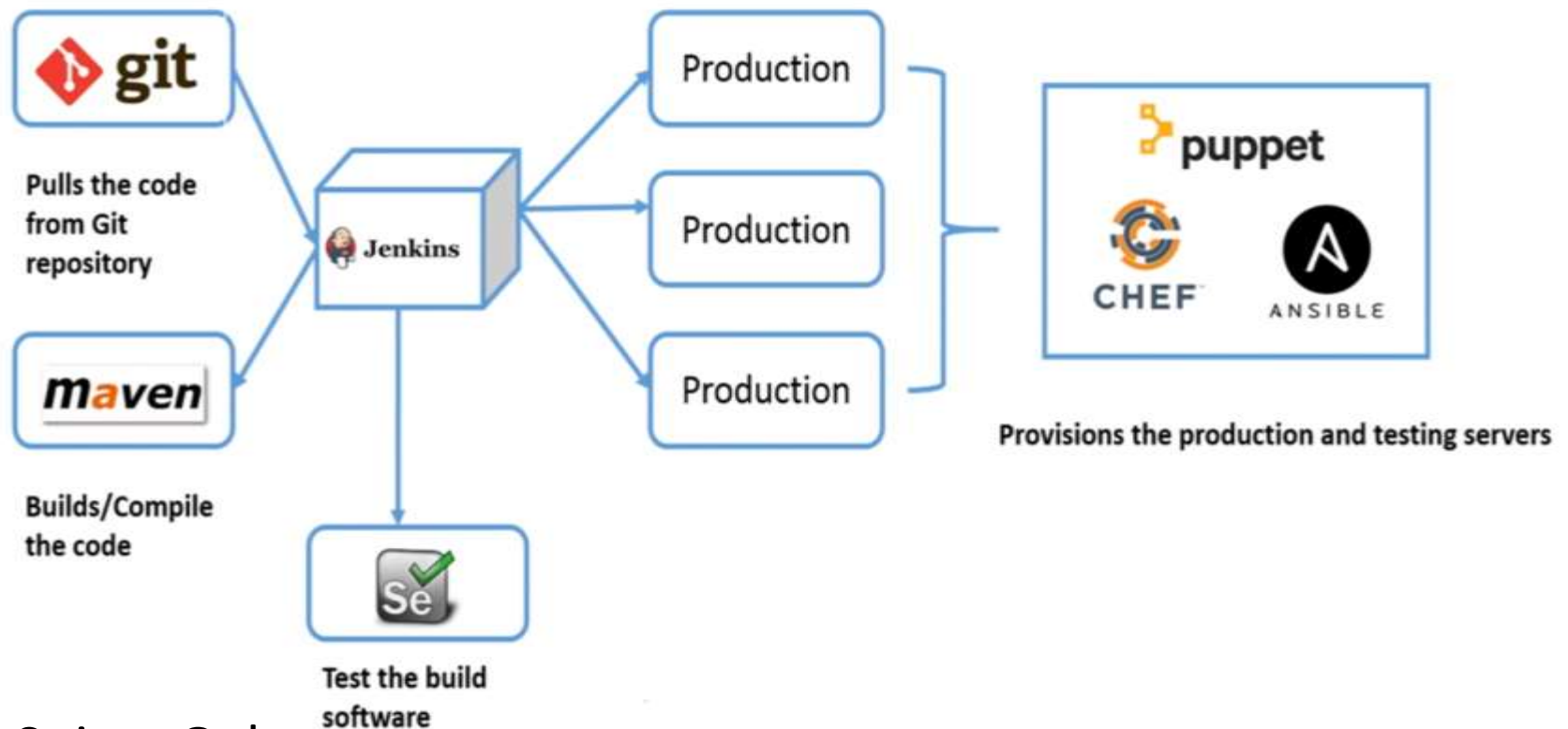
CI/CD



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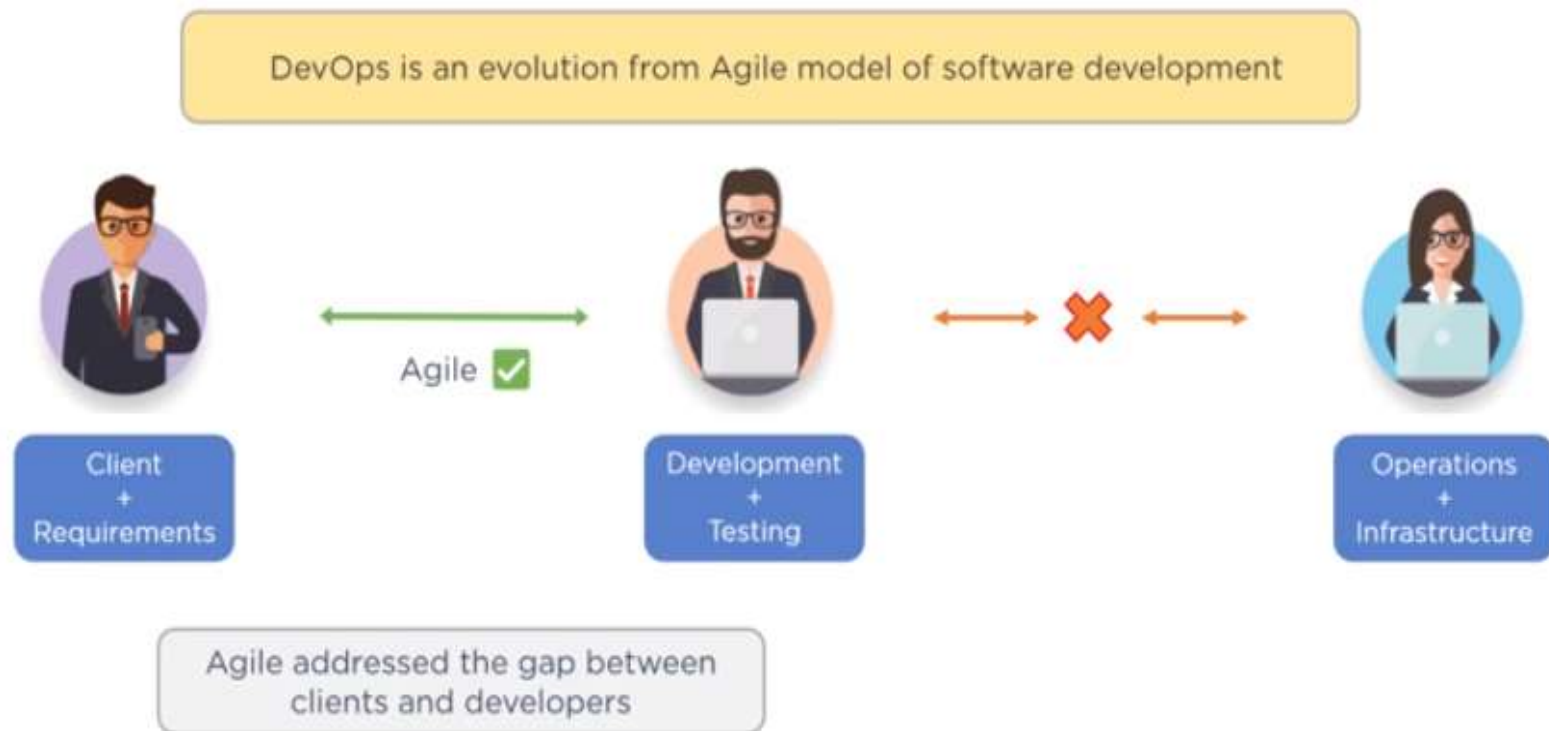
Implementation of DevOps



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Conclusion DevOps



Conclusion DevOps

DevOps addressed the gap between Developers and Operations



Conclusion DevOps

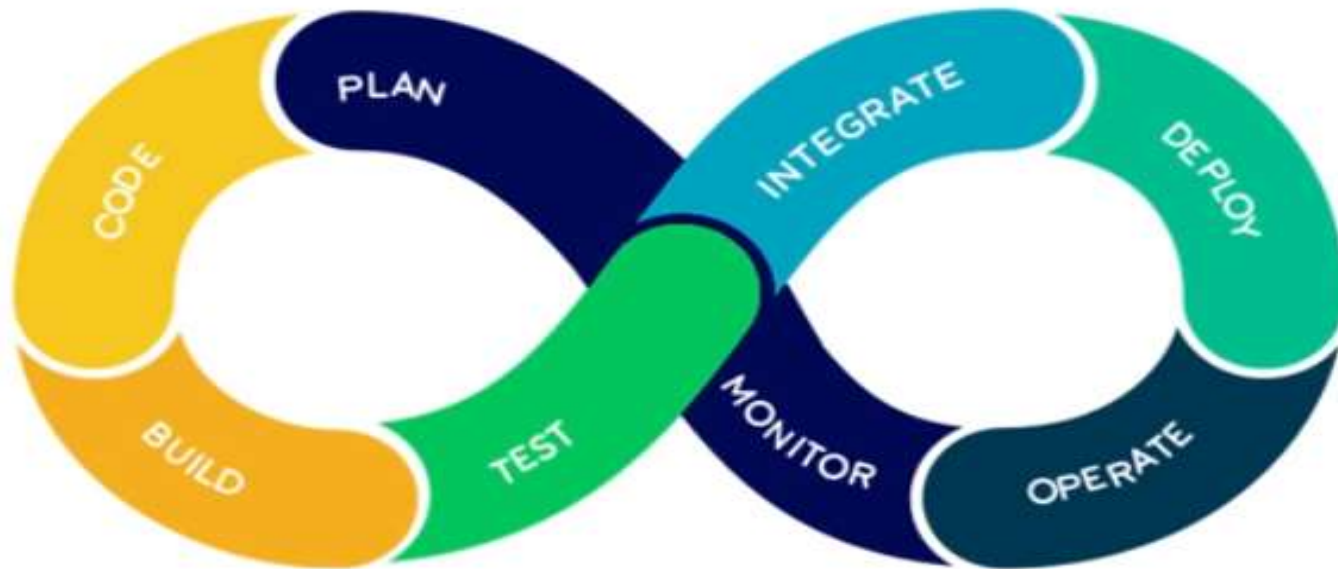


Conclusion DevOps



Conclusion DevOps Phases

According to DevOps practices, the workflow in software development and delivery is divided into 8 phases



Conclusion DevOps Phases

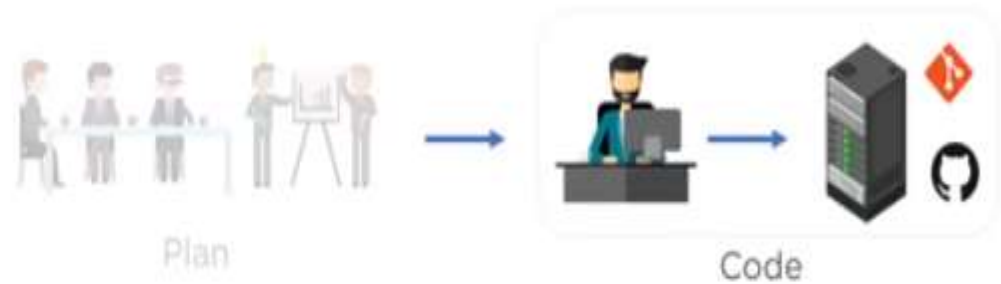


Plan

In plan stage, business owners and software development team discuss project goals and create a plan



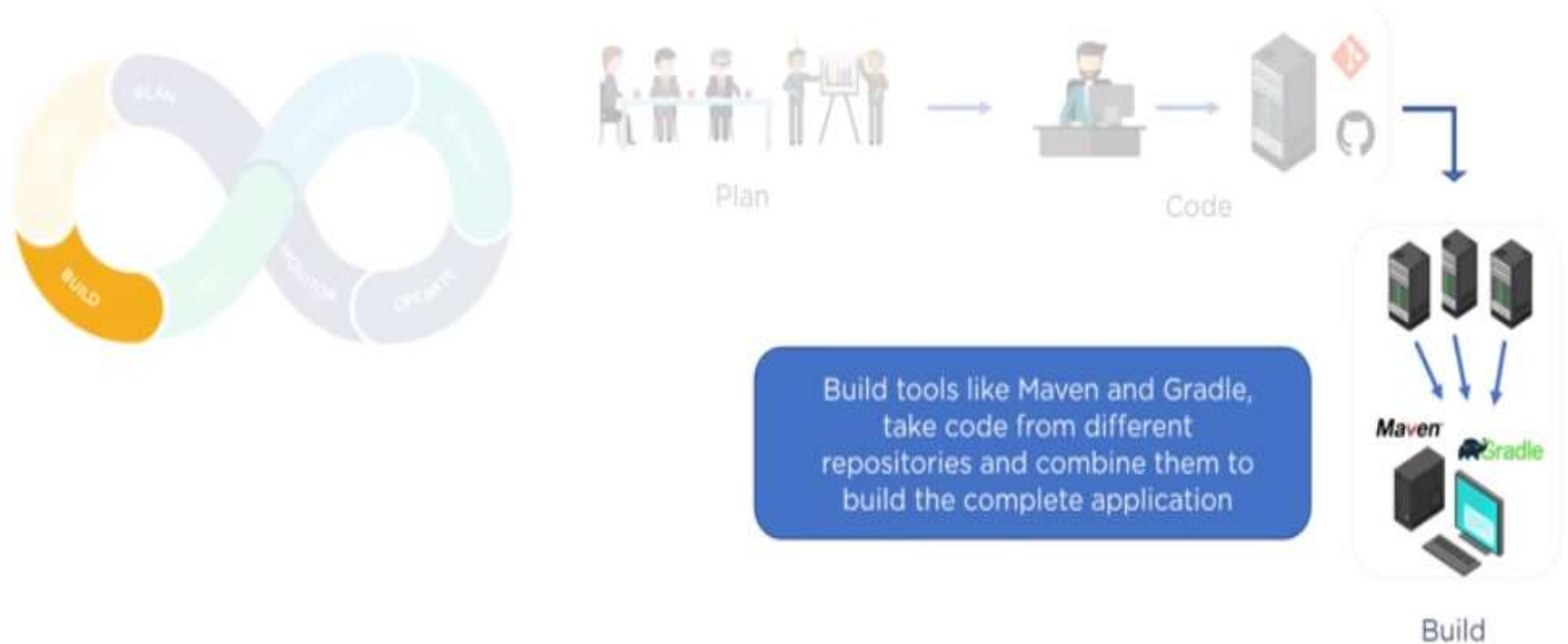
Conclusion DevOps Phases



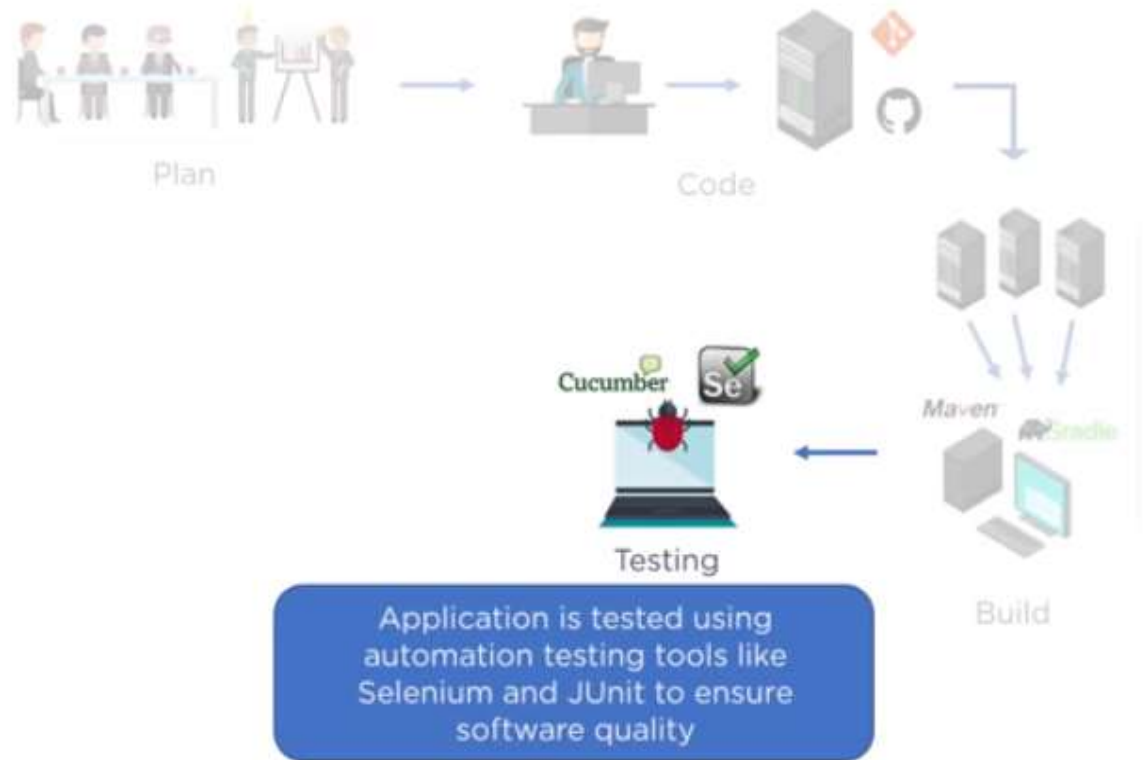
Programmers then design and code the application and use tools like Git to store application code



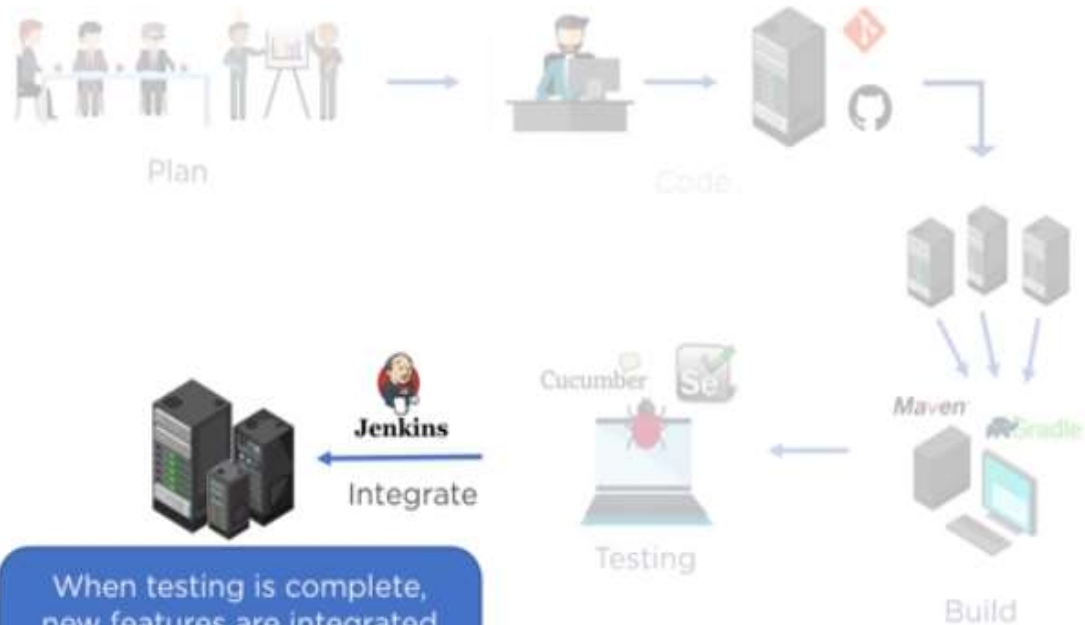
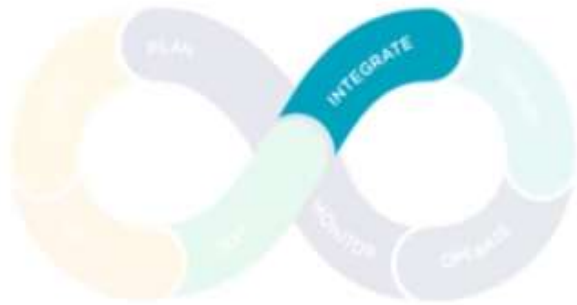
Conclusion DevOps Phases



Conclusion DevOps Phases

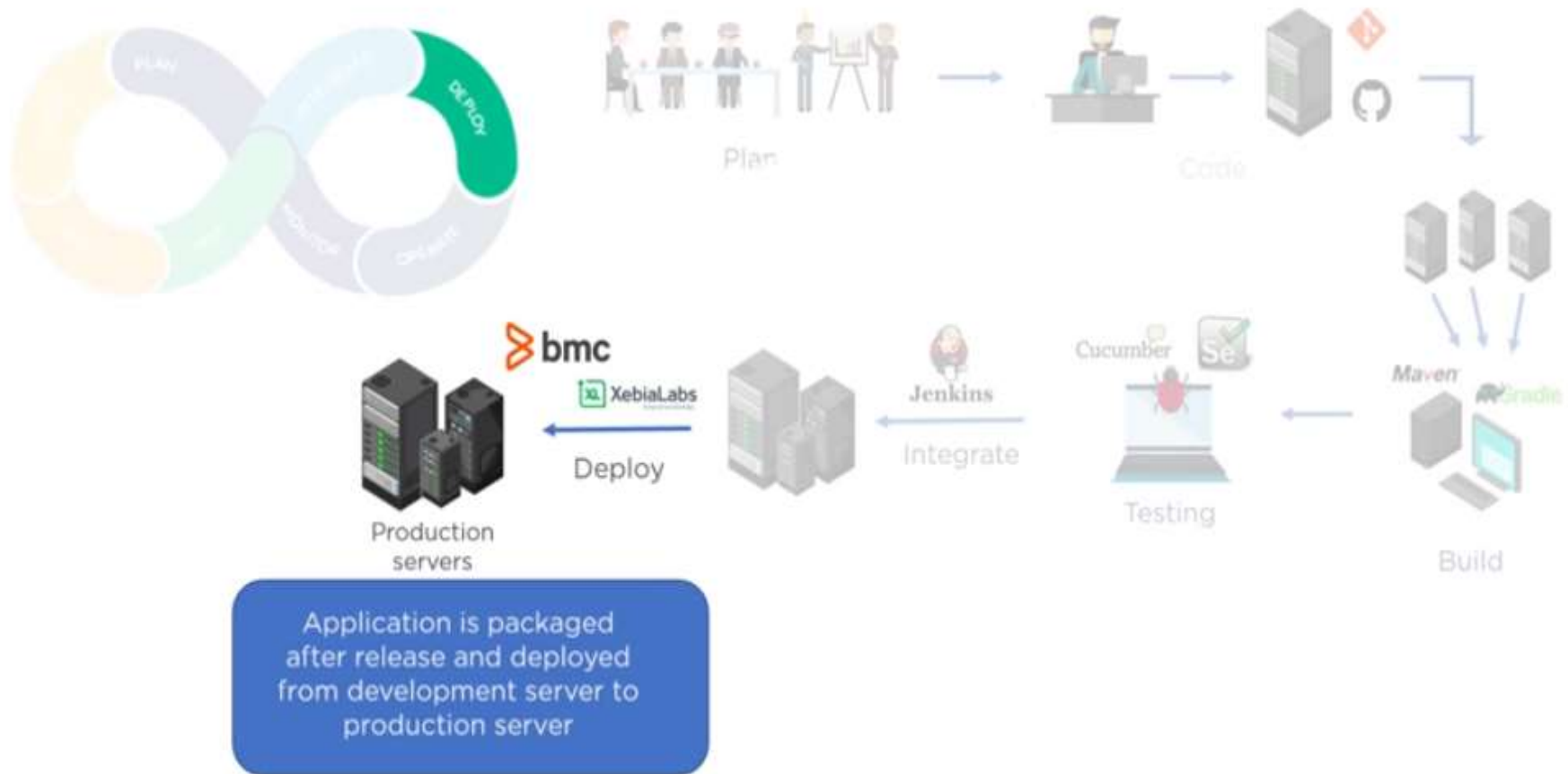


Conclusion DevOps Phases

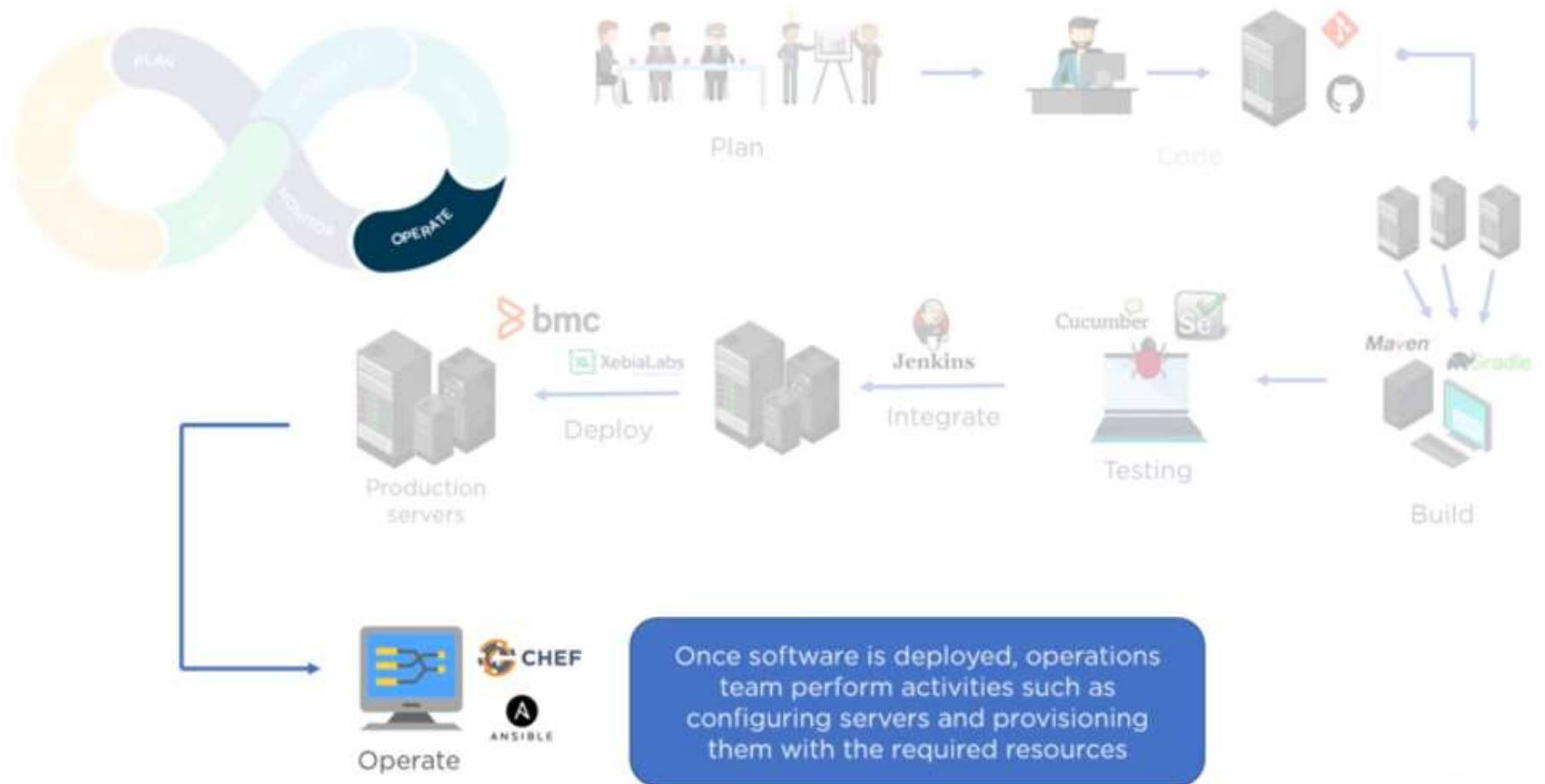


When testing is complete, new features are integrated automatically to the already existing codebase

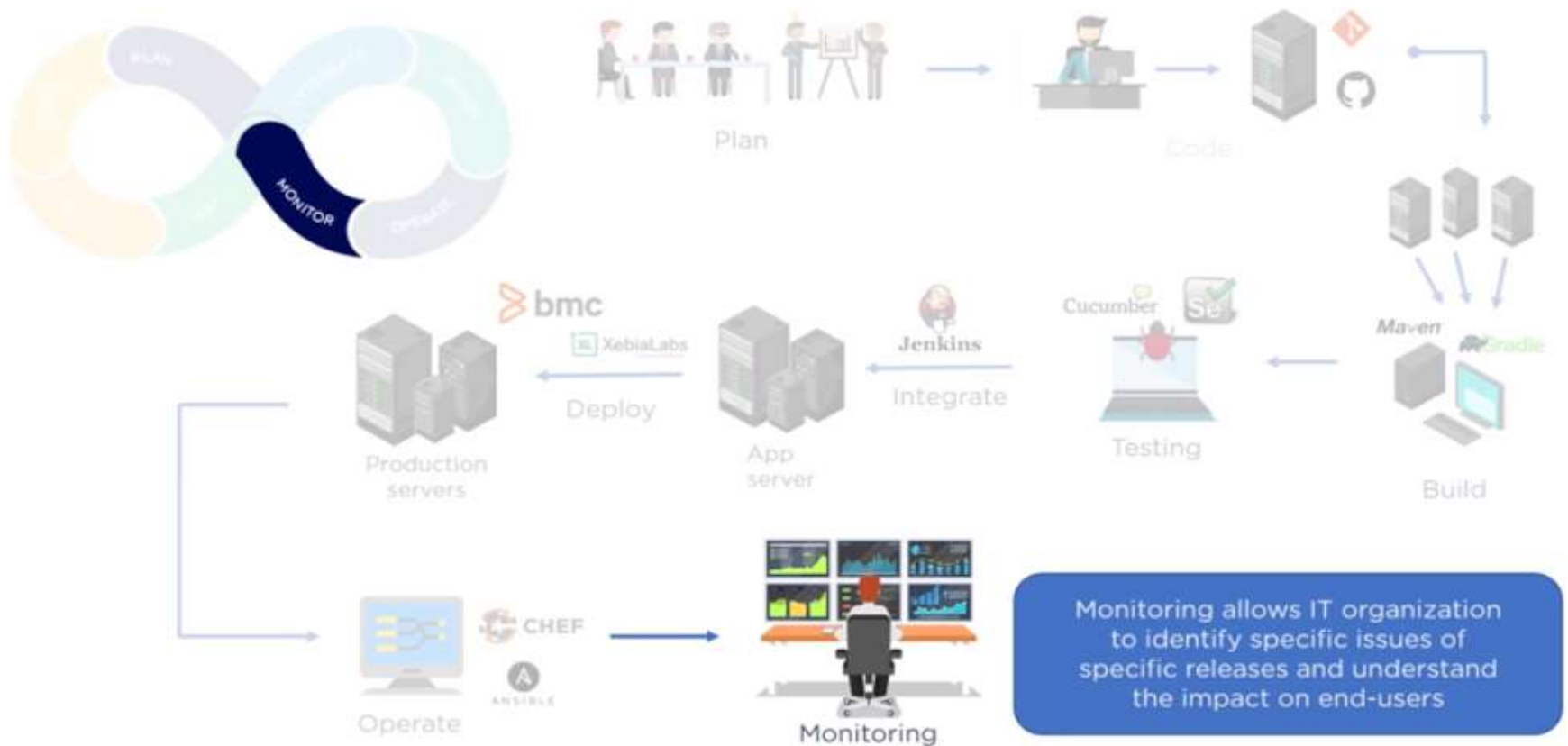
Conclusion DevOps Phases



Conclusion DevOps Phases



Conclusion DevOps Phases



Conclusion DevOps Advantages

Companies which follow DevOps, release more products and features within a short amount of time



Conclusion DevOps Advantages



Time taken to create and deliver software is reduced



Complexity of maintaining an application is reduced



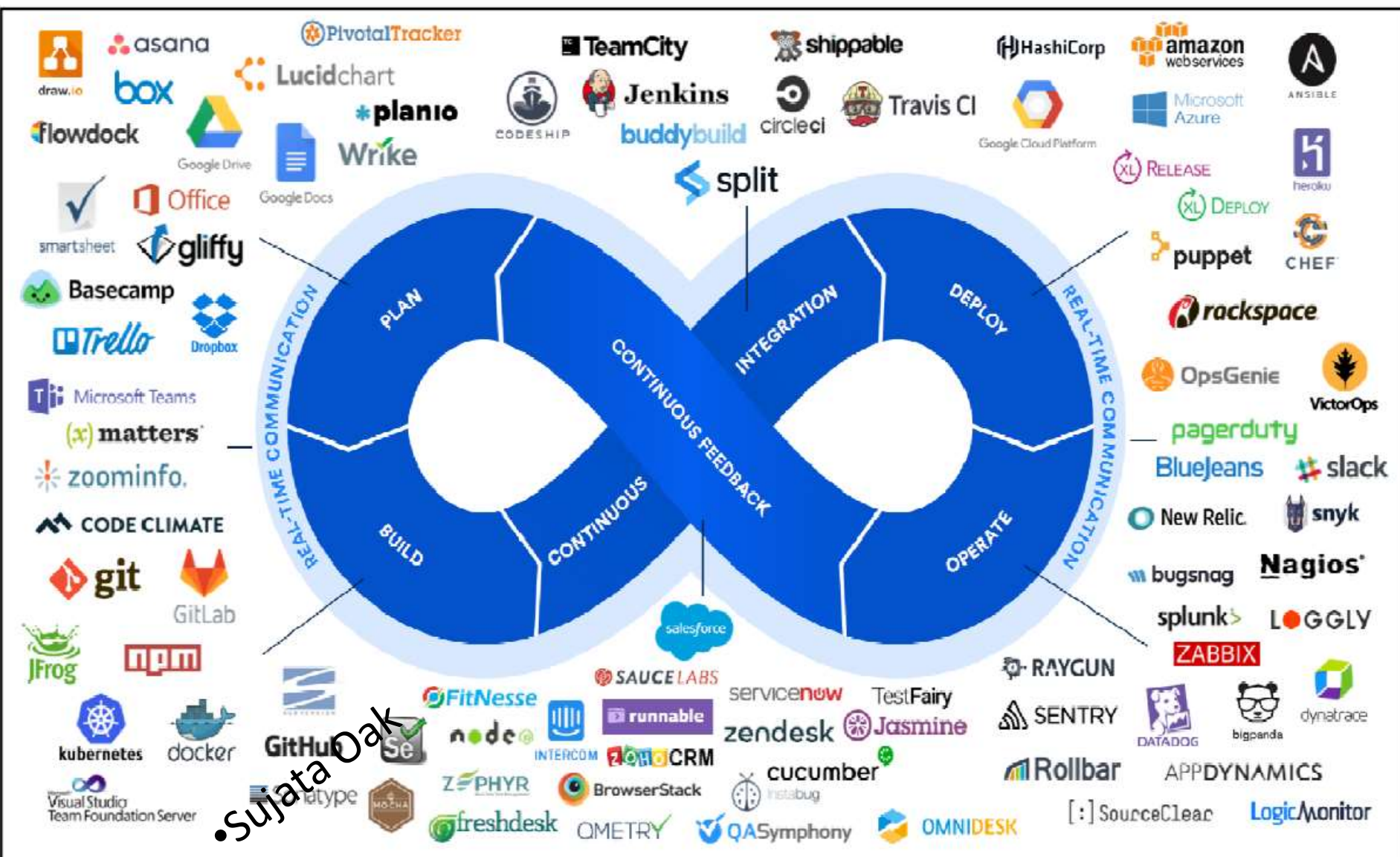
Improved collaboration between developers and operations team



Continuous integration and delivery ensure faster time to market

Configuration Management	Continuous integration	Microservices	Collaboration	Monitoring	Development
	 Jenkins			 MONIT	
 SALTSTACK		 MESOS			
 puppet	 CodeShip	 TRITON Compute			 Vagrant
 ANSIBLE	 circleci	 ElasticBox	 Trello Organize anything, together.		

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1 Os GI GitLab	PERIODIC TABLE OF DEVOPS TOOLS (V3)																		2 En Sp Splunk																
3 Fm Gh GitHub	4 En Dt Datical	<div><div><div>Os Open Source</div><div>Fr Free</div><div>Fm Freemium</div><div>Pd Paid</div><div>En Enterprise</div></div><div><div>Source Control Mgmt.</div><div>Database Automation</div><div>Continuous Integration</div><div>Testing</div><div>Configuration</div></div><div><div>Deployment</div><div>Containers</div><div>Release Orchestration</div><div>Cloud</div><div>AIOps</div></div><div><div>Analytics</div><div>Monitoring</div><div>Security</div><div>Collaboration</div></div></div>																		5 En XLr Xebialabs XL Release	6 Fm Aws AWS	7 Pd Az Azure	8 En Gc Google Cloud	9 Fm Op OpenShift	10 Fm Sg Sumo Logic										
11 Os Sv Subversion	12 En Db DBMaestro	13 Os Dk Docker	14 En Ur UrbanCode Release	15 Pd Af Azure Functions	16 Pd Ld Lambda	17 Fm Ic IBM Cloud	18 Os Fd Fluentd	19 En Cw ISPW	20 En Dp Delphix	21 Os Jn Jenkins	22 Fm Cs Codeship	23 Os Fn FitNesse	24 Fr Ju JUnit	25 Fr Ka Karma	26 Fm Su SoapUI	27 En Ch Chef	28 Fr Tf Terraform	29 En XLd Xebialabs XL Deploy	30 En Ud UrbanCode Deploy	31 Os Ku Kubernetes	32 Fm Cc CA CD Director	33 En Pr Pivotal Release	34 Pd Al Alibaba Cloud	35 Os Os OpenStack	36 Os Ps Prometheus										
37 Pd At Artifactory	38 Fm Rg Redgate	39 Pd Ba Bamboo	40 Fm Vs VSTS	41 Fr Se Selenium	42 Fr Jm JMeter	43 Os Ja Jasmine	44 Pd Sl Sauce Labs	45 En An Ansible	46 Os Ru Rudder	47 En Oc Octopus Deploy	48 Os Go GoCD	49 Os Ms Mesos	50 Pd Gke GKE	51 Fm Om OpenMake	52 Pd Cp AWS CodePipeline	53 Pd Cy Cloud Foundry	54 En It ITRS	55 Pd Nx Nexus	56 Os Fw Flyway	57 Os Tr Travis CI	58 Fm Tc TeamCity	59 Os Ga Gatling	60 Fr Tn TestNG	61 Fm Tt Tricentis Tosca	62 Pd Pe Perfecto	63 En Pu Puppet	64 Os Pa Packer	65 Fm Cd AWS CodeDeploy	66 En Ec ElectricCloud	67 Os Ra Rancher	68 Pd Aks AKS	69 Os Rk Rkt	70 Os Sp Spinnaker	71 Pd Ir Iron.io	72 Pd Mg Moogsoft
73 Fm Bb BitBucket	74 En Pf Perforce	75 Fm Cr Circle CI	76 Pd Cb AWS CodeBuild	77 Fr Cu Cucumber	78 Os Mc Mocha	79 Os Lo Locust.io	80 En Mf Micro Focus UFT	81 Os Sa Salt	82 Os Ce CFEngine	83 En Eb ElasticBox	84 En Ca CA Automate	85 En De Docker Enterprise	86 Pd Ae AWS ECS	87 Fm Cf Codefresh	88 Os Hm Helm	89 Os Aw Apache OpenWhisk	90 Os Ls Logstash																		



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106 En Sw ServiceNow	107 Pd Jr Jira	108 Fm Tl Trello	109 Fm Sk Slack	110 Fm St Stride	111 En Cn CollabNet VersionOne	112 En Ry Remedy	113 En Ac Agile Central	114 Pd Og OpsGenie	115 Pd Pd Pagerduty	116 Os Sn Snort	117 Fm Tw Tripwire	118 En Ck CyberArk	119 En Vc Veracode	120 En Ff Fortify SCA



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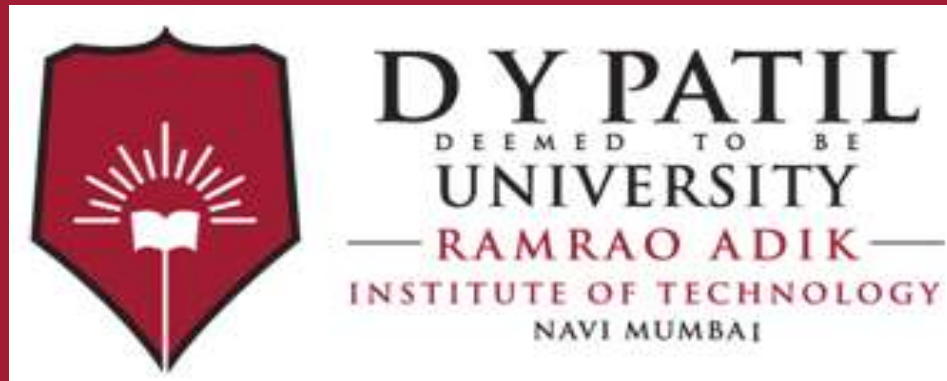
STEPS TO BECOME A DEVOPS ENGINEER

CONGRATULATIONS
YOU ARE A
DEVOPS ENGINEER



A photograph of a laptop on a white table. The laptop screen displays the text "Thank you" in a bold, white, sans-serif font. The background is a blurred crowd of people, suggesting a public event or conference. The overall image has a warm, slightly desaturated color palette.

Thank you



Thank You