Prem Hirarai
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THADOMAL SHAHANI TSEC ENGINEERING COLLEGE

SEPM

To understand DevOps principles prachies & Devops Engineer Role & Responcibilities

What is DevOps

→ DevOps is a collabrative approach where teams work togather to build and diliver secure software Efficiently It combines Software development (dev) & operations (Ops) to accelerate dilivery through automation collabration fast fed back and itrative improvement. Built on Agile methodology DevOps creates a culture of accountability collabration and shared responsibility for buisness outcome

* Core principles of DevOps
Develop and test in production like envoironment
Develop Builds frequney
Continiously validate operational quality

* Key Prachices of DevOps
Continious Deployment
Continious Dilivery and deployment originate
Continious integration a method to rapidly develop build and test new code with automation to that only code that is known to be good becomes past of the software product

* Continious Development
This is the phase that involves planning and coding Versioning & managing builds of software applications functionality Eg:- git, Github, maven

* Continious testing :-
Continuous testing is, executing automated tests, continuous
& seperated against the code base & the various deploym
Envoirnments it is a Software testing methodology which
focuses on achiving continious quality and improvem
Eg :- Appium, Bamboo

* Continuous Integration :-
continuous Integration refers to the build & unit test stages
of the software release process every revision that
is committed triggers on automated build & test
Eg :- Tenkins, Travis CI

* Infrastructure Management
Without automation building & maintaing large scale
modern without automation IT system can be a resource
intensive undertaking & can lead to increased risk due
to manual Error config & resources management is an
automated method for maintaing computer system
& software in a known consistent attack

* Configuration Managment
Infrastructure as a code is the practice of describing all
software runtime envoirnment & networking setting
& parameters in simple textual format that can be
stored in your version control system (VCS) & Versioned on
request. These text files are called manifest & are used
by DevOps tools to automatically provision & configure
build servers testing staging and production Envoirment
Eg :- Chy, SaltStack.

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DevOps Engineer Role

A DevOps Engineer manages a company i.e IT Infrastructur bridging development & operation the primary goal is to improve the process and Efficency throughout the software Development lifecycle

Key Role

1) Facilitator of collabration
Bridging the gap between development, operation & QA teams to streamline communicatin
2) Automation Specialist :-
Automate repetative tasks like testing, deployment & monitering
3) Continious Integration & continious Delivery
Design implement & maintain CI/CD pipelines to Enable faster, reliable & repetable software releases
4) Infrastructure as code
use tools like Terrafoam, Ansible or Cloud formation to define & prouvision Infrastructur through code
5) Mentoring & Incident managment
Set up monitoring system to track application performance and troubleshoot issue in real time. It also ensures that systems are resistent and dowmtime is minimized
6) Cloud & Infrastructure Management
Deploy manage & optimize application on cloud platform like AWS Azure and google cloud. also handles container archestration.

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Key Responsibilities :-

1) Collabration & planning
work with deployment & operation teams to plan & design Scalable solution
2) Configuration Management :-
use tool like puppet chef or Ansible to manage Server configuration & Ensure consistency
3) Pipeline Management
maintain CI/CD pipelines to Ensures seamless built test & deployment workflows
4) Monitering & logging
Implement monitering tools like prometheus, ourfana or splunk to track system & measurement performan
5) Support & trouble shooting
Respond to incidents & resolves production issue promptly & identify root cause to failur and impliment fixes
6) Documentation & Reporting
Document system configuration, deployment proces & troubleshooting guides.