



Pragmatech™
Education & Development Center



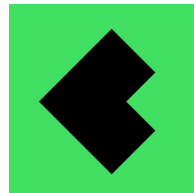
DevOps – Sako M, OpenGov

April 25, 2020 19:00-20:30, Baku TZ

Hosted by:

Samir Karimov, Founder, Pragmatech

Pragmatech Education and Development Center is a training company based on a pragmatic education model.



Agenda Overview

7-8:30pm

Time	Topic
7:00-7:10 pm	Kick-off
7:10-7:55 pm	Presentation
7:55-8:00 pm	Break
8:00-8:25 pm	Q&A Discussion
8:25-8:30 pm	Wrap up



Sako M

Love investment on people and self growth

Contact

Linkedin: <https://www.linkedin.com/in/sakom>

Education

MSc: ITU(US), Eurecom(France), Qafqaz Uni(Azerbaijan)

Experience

Current :

Devops - OpenGov, San Francisco Area

Founder - GOUP, JobHax

Past:

NGINX, Fraunhofer, SAP, Huawei, ZTE, Bakcell



Pragmatech[™]

Education & Development Center



OpenGov

The Leader in Enterprise Cloud Solutions for Government

Mission driven: Powering More Effective and Accountable Government

1. We do what we say we'll do.
2. We drive for customer impact.
3. We have passion for the mission.

Great Culture: smart, fun, humble

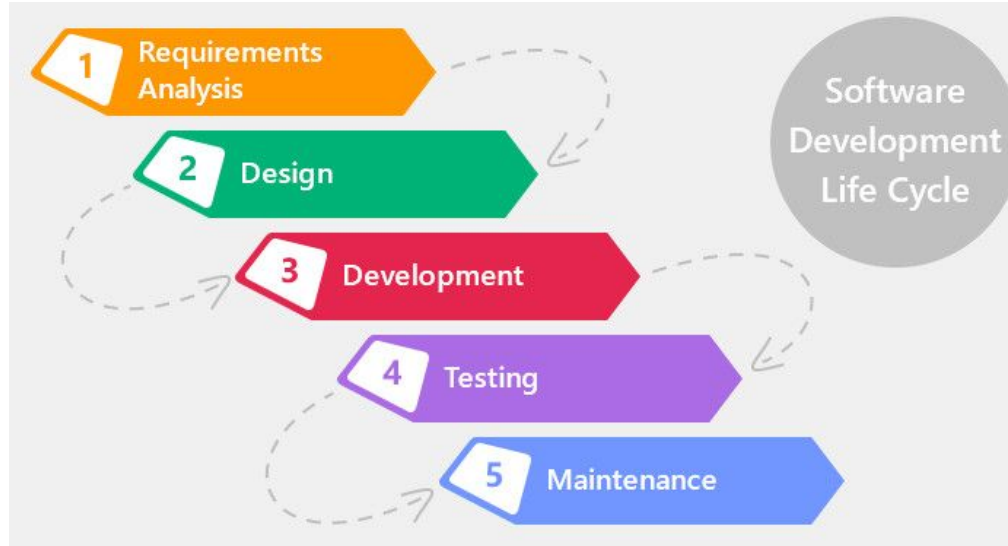
More: <https://opengov.com>



Pragmatech[™]
Education & Development Center



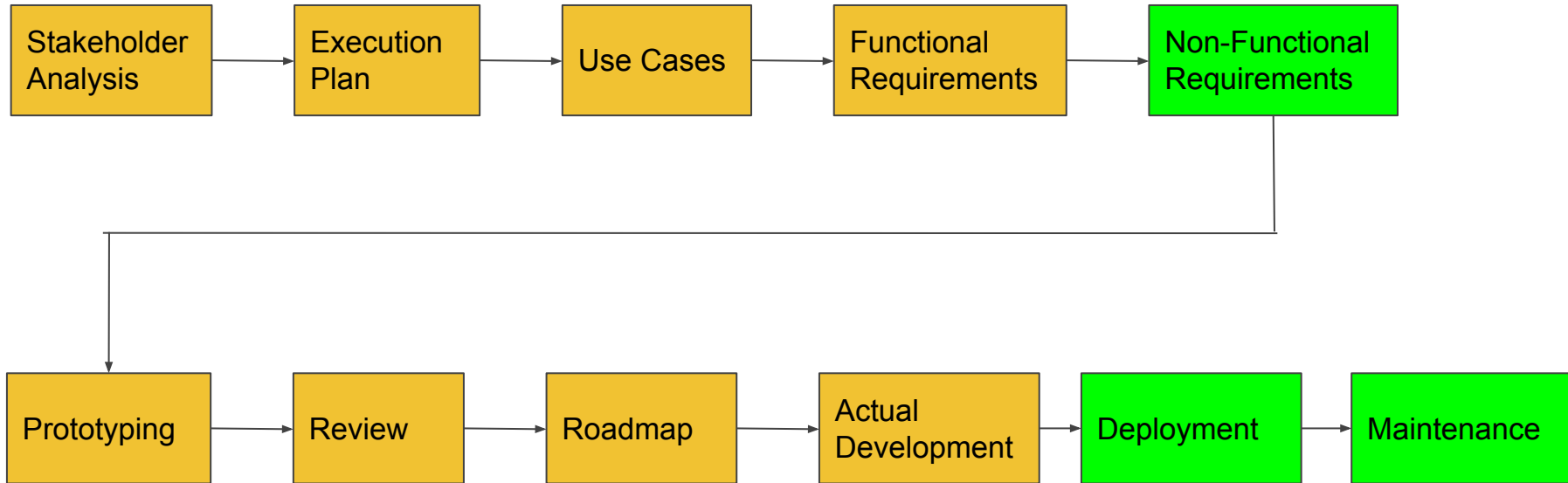
Software Development



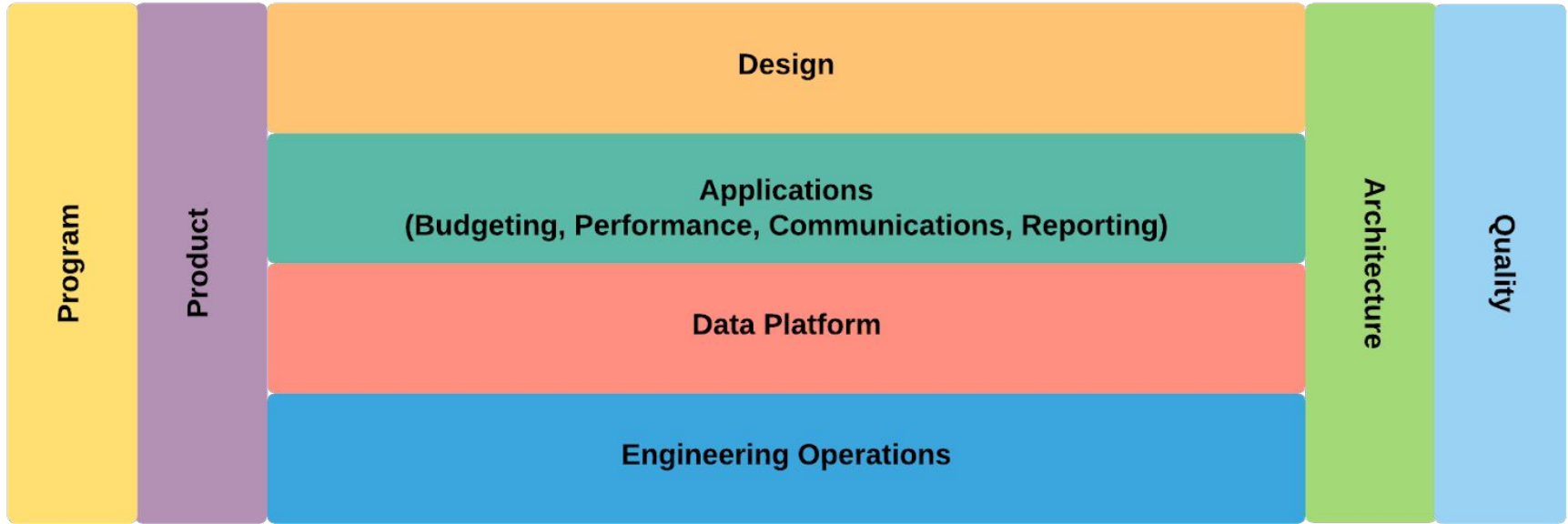
<https://www.linkedin.com/pulse/what-software-development-life-cycle-sdlc-phases-private-limited/>



Where lands DevOps in execution?



Where lands DevOps in organization?

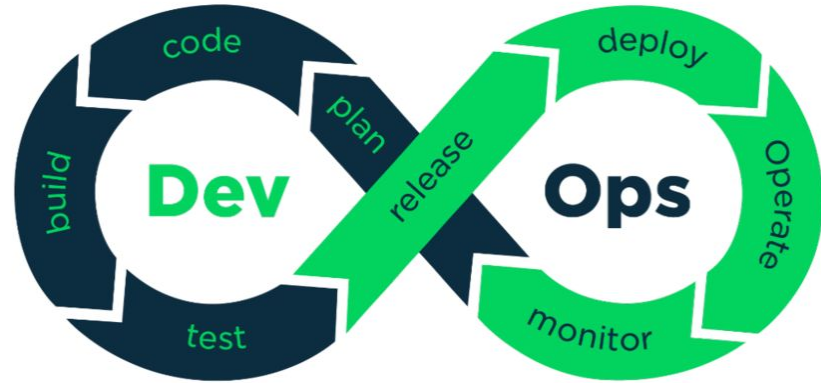


What is DevOps?

Short: Combination of development and operation

Long:

- security
- performance
- scalability
- availability
- reliability
- Maintainability
- ...



Roles in DevOps?

- **Developer Experience** - CI/CD Pipelines
- **SRE** - Infrastructure tooling
- **Security** - Infrastructure, Data, Application, Compliance
- **Architect** - Continuous design high-performance cost effective
- **Quality Assurance** - Unit, integration, functional, performance, system, x-platform

Note: In small to midsize companies QA can be part of DevOps team





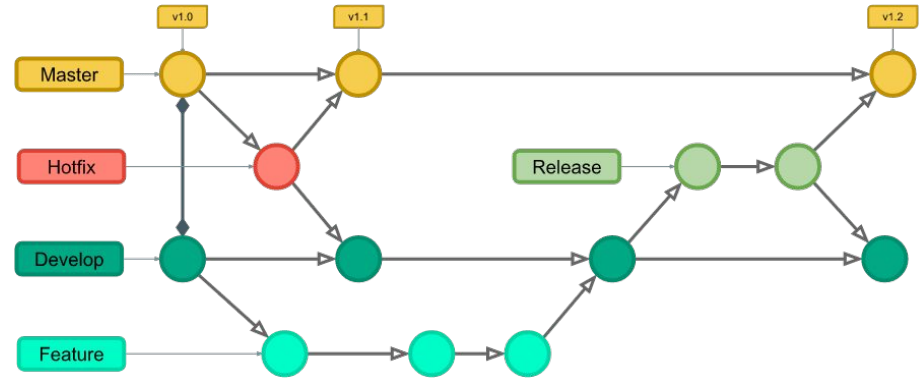
DevOps Toolchain

DevEx - Git

Created by Linus Torvald for Linux kernel development

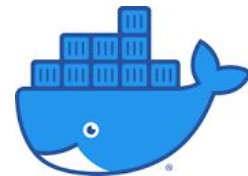


- Distributed version control system
- Collaborative development
- Multiple copies in local and remote
- Revert changes
- Track what changed and when

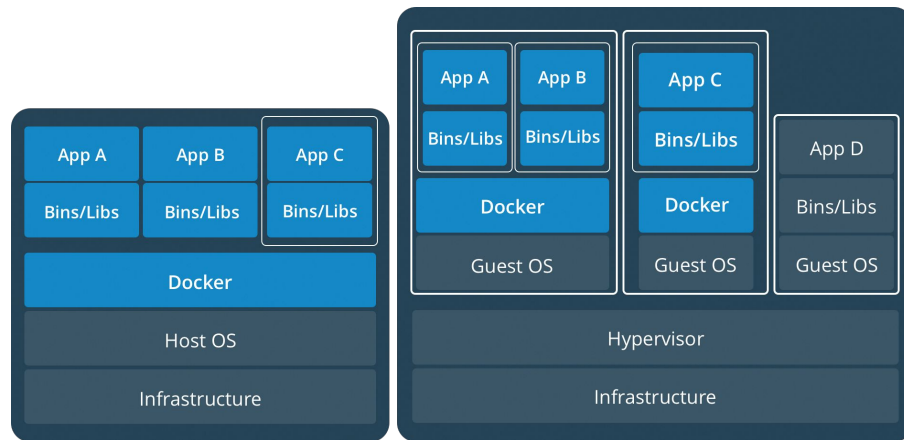


DevEx - Docker

Share an application with all of their dependencies across multiple environments. Build & ship, not **RUN**



- Docker Daemon
- Docker Client
- Docker Images
- Docker Registry
- Docker Containers



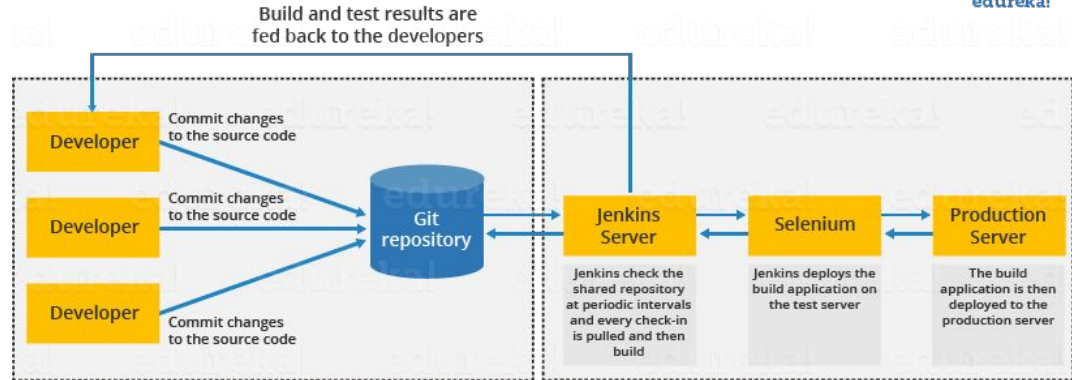
DevEx - Jenkins

Jenkins is an open source automation tool written in Java with plugins built for Continuous Integration



edureka!

- Build and release automation
- Integrates with Git and more
- Cross platform
- Easy to debug each commit
- Easy install and configure

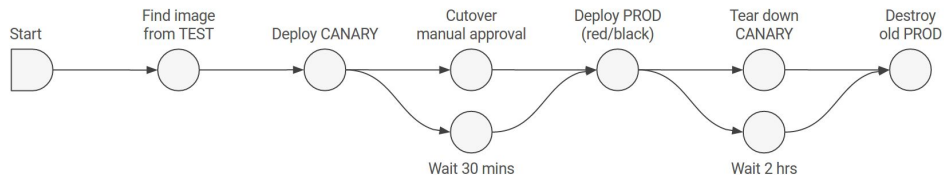


DevEx - Spinnaker

Spinnaker is an open-source, multi-cloud continuous delivery platform to release software



- Build pipeline consisting of stages
- Stages: deploy, resize, disable, manual judgement
- Supports blue/green deployment
- Support canary strategies
- Easy rollback in case of failure
- Notification: Email, Slack, SMS

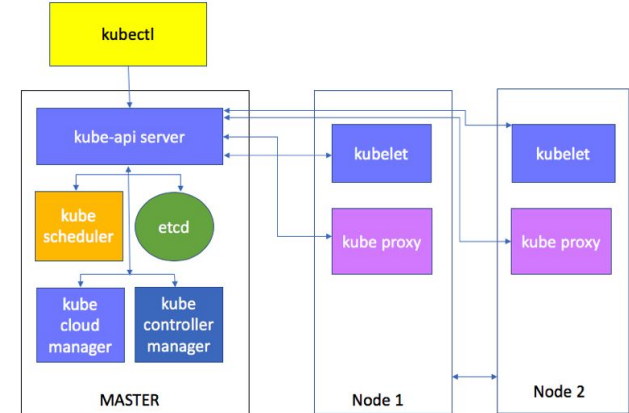


Infrastructure - Kubernetes

Kubernetes is a open-source platform for managing containerized workloads

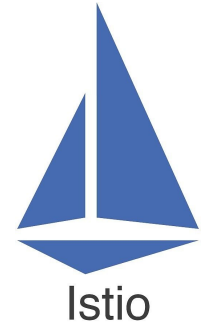


- Service discovery and load balancing
- Storage orchestration - automount local or remote storage
- Automated rollouts and rollbacks
- Automatic bin packing - autofit apps based on CPU/RAM
- Self-healing
- Secret and configuration management

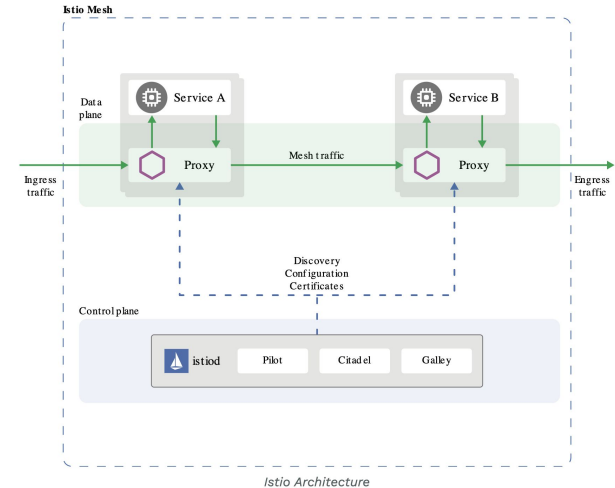


Infrastructure - Service Mesh

Connect, secure, control, and observe services



- Intelligent control the traffic flow between services
- Auto secure auth/authorization/encryption of traffic
- Auto tracing, monitoring, logging



Infrastructure - Terraform

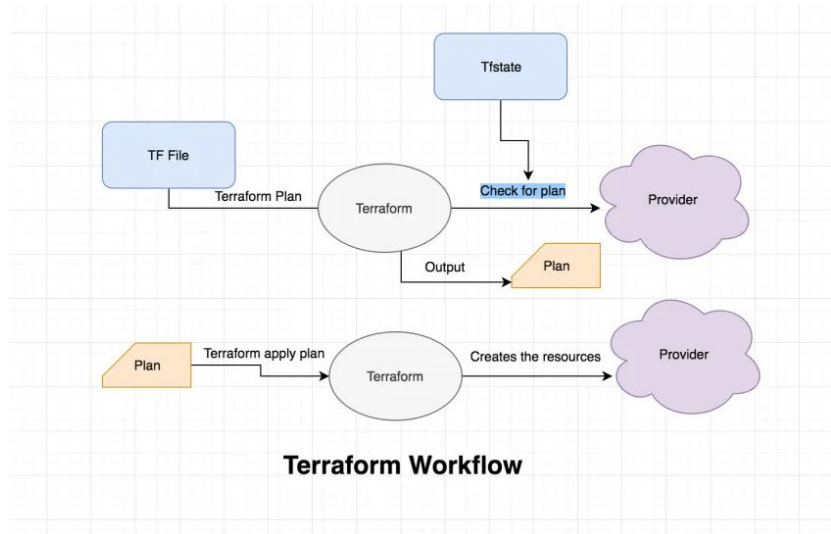
IaaS - Infrastructure as a Code



HashiCorp

Terraform

- Write declarative configuration files
- Plan and predict changes
- Create reproducible infrastructure



Pragmatech[™]

Education & Development Center

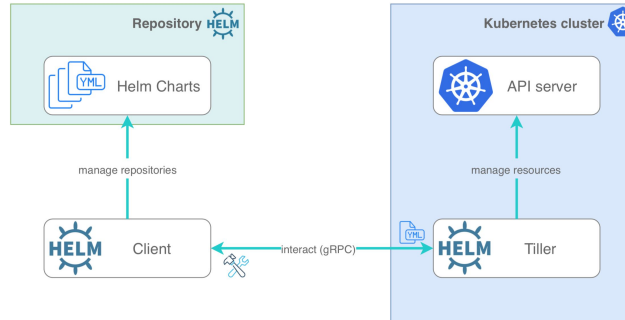


Infrastructure - Helm

Helm helps deploy Kubernetes applications.



- *Chart* is a bundle necessary to create an instance of application
- *Config* configuration merged into a packaged chart to create a releasable object
- *Release* is a running instance of a chart, combined with a specific config



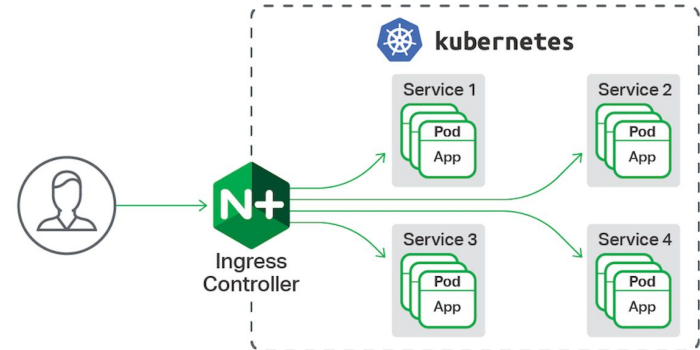
Infrastructure - NGINX

NGINX is open source software for web serving, reverse proxying, caching & load balancing.



NGINX
Part of F5

- TLS/SSL termination
- Supports load balancing Websocket, gRPC, TCP, UDP
- Traffic splitting
- Advanced content-based routing



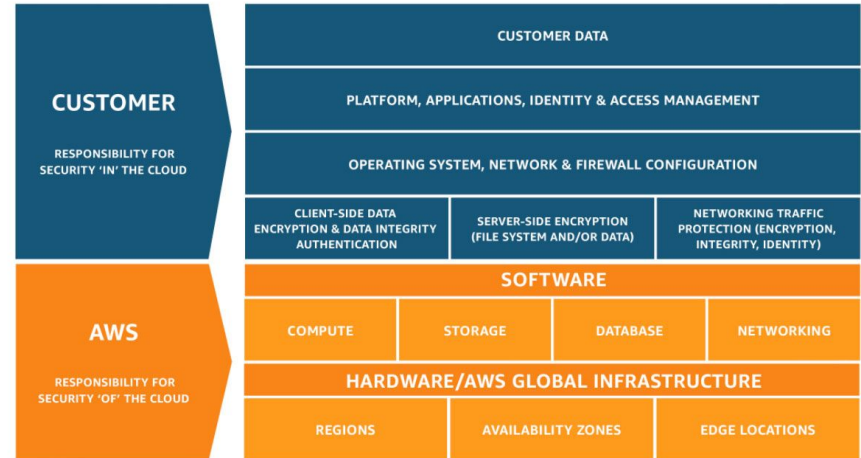
Pragmatech[™]
Education & Development Center



Security - Infrastructure

Shared Responsibility model

- Strong IDS/IPS/WAF/DDoS solution
- Disallow unrestricted public ports
- Enable logging/audit logs
- Centralized authentication/authorization
- Host vulnerability management
- Staff training



Security - Data

User Controls Privacy. Companies Ensure Protection

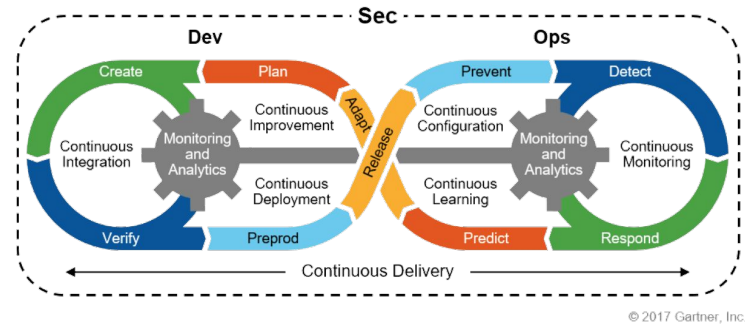
- Identify sensitive data
- Secure process around data in transit, process and rest
- Define company data policies
- Increase time, effort and cost of steal data
- Conduct regular risk assessment
- Keep audit logs
- Staff training



Security - Application

AppSec is a continuous journey, to make it effective requires to be part of development lifecycle

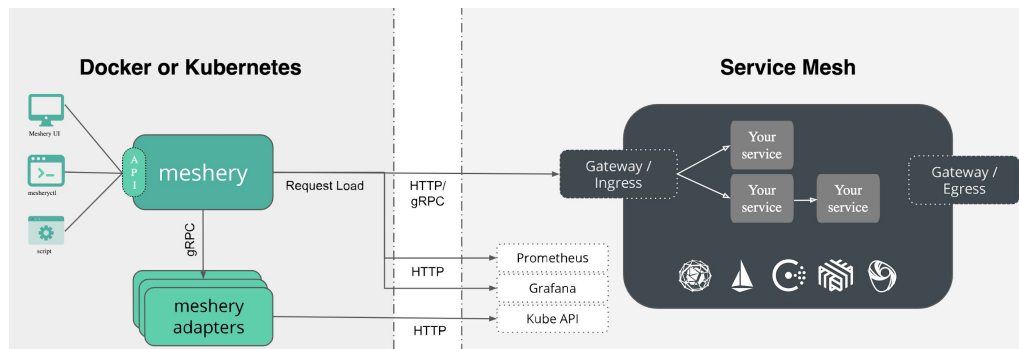
- Secure Authentication/Authorization flow
- Set strong encryption
- Periodic Security Health/Configuration audit
- Secure Logging/error handling
- Secure language-specific best practices
- Secure dependency management
- Staff training



Quality - Meshery

Benchmark and manage the performance of application across different service meshes.

- Track application performance
- Understand different meshes
- Provision service meshes
- Assess service mesh configuration
- Assess service mesh overhead

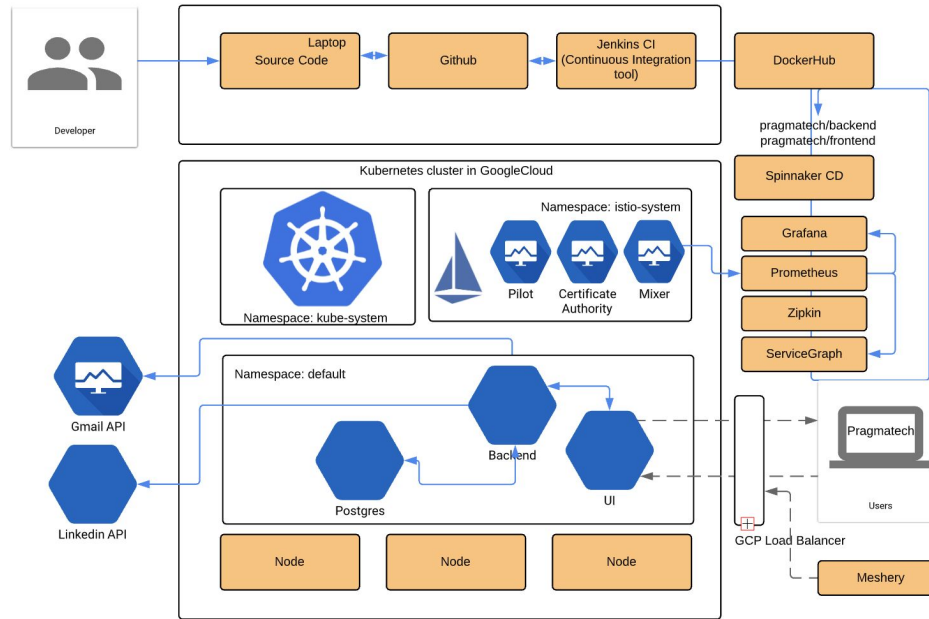


Pragmatech[™]

Education & Development Center



All pieces together



Q&A Discussion

Link to Q&A Panel: <https://bit.ly/2KyViHb>



Pragmatech[™]
Education & Development Center



Wrap-up

Before reach me:



Collaborate, contribute, benefit !

Remember!

- Re-Search
- Be short and clear
- Re-mind
- Over LinkedIn
<https://www.linkedin.com/in/sakom/>
- NO Facebook



Thank you!