DevOps

Transforming The Enterprise Software Development Culture

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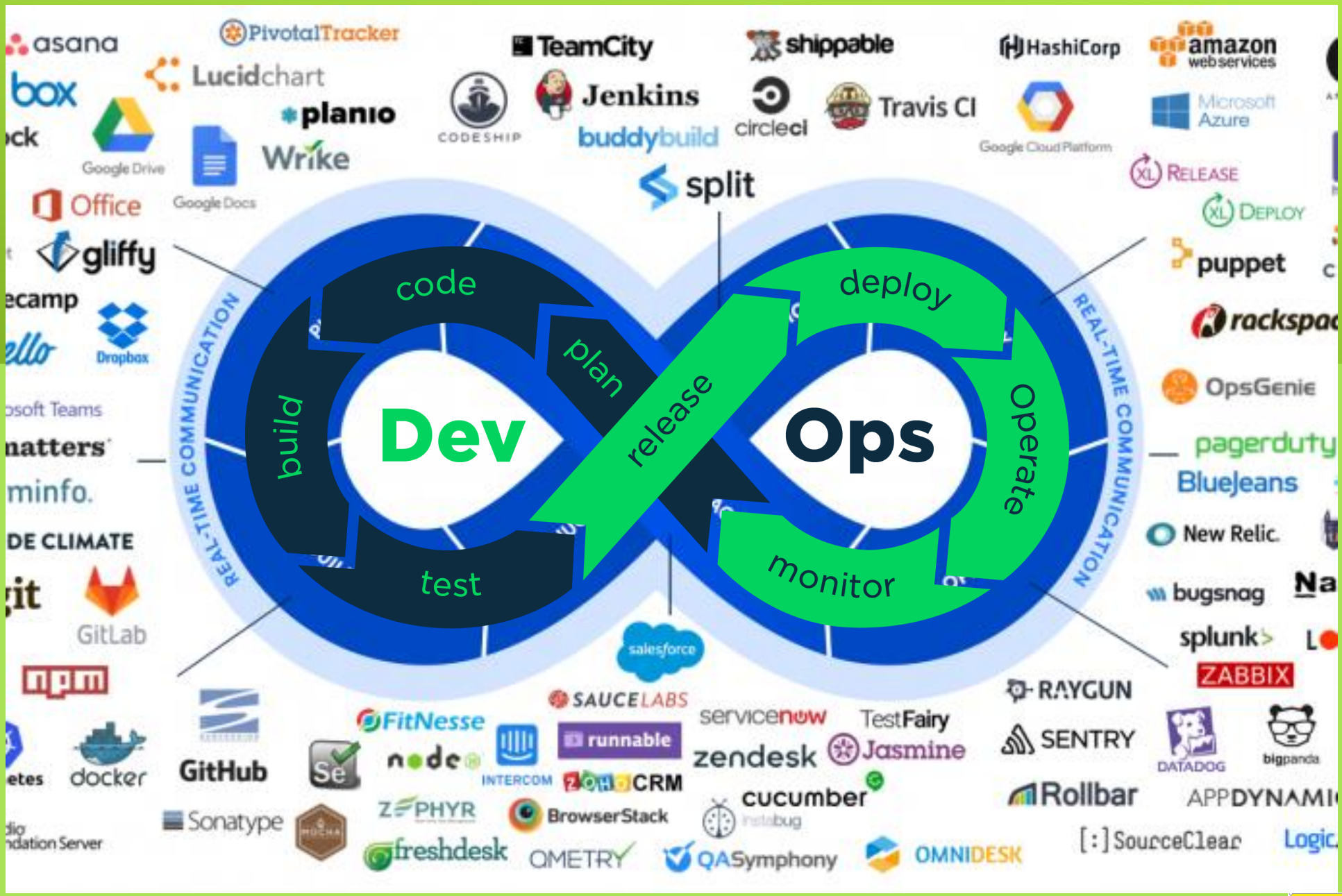
What is DevOps ?



Visit the periodic table of tools

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Without DevOps

Release

Release Cycles

Stability

Business Requirements

Client Demands New Enhancements

GROOMING

WAR ZONE

Business Analysis

Development Team

Operations

Agile Sync up

DevOps Culture

With DevOps

Well Defined Business Requirements

Tagged Deliverable

Deployed

Stability

Client Demands New Enhancements

Business Analysis

Development

Operations

Agile Sync up

DevOps Culture

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With DevOps – Technical Aspect - I

WHAT IS CI / CD ?

- Continuous Integration - The Practice of continuously merging code changes done by developers.
- Continuous Deployment - The practice of frequently deploying the code changes to production.
- Continuous Delivery – The Practice of continuously maintaining the code in a deployable state.

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With DevOps – Technical Aspect - II

Well Defined Business Requirements

Release Cycles

Release

Stability

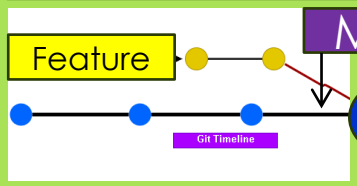
Client Demands New Enhancements

Business Analysis → Development → Operations

Agile Sync up

DevOps Culture

Git ---> code Inspection --→ Code Quality -→ Build Artifact -→ Image Repo -→ Staging -→ Deployment → Monitoring



sonarqube

Jenkins

Azure Container Registry

kubernetes

TASKTOP

Prometheus

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Why DevOps ?

Improved software quality enabled by automation

Improved monitoring & quicker service recovery

Reduced operational costs

DevOps Pluses

Quicker turnaround of change requests

Continuous delivery & iterative development

Greater synergies between development, testing, & operations

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Defining DevOps ?

DevOps = Development + Operations

Gartner Glossary

DevOps represents a change in IT culture, focusing on rapid IT service delivery through the adoption of agile, lean practices in the context of a system-oriented approach. DevOps emphasizes people (and culture), and it seeks to improve collaboration between operations and development teams. DevOps implementations utilize technology — especially automation tools that can leverage an increasingly programmable and dynamic infrastructure from a life cycle perspective.

aws

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.

Azure

A compound of development (Dev) and operations (Ops), DevOps is the union of people, process, and technology to continually provide value to customers.
What does DevOps mean for teams? DevOps enables formerly siloed roles—development, IT operations, quality engineering, and security—to coordinate and collaborate to produce better, more reliable products. By adopting a DevOps culture along with DevOps practices and tools, teams gain the ability to better respond to customer needs, increase confidence in the applications they build, and achieve business goals faster.

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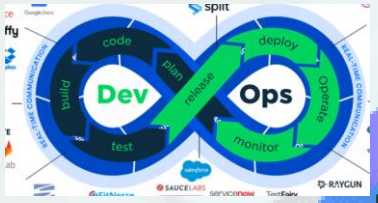
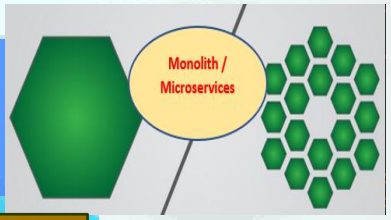
DevOps Trends 2021



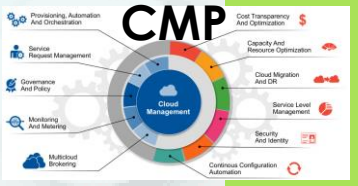
DevSecOps

Microservices Architecture



IAC – Infra Automation (IA) tools

Cloud Management Platforms(CMPs)



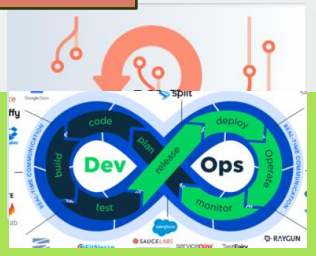
Artificial Intelligence & ML

Predictive Analytics

gitops

GitOps

AgileOps



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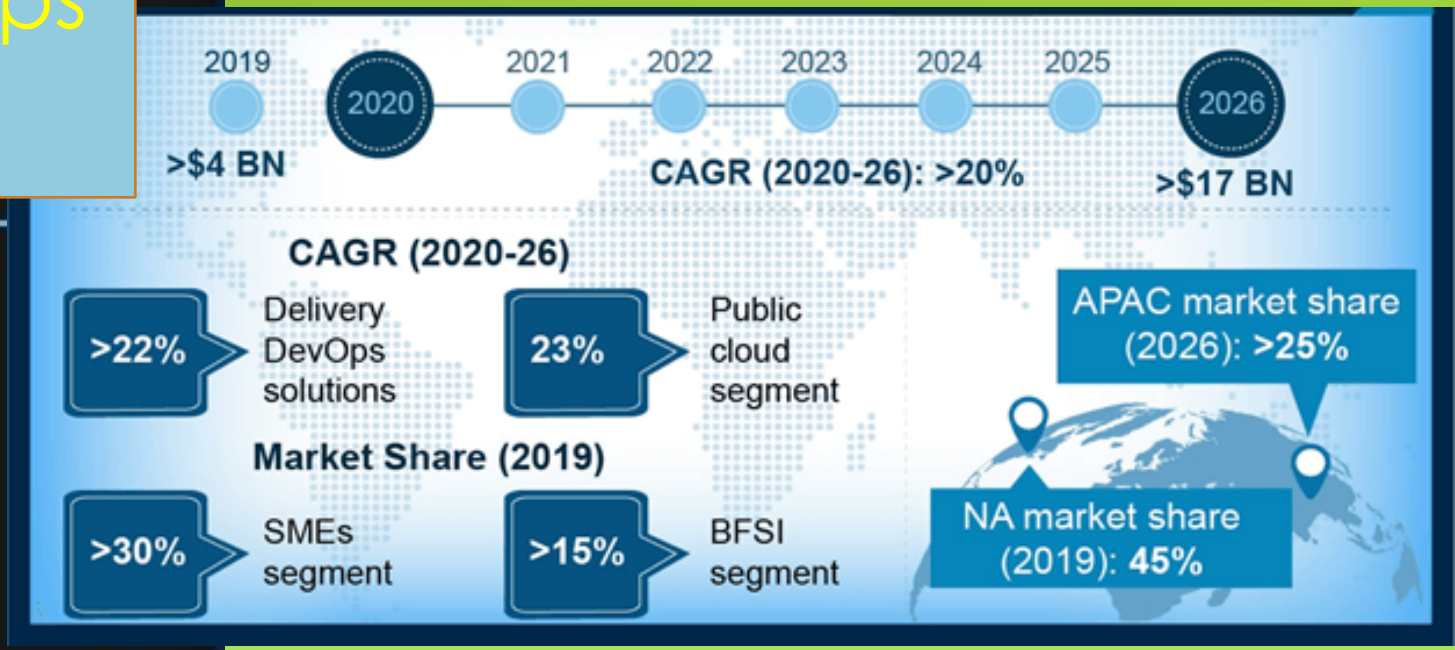
DevOps Industry Segments

Global DevOps Market

Opportunities and Forecast, 2017-2023

Global DevOps Market is expected to reach **$9,407 Million** by 2023.

Growing at a **CAGR of 18.7%** (2017-2023)



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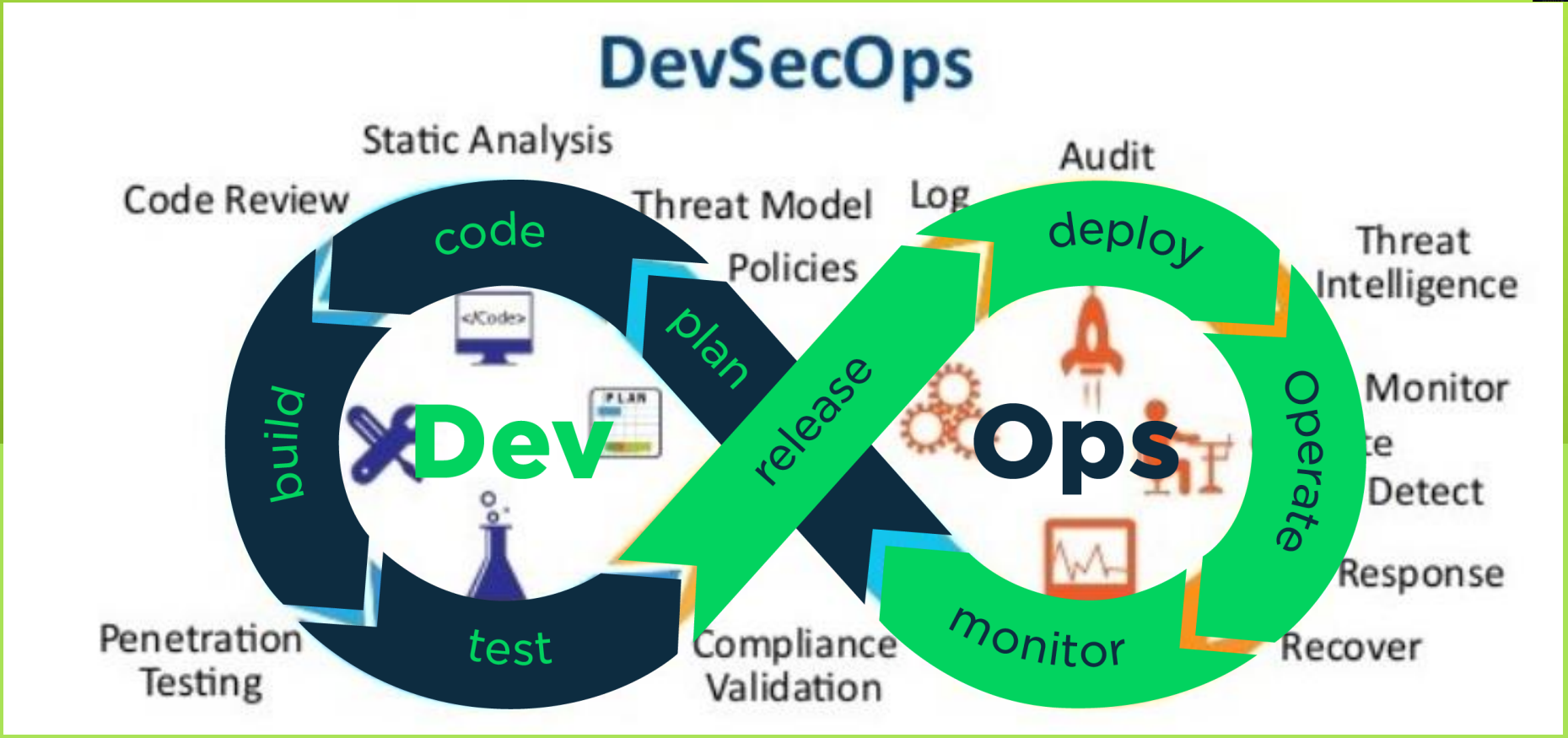
DevSecOps



DevSecOps is the integration of security into DevOps practices

weakest link of the chain will always be the human factor, and this must be the starting point for any DevSecOps implementation.

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DevSecOps Best Practices

- ❑ Breaking Down Barriers and Silos with Security Champions
- ❑ Training and Upskilling Your Staff
- ❑ Culture is Everything
- ❑ Integration of Processes
- ❑ Compliance
- ❑ Version Control, Metadata, and Orchestration
- ❑ Security Tooling in CI/CD
- ❑ Incident Management
- ❑ Red Teams, Blue Teams and Bug Bounties
- ❑ Automation and Configuration Management
- ❑ Secure Coding Practices/Security as Code
- ❑ Host Hardening
- ❑ CI/CD for Patching
- ❑ Application-level Auditing and Scanning
- ❑ Source Code Scanning
- ❑ Pre-Deployment Auditing
- ❑ Post-Deployment Auditing
- ❑ Dynamic Application Scanning Tool (DAST)
- ❑ Secrets Management with Vault
- ❑ Automated Host/Container/External Vulnerability Scanning
- ❑ Secured Communication between services

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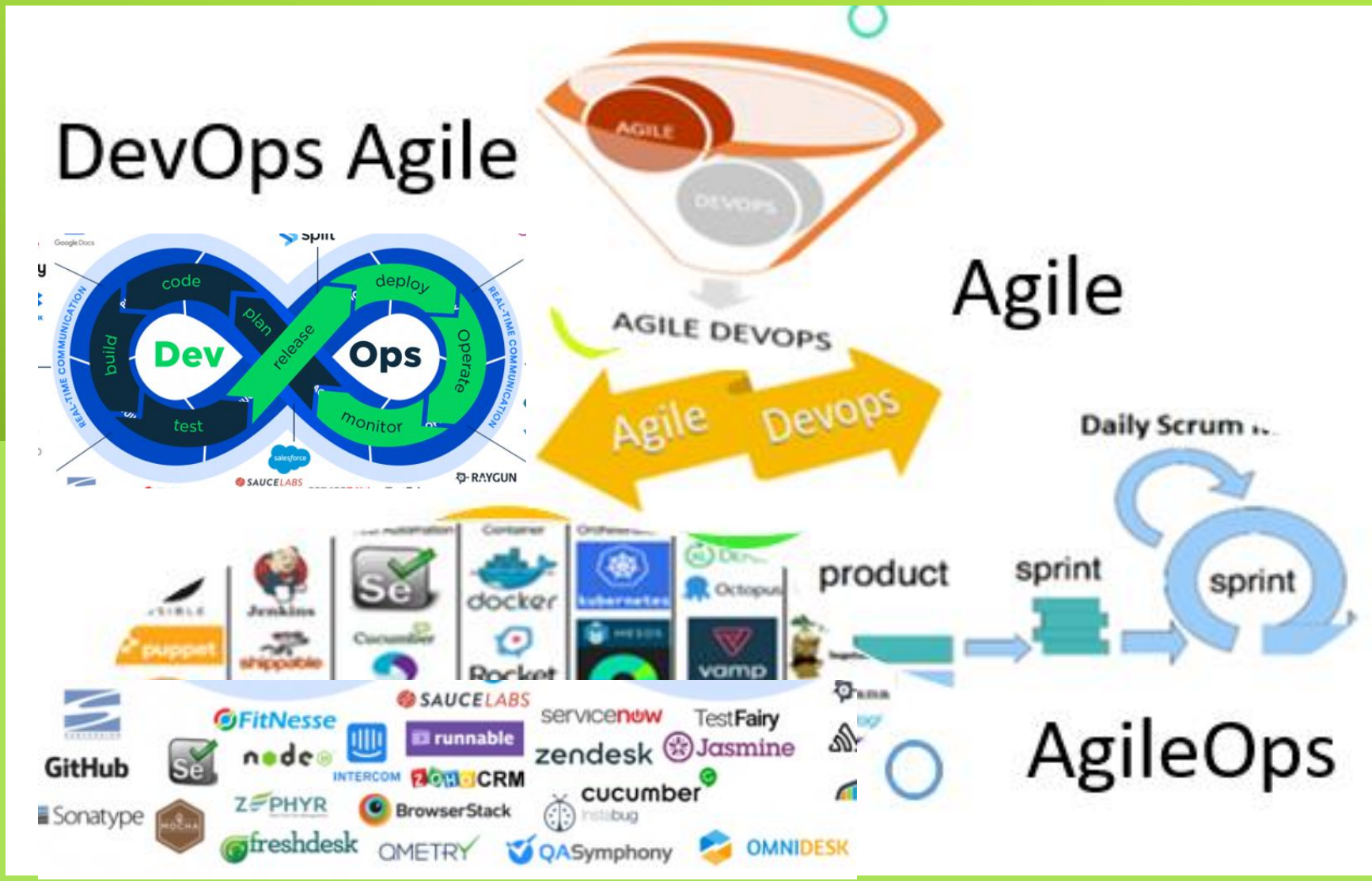
AgileOps



AgileOps combines proven agile and DevOps techniques for Integrations & Operations teams to improve agility, manage software development and swiftly respond to requirements.

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AgileOps

AGILE	DEVOPS
focused on **SOFTWARE REQUIREMENTS**	**RAPID DELIVERY**.
PROVIDES PLATFORM to the organization to be responsive to customer needs	**FASTTRACK AND ENABLE** an organization to meet the goal to be responsive to business needs
LEAN MANAGEMENT PRINCIPLES	**LEAN EXECUTION TECHNIQUES**
SOFT ASPECT of management	**HARD ASPECT** of execution framework
SMALLER CHUNKS of business needs	**CONSOLIDATION** i.e., it consolidates into a single Continuous Delivery outcome
LOWERING THE COMPLEXITY level by breaking feature details	**CONSOLIDATES ALL EXECTUION STEPS** to get ultimate desired outcome.
INTANGILE because anyways even if agile will not be followed, it would require Interaction, Project Management, Collaboration and Project plan	**TANGILBLE** view of continuous Outcome
PEOPLE and PRACTICES	**TOOLS and TECHNOLOGIES**
2I's and 2C's (ITERATIVE, INCREMENTAL, CUSTOMER VALUE and CONTINOUS FEEDABCK)	**2C's and 2I's (COLLABORATION, CONTINOUS, INCREMENTAL and INTEGRATION)**

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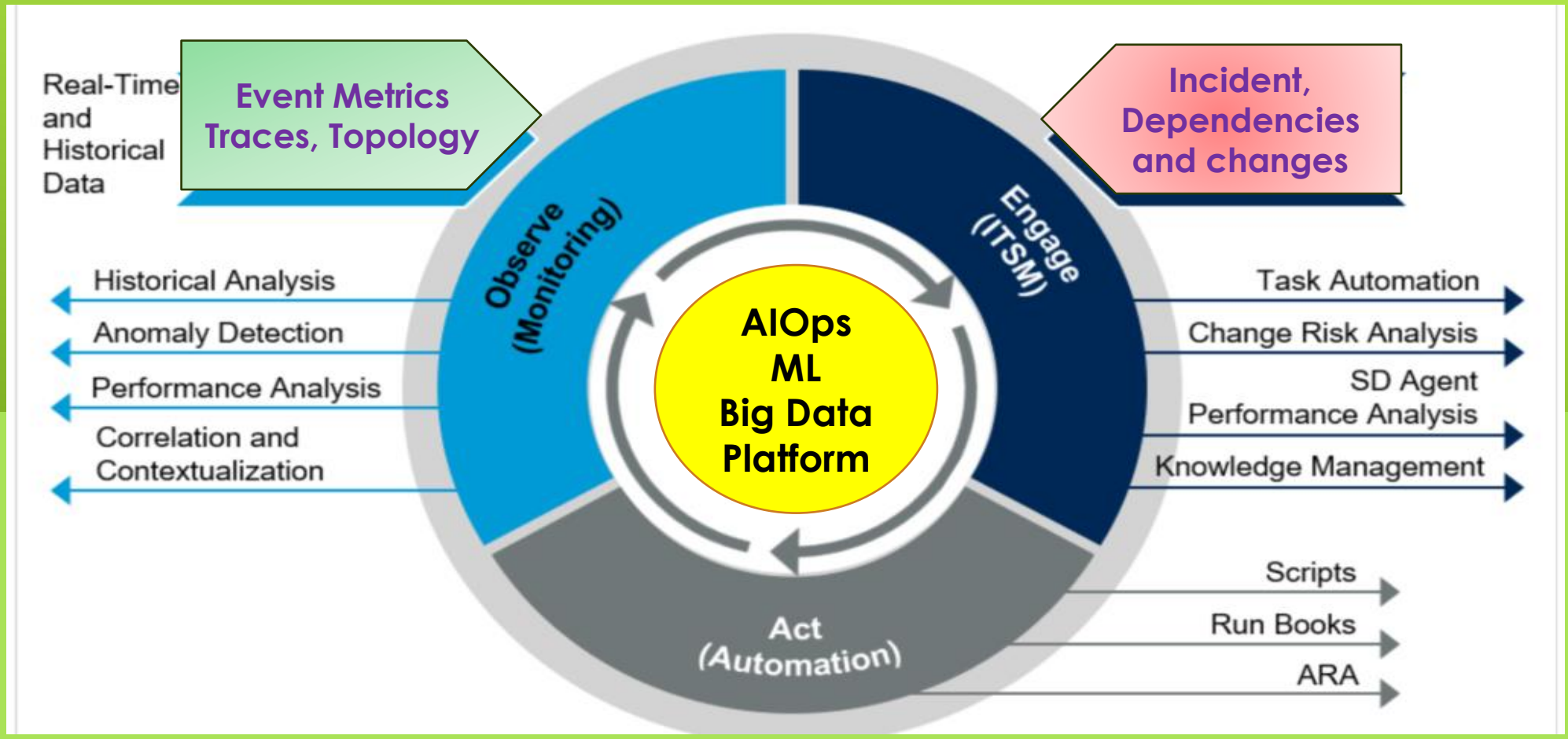
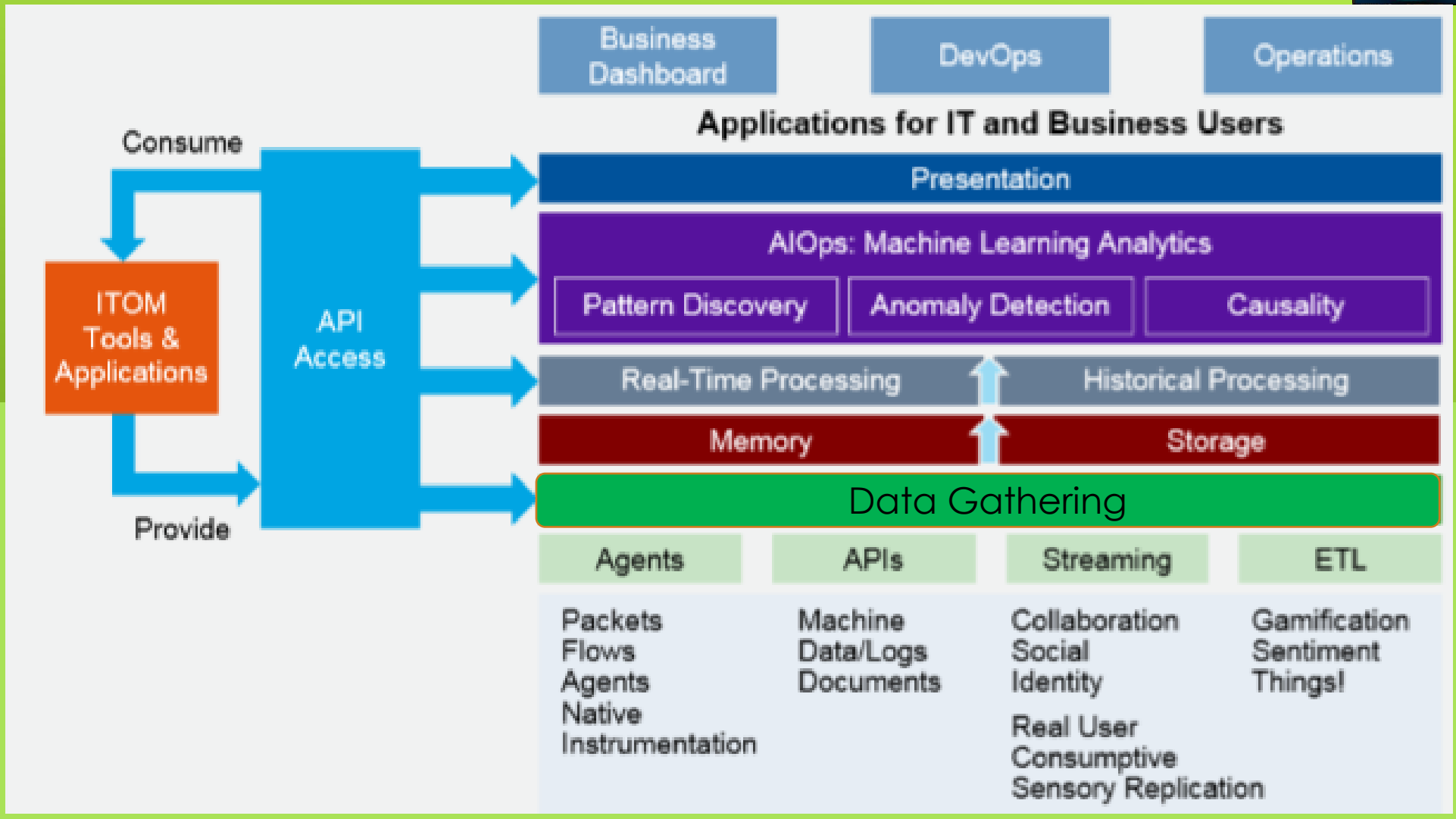
AIOps



AIOps is short for **artificial intelligence for IT operations**. It refers to multi-layered technology platforms that automate and enhance IT operations through analytics and machine learning (ML).

AIOps Enterprise Platform



AIOps platforms leverage big data, collecting a variety of data from various IT operations tools such as Application performance monitoring (APM), network performance monitoring and diagnostics (NPMD), digital experience monitoring (DEM), and IT infrastructure monitoring (ITIM) tools in order to automatically spot and react to issues in real-time while still providing traditional historical analytics.

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DevOps Roles

DevOps Generalist

Ensure smooth establishment, efficient and healthy progress and continuous improvement of DevOps Practices

DevOps Executive

successful utilization and application of DevOps knowhow within their organizations. They are key players for DevOps teams to enable cultural shift with mindset change in DevOps way.

DevOps Project Manager

person responsible for accomplishing the stated project objectives with in the given target.

DevOps Product Owner

very unique and broad role in DevOps which combines all of the challenging aspects of traditional Project Manager and Product Manager roles.

DevOps Operations Engineer

DevOps Operations Engineers are responsible for monitoring, maintaining and deploying the state-of-the-art software applications and infrastructure behind the technology of their Products. They deploy and maintain Network Infrastructures and Servers at Data Centers. They also participate in DevOps Delivery and Deployment Teams on installations and develop product delivery and deployment contingency plans.

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DevOps Roles

DevOps Architect

owns architecture, design and development of product deployment tools and processes. DevOps Architect is expected to architect and develop innovative solutions to build and maintain product architecture, its related tools and processes for continuous integration and continuous deployment / delivery pipeline.

DevOps Developer

As a DevOps Developer, you transform the business goals of your customers into Software Solutions and Systems. In comparative with a normal developer, DevOps Developer during the full course of your work, you are conscious of the business goals and business demands of your customers

DevOps Release Manager

With DevOps a product is always available which is ready to be delivered. DevOps Release managers work to address the management and coordination of the product from development through production. Typically they work on more of the technical details and hurdles in which a traditional project manager cannot be involved.

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DevOps Roles

DevOps Information Security Engineer

DevOps Information Security Engineers to be aligned with DevSecOps design big picture security strategy of their organizations while laying out the details of an implementation plan. They understand the constant need to balance the benefits of incremental security measures with the potential burdens on the business.

DevOps Quality Assurance Engineer

While getting aligned with CI / CD pipeline DevOps Quality Assurance Engineers play proactive role for the processing of Unique Selling Points of their Product, Requirements, Use Cases, Software Architecture and various other software design material to find out desired test types to validate the quality of Product under Test.

DevOps Trainer

DevOps Trainers are talented DevOps supporters who is in continuous innovation process with higher learning agility. They make sure the correct training and education of DevOps practices within organizations.

DevOps Coach

Similar to DevOps Trainers, DevOps Coaches are also talented DevOps supporters to ensure correct understanding, penetration and adoption of right DevOps practices within organizations.

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Starting My DevOps Career

Step 1

Build a Basic CI / CD Pipeline

Up next : Practical on building Basic on-premise CI / CD Pipe line with Docker containers.

Coming UP : Building a CI / CD Pipeline On Cloud

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To be the ultimate knowledge hub for the most demanding technologies in the industry.

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Technology Innovation Hub

Thank You.

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