BRC BYTES

DevOps Sector

Decoding The New Paradigm

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The Rise of DevOps

- As companies across industries adopt more digital tools, the need for software keeps growing

- Tools for development and IT operations that can help developers build apps for the cloud are gaining momentum as a result

- DevOps embodies the solution to one of the most critical questions: How can software teams deliver business value best? The answer? Developers and Operations working together (DevOps) instead of in isolation.

$13.4Bn

Raised by DevOps startups Globally

11

DevOps Unicorns Globally

7

IPOs Globally

Which problems is DevOps trying to solve?

- From silos to one-team thinking
- No more fixed release schedules
- From finger pointing to feedback loops

DevOps significantly improves how we create software and offers advantages like:

- Faster time-to-market
- Testing and superior quality
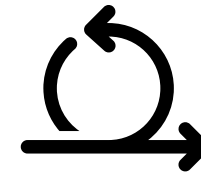- Flexible priorities
- Risk reduction

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Catalysts Driving the Growth of DevOps

Increasing Complexity of Software Sytems

Need for Faster Delivery

Rise of Agile Methodologies

This has Resulted In:

973 X

More Frequent Code Deployment

3 X

Lower Failure

6,570 X

Faster Time to Recover from Incident

Gone are the days where teams only launched product enhancements once a quarter.

Majority of today's high-performing software teams embrace the philosophy of continuous improvement.

Primer : Understanding Software Development Lifecycle

Planning & Analysis

- Gathering Requirement
- Defining Goals

Design & Prototyping

- Creating Architecture
- Prototyping UI/UX

Development & Coding

- Writing Code
- Iterative Development

Testing & Debugging

- Quality Assurance
- Identifying & Fixing Bugs

Deployment & Maintenance

- Releasing Software
- Providing Ongoing support

Software development is process of creating, designing, deploying and maintaining software applications

Comparing Software Development Methodologies

Waterfall Methodology

Sequential & Linear

- Follows a structured, step-by-step approach.

Documentation-Heavy

- Documentation at each phase.

Rigid & Less Adaptive

- Changes are challenging once a phase is completed.

Suitable for projects with well-defined requirements upfront. Used in large, regulated projects

Agile Methodology

Iterative & Adaptive

- Allows flexibility in accommodating evolving requirements.

Collaborative & Customer-Centric

- Constant communication within team and emphasize on customer feedback

Sprints & Incremental Deliveries

- Work is divided into smaller cycles

Ideal for startups and small teams seeking flexibility

DevOps

Integration of Development & Operations

- Bridges the gap between developers and operations teams.

Automation & Continuous Deployment

- Focuses on automated testing and deployment.

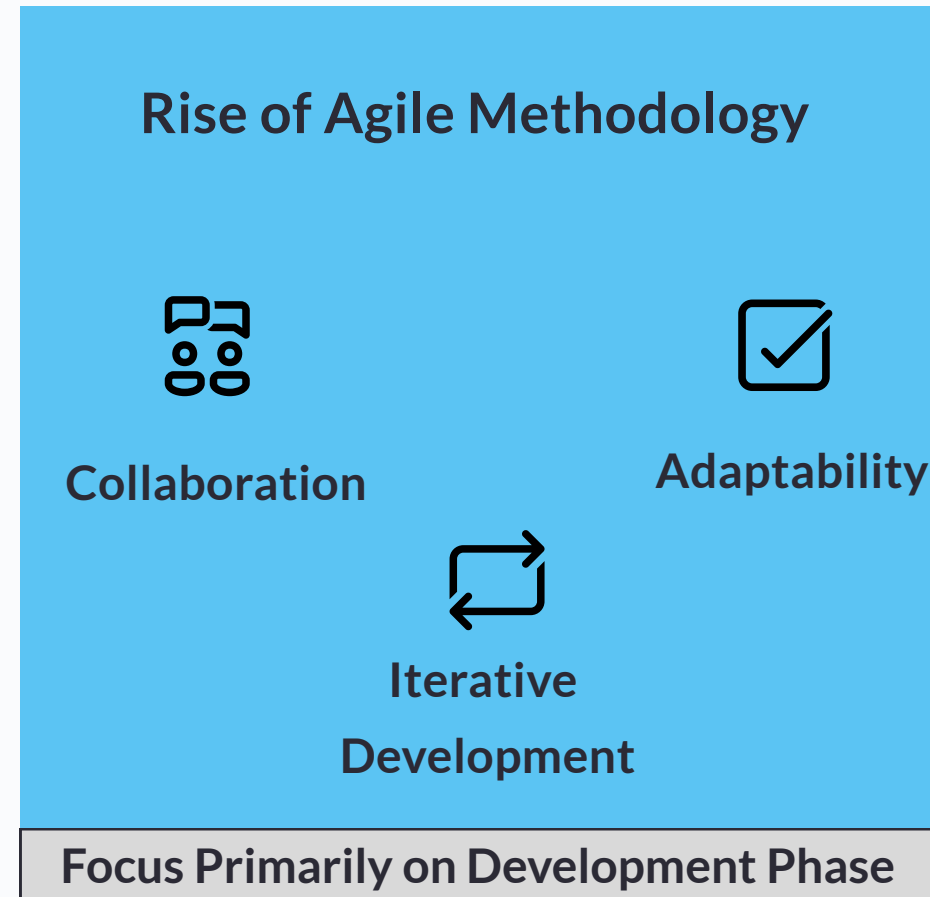**Culture of Collaboration & Efficiency**

- Collaboration and shared responsibility.
- Quicker and more reliable software releases.

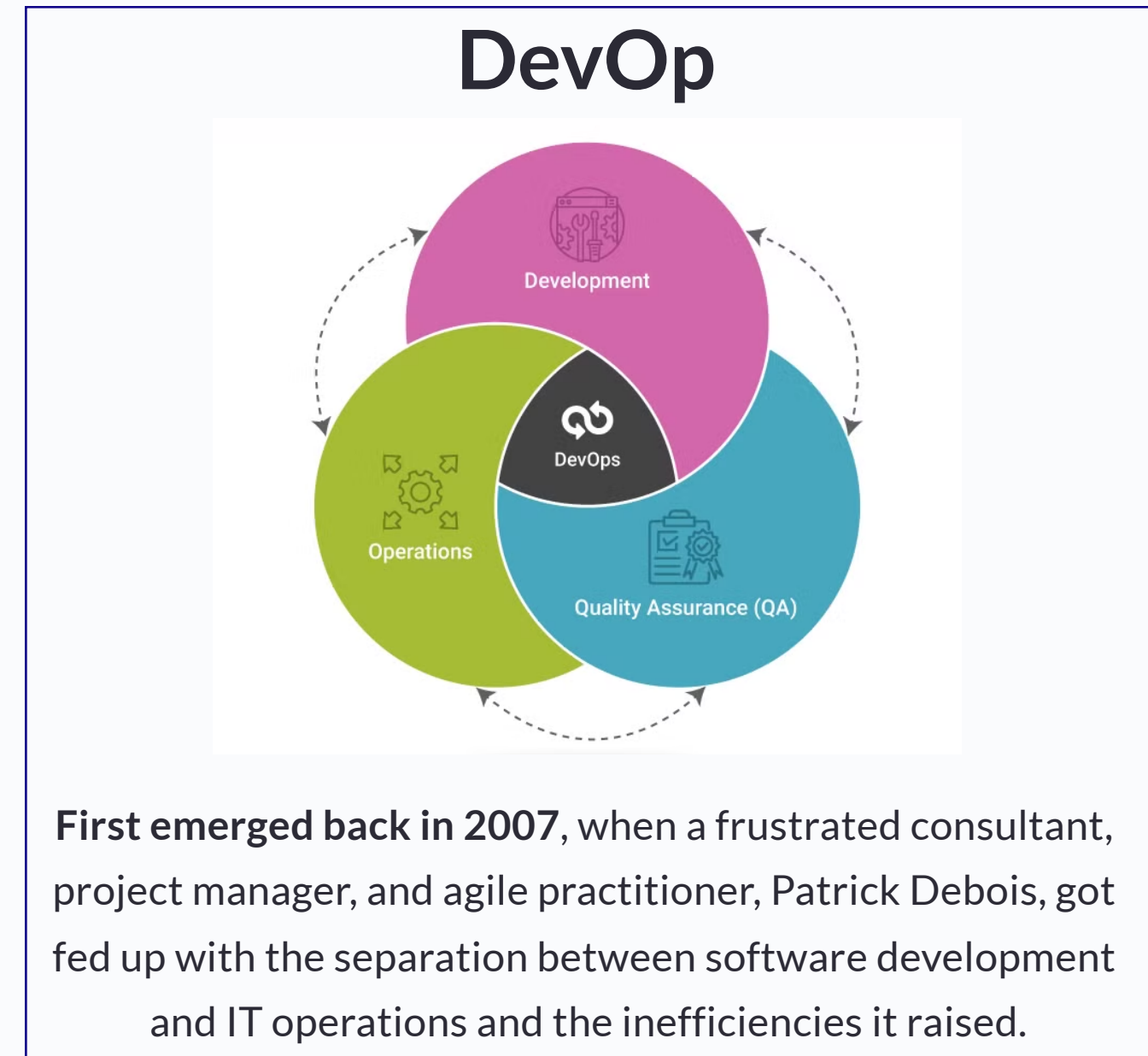Commonly used by tech enterprises for rapid and reliable releases

What led to the Emergence of DevOps?

Challenges with the Waterfall model

- Lack of flexibility
- No room for errors
- Difficulty in dealing with changes
- No customer involvement

Rise of Agile Methodology

Collaboration

Adaptability

Iterative Development

Focus Primarily on Development Phase

DevOps has naturally evolved from the Agile methodology, as software development became more complex

DevOp

First emerged back in 2007, when a frustrated consultant, project manager, and agile practitioner, Patrick Debois, got fed up with the separation between software development and IT operations and the inefficiencies it raised.

Software development has been and continues to be one of our society's most important building blocks. As complex as these innovations become, the more complex and time-demanding the software that drives them becomes. In an attempt to make the entire software development process as efficient as possible, different approaches have been introduced.

# Decoding DevOps: Key Philosophies

Today, we take services like Netflix for granted. But what makes Netflix possible is actually the ability to make **hundreds** of **deployments per day**. Can you imagine a world where you can only deploy once a month, or, worse, once every few months? That was the reality for developers back then, in the golden days of the waterfall methodology.
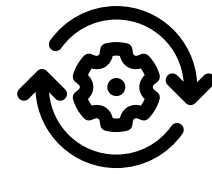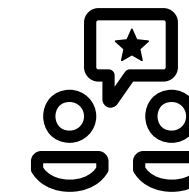
Automation
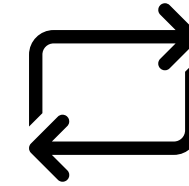
Continuous Integration and Continuous Deployment (CI/CD)
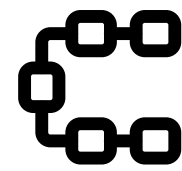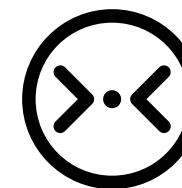
Scalability and Infrastructure as Code

Monitoring and Feedback Loops
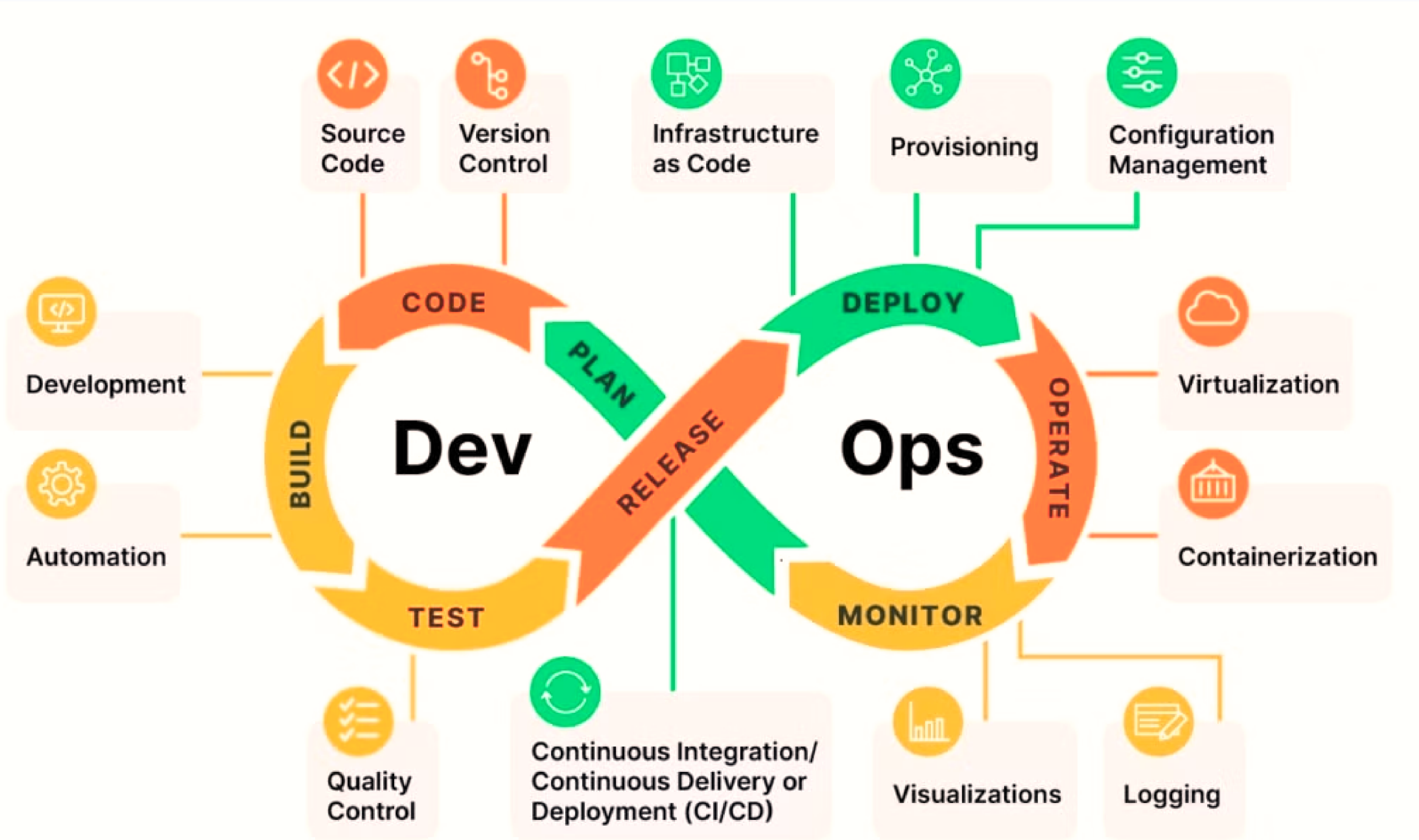
Benefits

Faster Time to Market

Reduces Silos

Eliminates Manual Process

Stages & Sub-Stages of DevOps

Source Code

Version Control

Infrastructure as Code

Provisioning

Configuration Management

Development

Automation

CODE

PLAN

Dev

BUILD

RELEASE

DEPLOY

Ops

OPERATE

Virtualization

Containerization

TEST

MONITOR

Quality Control

Continuous Integration/ Continuous Delivery or Deployment (CI/CD)

Visualizations

Logging

Understanding the stages and substages of the software development lifecycle is pivotal before exploring the diverse landscape of DevOps companies

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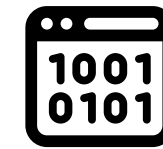# Double Clicking Stages & Sub-Stages of DevOps
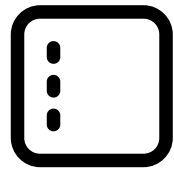
Planning

Goal Setting & Requirement Gathering
- **Defining project objectives, gathering requirement**

Task Breakdown & Prioritization
- **Setting timelines, prioritizing work**

Coding

Source Code
- **Writing, reviewing and managing the actual code**

Version Control
- **Tools managing changes to the codebase**

Build

Code Compilation
- **Transforming source code into an executable format or artifacts**

Dependency Management
- **Resolving and managing software dependencies required for the build process**
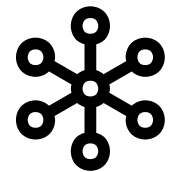
Test

Unit Testing & Validation
- **Running unit tests, validating functionality**

Quality Assurance
- **Ensuring code meets quality standards**

Double Clicking Stages & Sub-Stages of DevOps (Contd...)

Release

CI/CD Pipeline Setup
- **Configuring automated pipelines**

Deployment Automation
- **Automating provisioning and configuration**

Deploy

Infrastructure Provisioning
- **Setting up necessary environments**

Infrastructure as Code
- **Managing infrastructure (servers) through code**

Operate

Environment Management
- **Creating and managing environment such as stage environment, test environment etc.**

Performance Monitoring
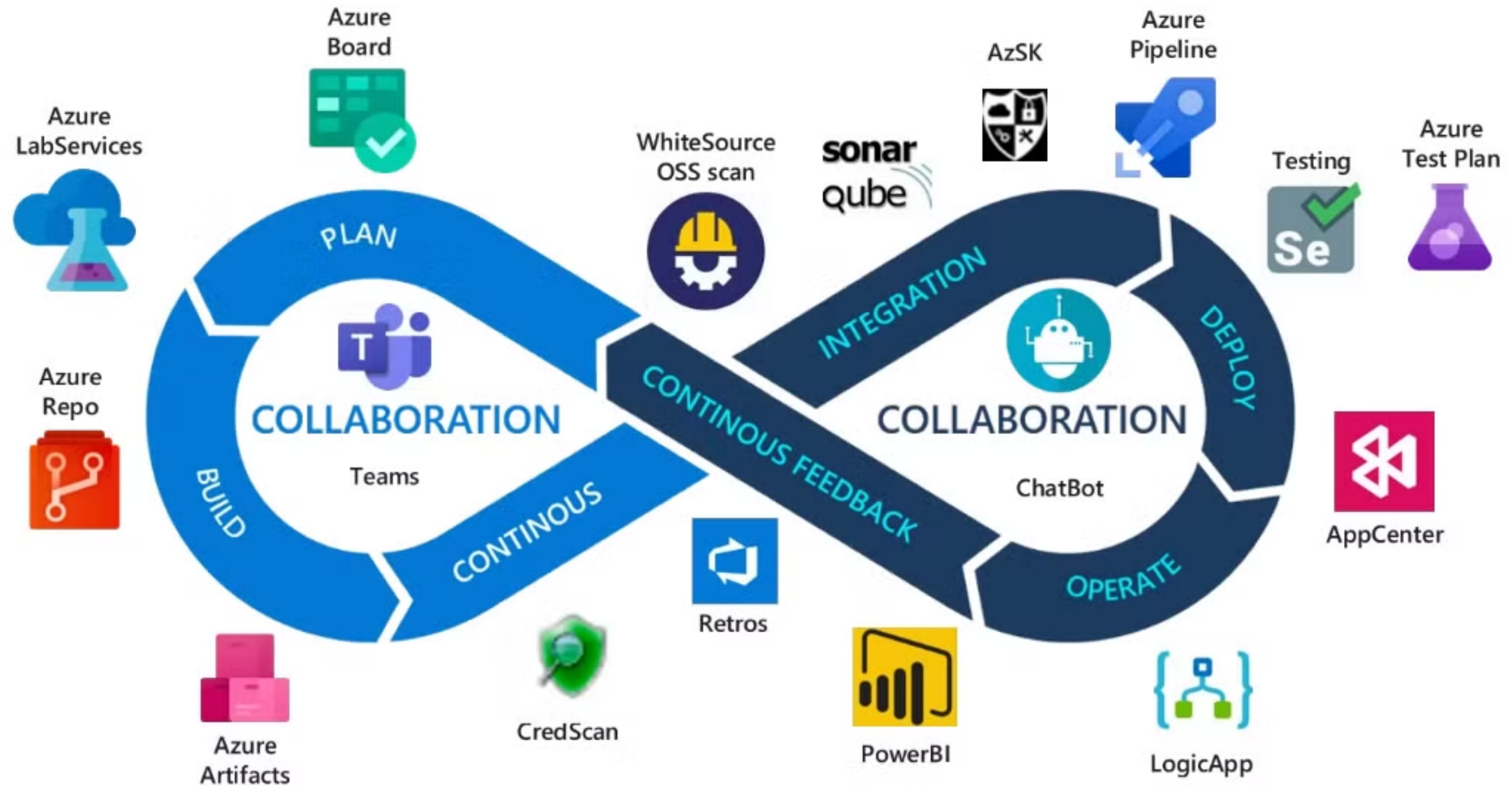- **Monitoring application performance.**

Monitor

Logging & Visualization
- **Capturing logs, visualizing data**

Alerting & Incident Response
- **Setting alerts, responding to incidents (failures/bugs)**

Illustration of Product From Microsoft At Each Stage of DevOps

Challenges of Implementing DevOps in any Organization

Change is Huge

Managing changes in a DevOps envt. needs balancing rapid deployment ensuring stability of the system. Its difficult because changing a system introduces new risks and vulnerabilities

Switching from Legacy Infrastructure to Microservices

Organisations need to update their hardware and software systems according to the latest trends, so that new systems can co-exist with the existing systems.

Tedious Integration

Dev and Ops departments have different goals and working systems. At first, it might become very tedious to integrate the tools.

Challenges during the process

DevOps can be challenging for workers who blindly follow guidelines, DevOps doesn't have any fixed framework stating procedures for employees

Test Automation

Test Automation holds equal importance as CI/CD deployments. It has been observed that companies tend to neglect test automation and focus more on CI/CD deployments.

Cost and Budget

Various tools are needed to be deployed for devOps, which might lead to overall cost increase

# Application Development Software Market Size

$180 Bn

Led by Rapid Growth of SaaS Products across World

Revenue of software development companies is expected to show an CAGR (2024-2028) of 6.87%, resulting in a market volume of US$234.70bn by 2028.

Globally, most revenue will be generated in the United States

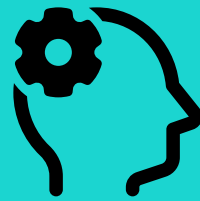**Geo Agnostic - TAM Transcends Borders**

Dev Companies Globally Are Growing Stronger - India is Warming Up to the Party

$13.5 Bn

<1%
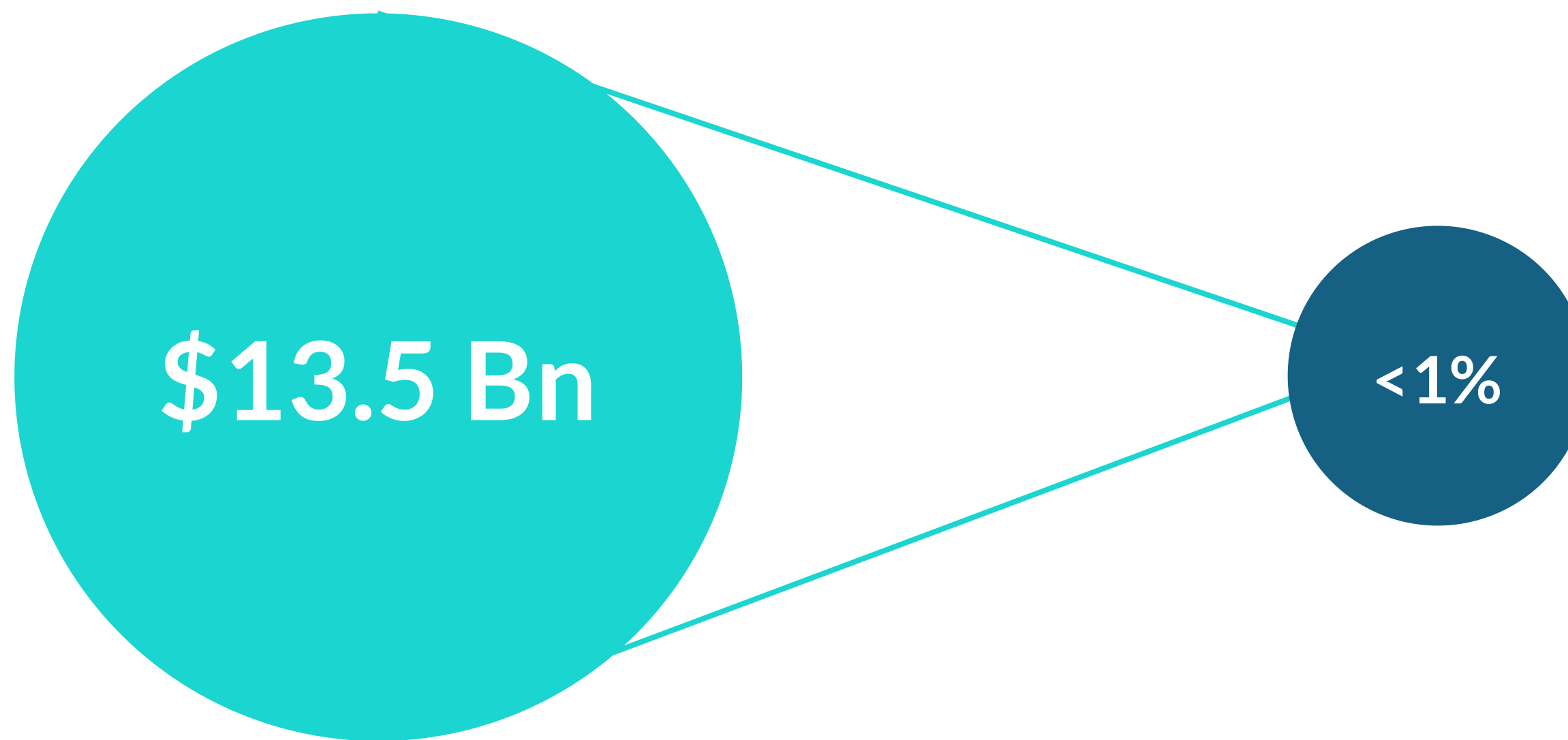
Total Fund Raised by Dev Companies globally till date

India's Share

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Source - Tracxn

Factors Which Will Drive India's Dev Growth

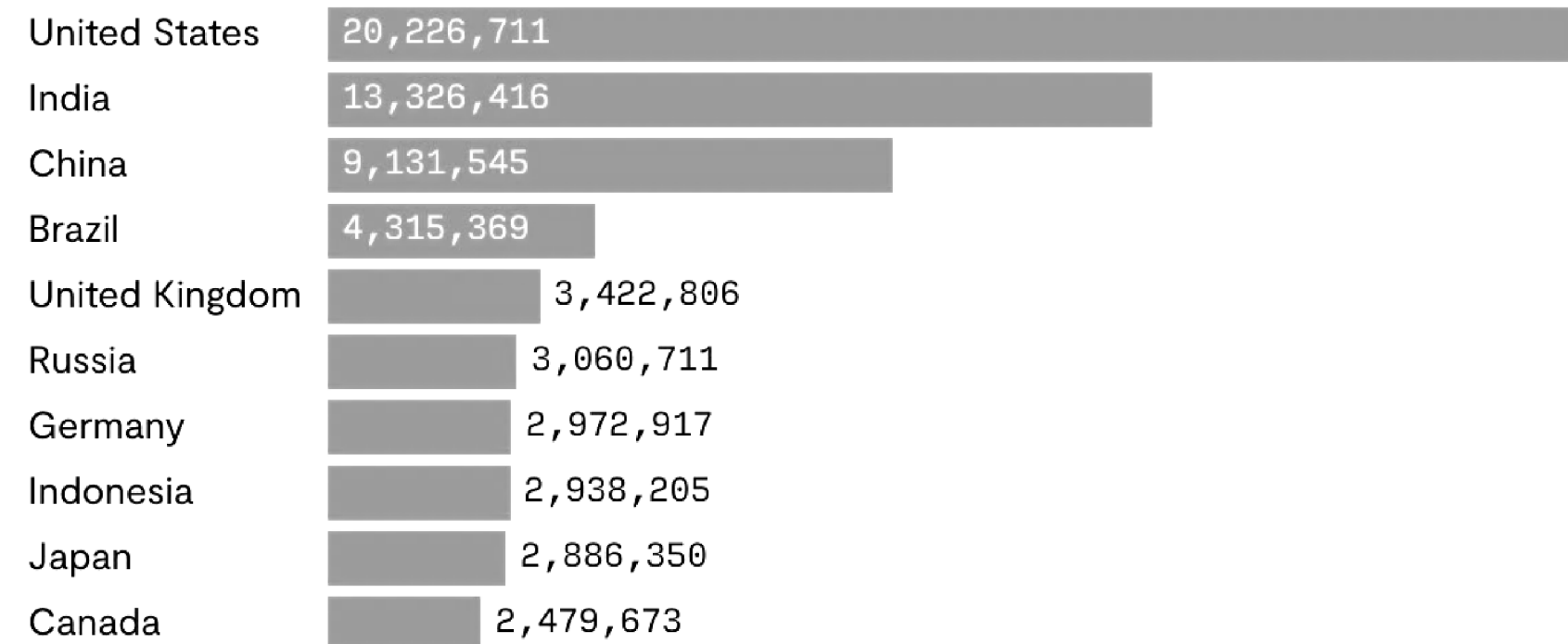**Abundance of high quality engineering talent**

Capital Efficiency

Thriving Entrepreneurial Ecosystem

"India will surpass the US as the largest developer base on Github by 2027" - Microsoft CEO Satya Nadella

Total GitHub developer accounts

Total number of accounts by country, as of Q3 2023.

Country	Accounts
United States	20,226,711
India	13,326,416
China	9,131,545
Brazil	4,315,369
United Kingdom	3,422,806
Russia	3,060,711
Germany	2,972,917
Indonesia	2,938,205
Japan	2,886,350
Canada	2,479,673

Source: GitHub

Developer in India Growing more than 35% YoY

13% of Github Developers are in India

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Companies That Are Backbone To Software Development

GitHub
Version Control | Collaboration |
Code Hosting

GitLab
DevOps Platform | Version Control

CloudBees
Automation | CI/CD

kubernetes
Container Orchestration | Scalability

aws
Cloud Services | Infrastructure

ATLASSIAN
Project Management | Version
Control | Collaboration

Azure DevOps
Development | CI/CD | Collaboration

new relic
Application Monitoring |
Observability

docker
Container Orchestration | Scalability

HashiCorp
Infrastructure Automation | Security

splunk>
Data Analytics | Monitoring | Security

JFrog
Artifact Management | Binary
Repository

Indian Startups In Software Devlopment

Build	Verify	Deploy	Configure	Observe	Govern & Respond	Plan
Hoppscotch	testsigma	Razorops	drootoo	motadata	opslyft	DevRev
HASURA	BrowserStack	harness	nimbus	Amnic	Last9	hashnode
POSTMAN	HYPERTEST	devtron	RUN|X|	vunet	nudgebee	Workduck
Quod AI	LAMBDATEST	shippable	CloudHost	SigNoz	Lucidity	Hatica
iauro Systems		buildplan		whatfix	nirmata	
Facets.cloud				parseable	Lightwing	
Spheron				Astuto	zenduty	
				headspin	squadcast	
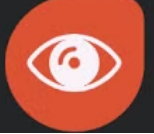
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Fundraising Trends

DevOps startups	Total Funraise	Investors
Amnic	14.0 M	Sequoia Capital India
Devtron	12.3 M	Insight partners, Leo Capital
Spheron	7.0 M	Nexus Venture, Paradigm Shift Capital
VuNet Systems	7.0 M	Mela Ventures, Athera, TVS Capital
SigNoz	6.5 M	SignalFire, Alumini Ventures
Facets.cloud	4.0 M	3one4 Capital, Neon
Parseable	2.7 M	NP-Hard Ventures, Peak XV Partners
Zenduty	2.2 M	Startupxseed Ventures, Titan Capital

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Thank you!