DevOps

Introduction to DevOps

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Training

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"**Jack of all trades, master of none**."

Never attempt to master all the tools in one go! Take your time, understand the essentials of DevOps and learn as you become more and more comfortable as DevOps is huge in terms of the number of tools available.

In this class we will cover the essential tools that you need to begin the DevOps journey well! Please take your time to experiment master these set of tools, they will be of immense help!

1. Define DevOps

DevOps (a clipped compound of "development" and "operations") is a software development and delivery process that emphasizes communication and collaboration between product management, software development, and operations professionals.

- Wikipedia

2. What is DevOps?

DevOps is a series of processes and tools, as well as a cultural practice within a company, that encourages collaboration between development (developers, QA, project management, and other associated teams) and operations (systems administrators, systems architects, security, and related). It is often characterized by its use of fast release cycles, common tools, and overall "DevOps" concepts.
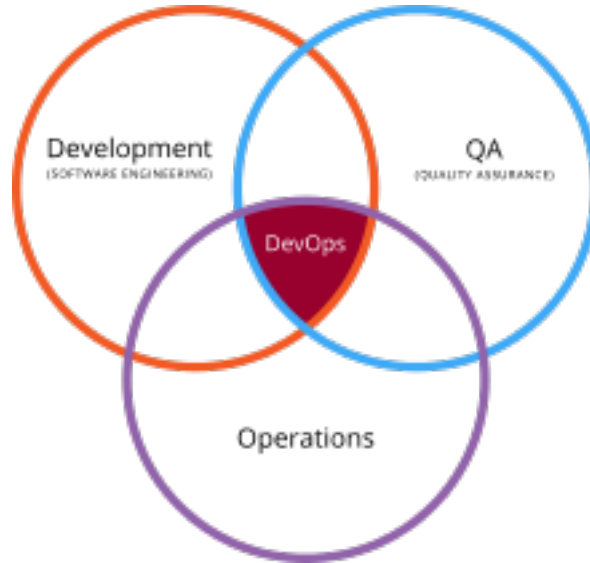
What is DevOps?
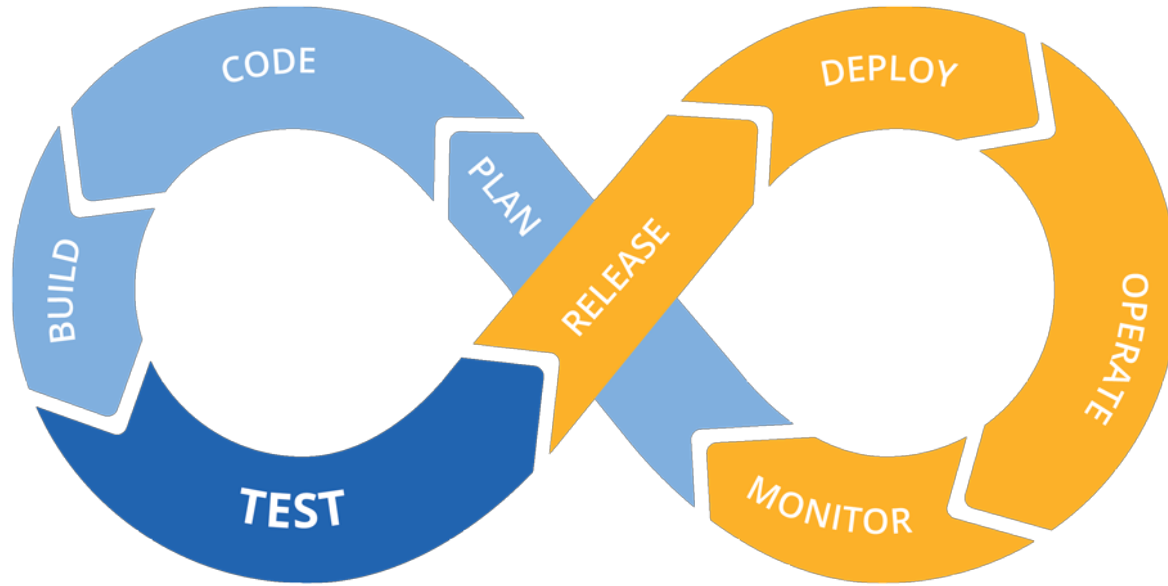
3. SDLC Models

A wise man once said that if you fail to plan, you plan to fail. The Systems Development Life Cycle (SDLC) gives structure to the madness of getting from the beginning to the end of your project without forgetting a step. It's a type of project plan. There are a number of different SDLC methodologies used today to guide your way through projects. We will some of them.
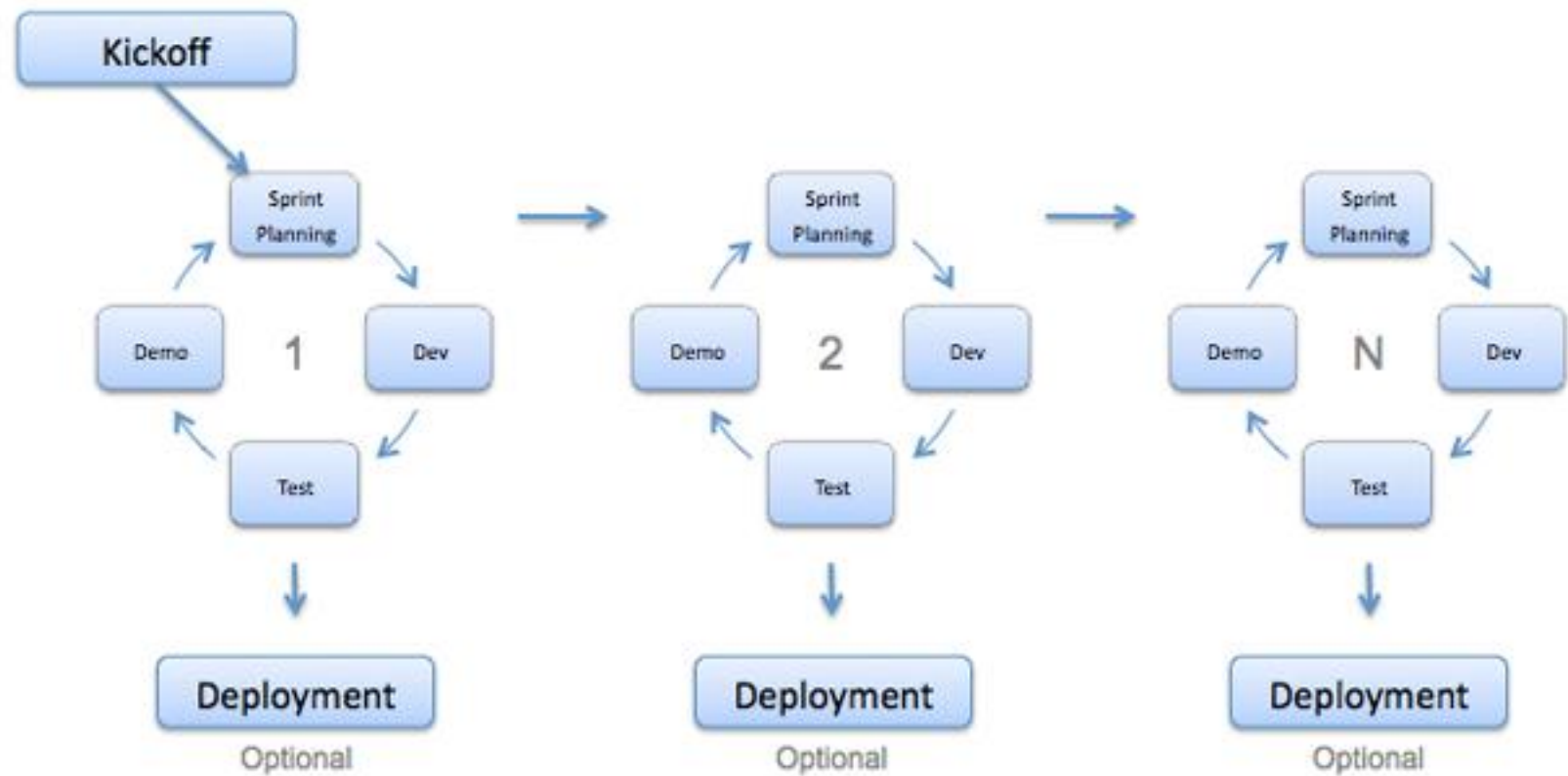
Principles of Lean Thinking

1. Eliminate Waste
2. Increase Feedback
3. Delay Commitment
4. Deliver Fast
5. Build Integrity In
6. Empower the Team
7. See the Whole
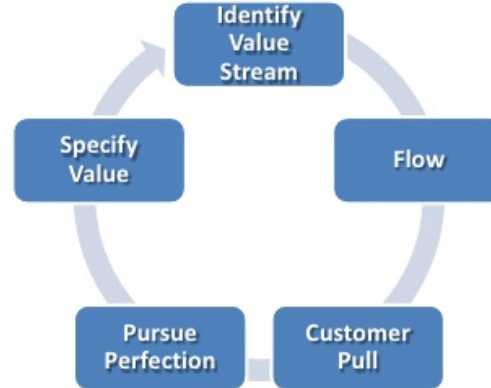
SDLC Models – ITIL Model
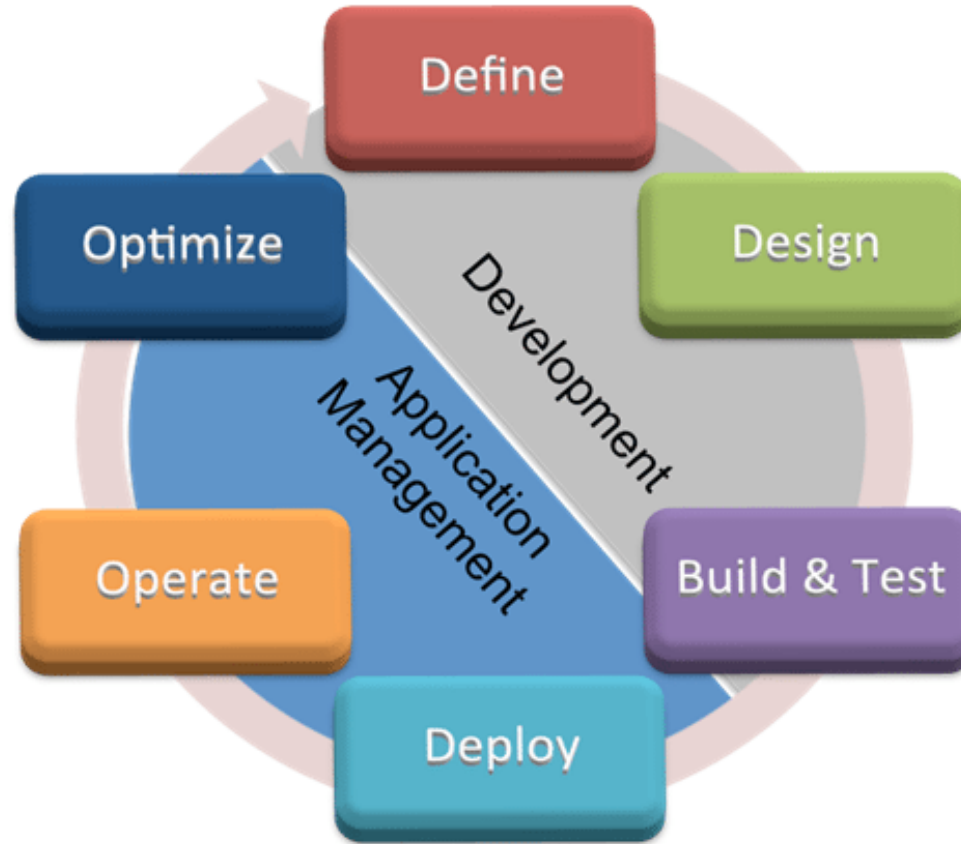
SDLC Models – Agile Model

4. Why DevOps?

Technical Benefits

- Continuous software delivery
- Less complexity to manage
- Faster resolution of problems

Cultural Benefits

- Happier, more productive teams
- Higher employee engagement
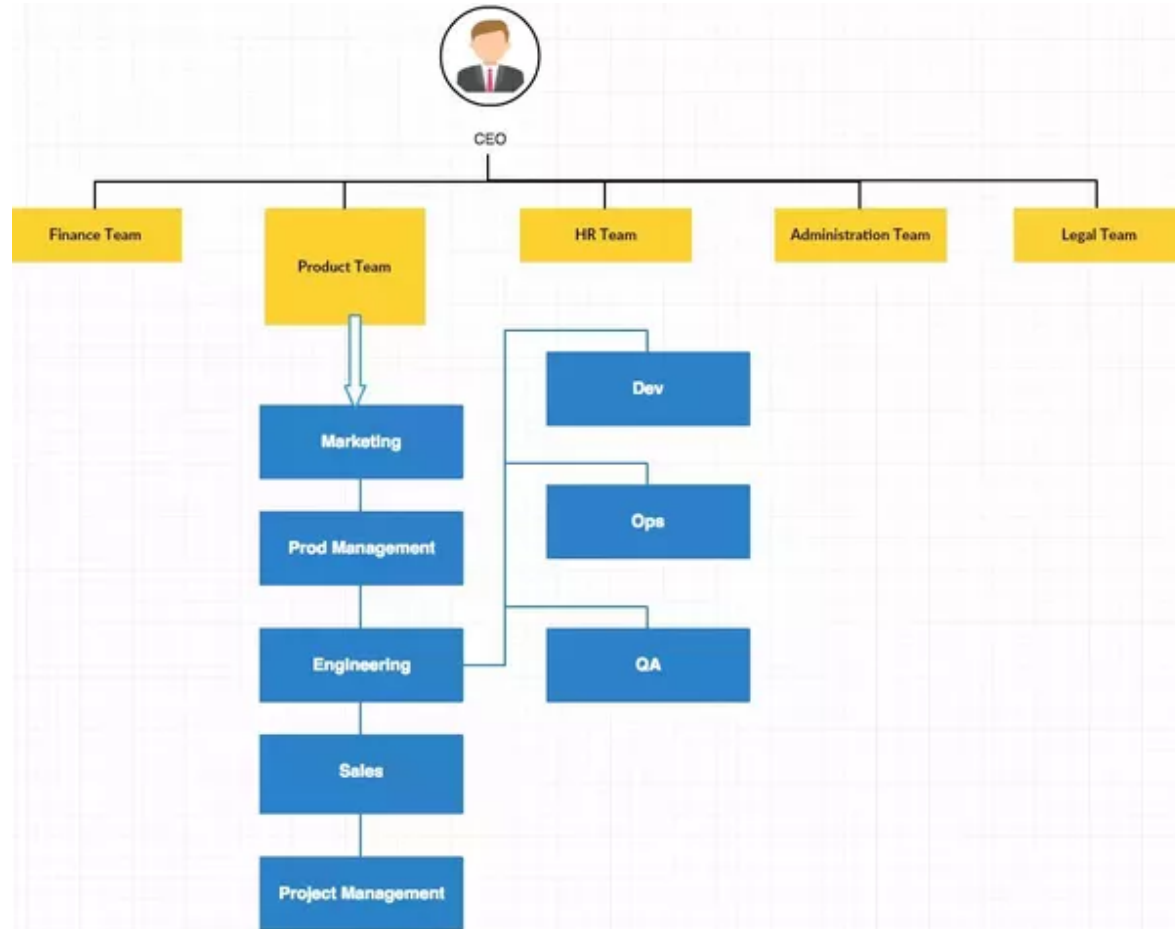- Greater professional development opportunities

Business Benefits

- Faster delivery of features
- More stable operating environments
- Improved communication and collaboration
- More time to innovate (rather than fix/maintain)

5. History of DevOps

A Short History of DevOps

2007 — Patrick Dubois; Google Agile System Administrator Group

2008 — Andrew Shafer Agile Conference, Toronto; Velocity — John Allspaw & Paul Hammond FlickR

2009 — DevOps Days Belgium #devops

2010 — 'Gartner Explores DevOps' Cameron Haight

2011 — Mike Gualateri, Forrester — 'NoOps'

2012 — ranger4; Ronnie Colville of Gartner: 'ARA is a Key to DevOps'

2013 — DevOps.com; bmc software; ca; hp; IBM

2014 — amazon web services; The Phoenix Project

2015 — DEVOPS ENTERPRISE SUMMIT; DevOps Days Belgium 5 Year anniversary Ghent

2016 — DevOps Handbook; The Phoenix Project GAME; All Day DevOps

2017

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6. DevOps Stakeholders

7. Goals of DevOps

- Improved deployment frequency
- Faster time to market
- Lower failure rate of new releases
- Shortened lead time between fixes
- Faster mean time to recovery (in the event of a new release crashing or otherwise disabling the current system)
- Maximize predictability, efficiency, security and maintainability

8. DevOps Important Terminologies

- Agile
- DevOps
- Continuous Delivery (CD)
- Continuous Integration (CI)
- Microservices
- Release Orchestration
- Provisioning
- Configuration Management
- Deployment Management
- Test-Driven Development (TDD)
- Build Automation (BA)
- Unit Testing
- Application Release Automation (ARA)
- Canary Release
- Dark Launch
- Regression Testing

Development

Wants agility

Operations

Wants stability
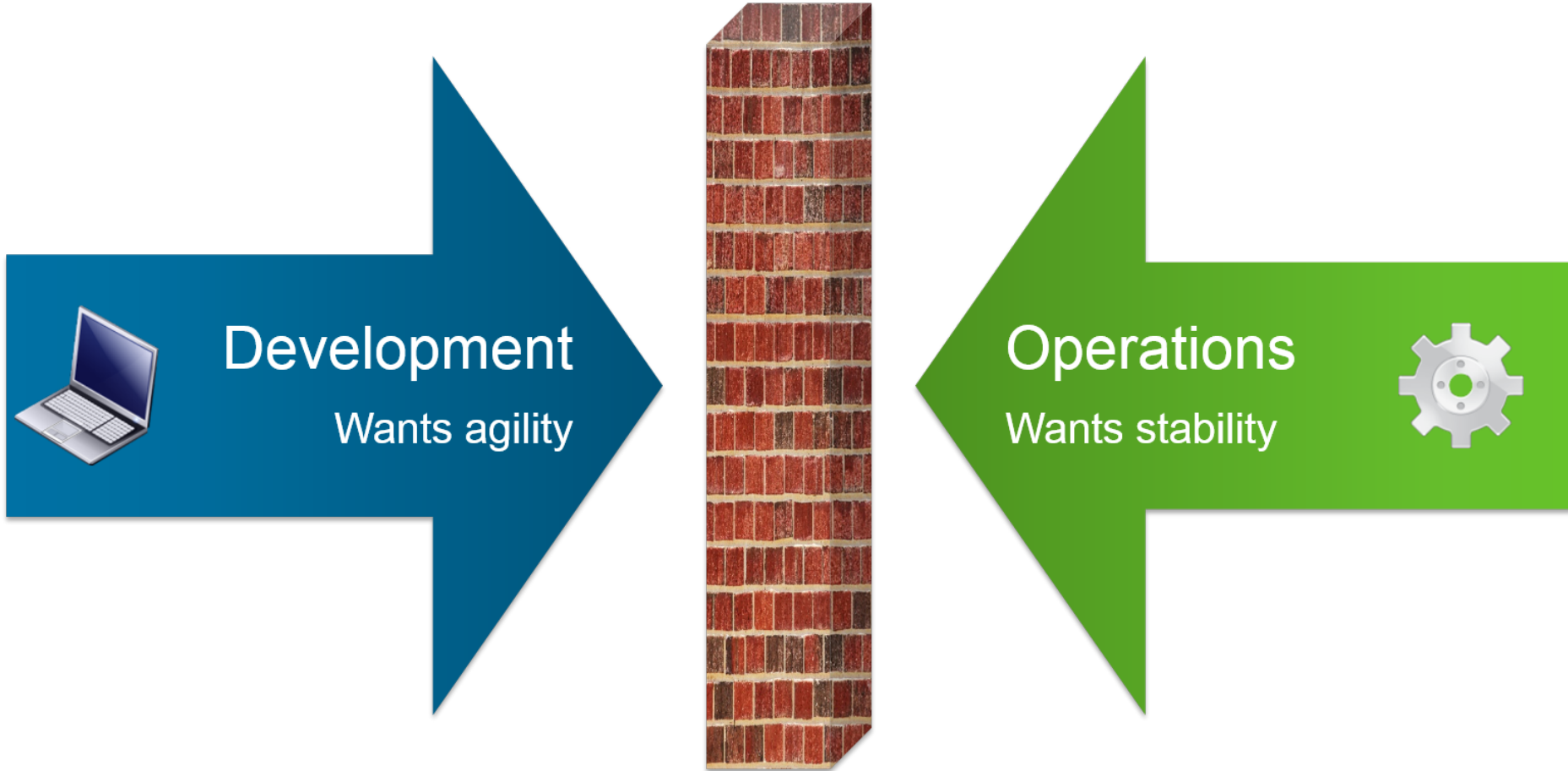
DevOps Perspective - DevOps
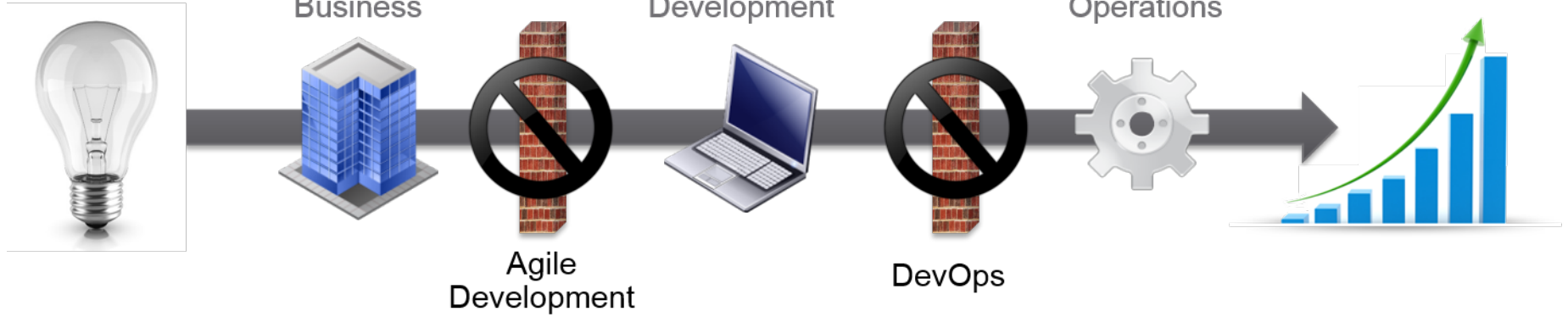
10. DevOps & Agile

- Product Vision
- Business Needs
- High Level Release Timelines

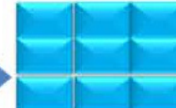**Product Backlog** — **Sprint Planning** — **Sprint Backlog** — **Sprint** — **Potentially Shippable Software**

| Envisioning | Initiation | Build and Test |

Operations

Take-over from Dev, Set up, Config, Installation

Production Support (L1, L2, L3)

Operations

- NFRs
- Infra provisioning
- Platform specific inputs
- Security / Firewall requirements
- Remote access constraints
- Back-up and Restore inputs
- Business Continuity inputs
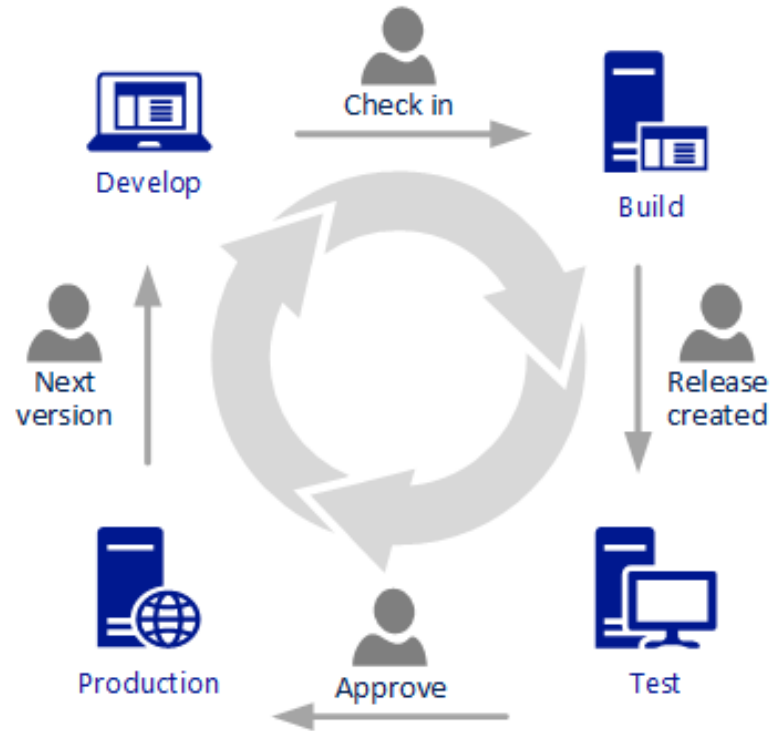- Disaster Recovery inputs

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11.Modern DevOps Toolset

- **Cloud Computing**
- **Virtualization**
- **Version Control**
- **Configuration Management**
- **Monitoring**
- **Continuous Integration**
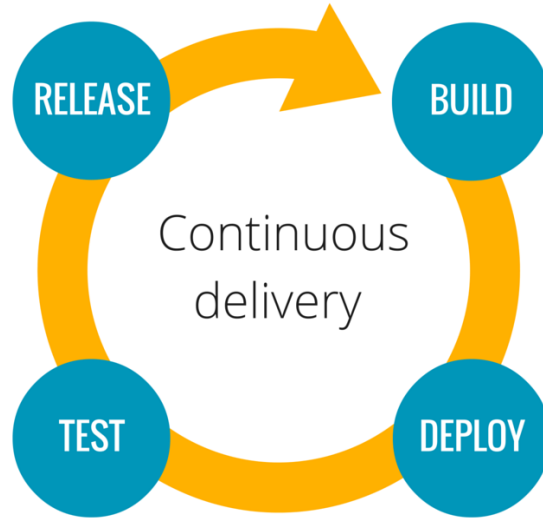- **Containerization**

12. Configuration Management
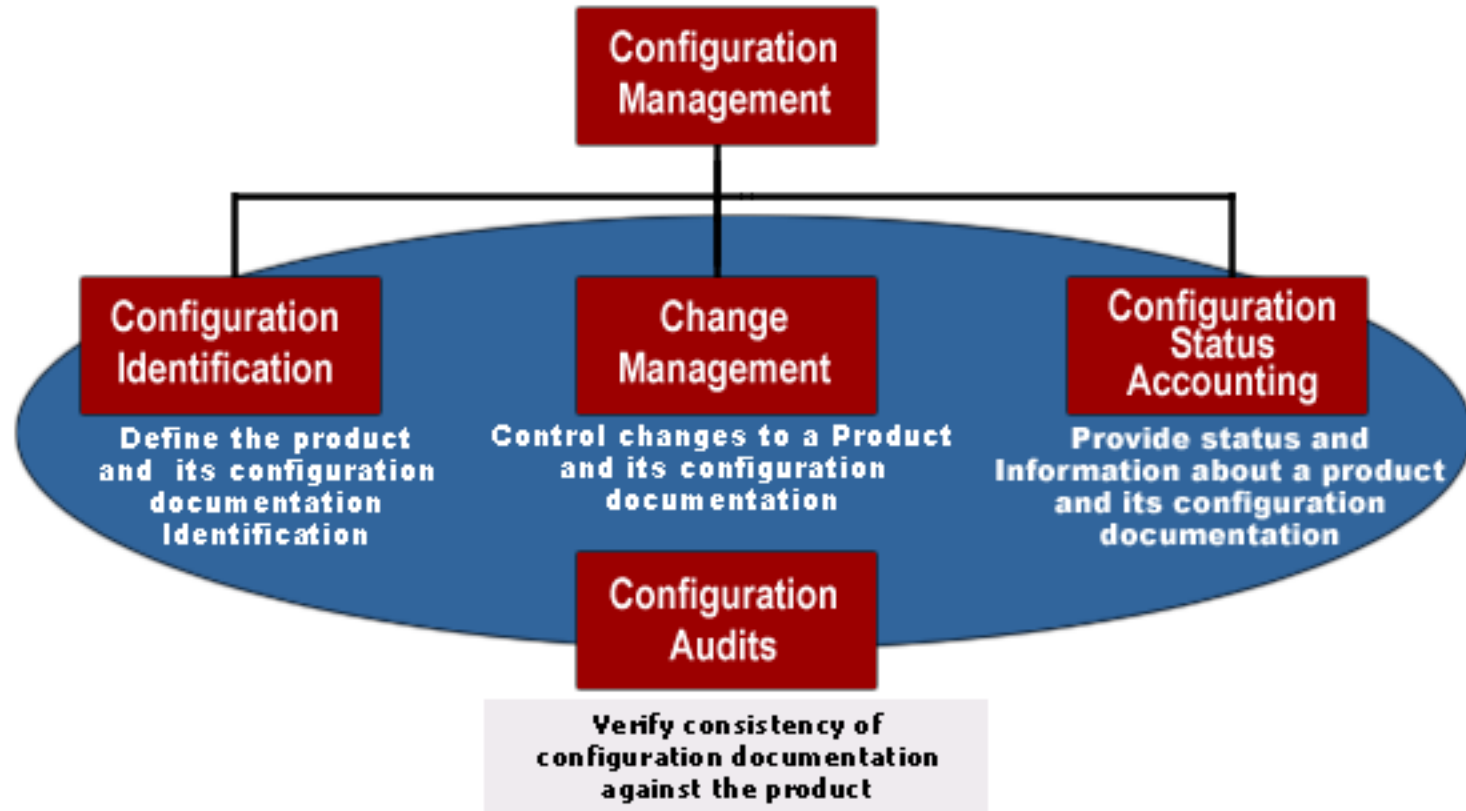
13. Continuous Integration & Deployment (CI/CD)

13. Continuous Integration

13. Continuous Delivery

13. Continuous Delivery V/S Continuous Deployment

For technical support:

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