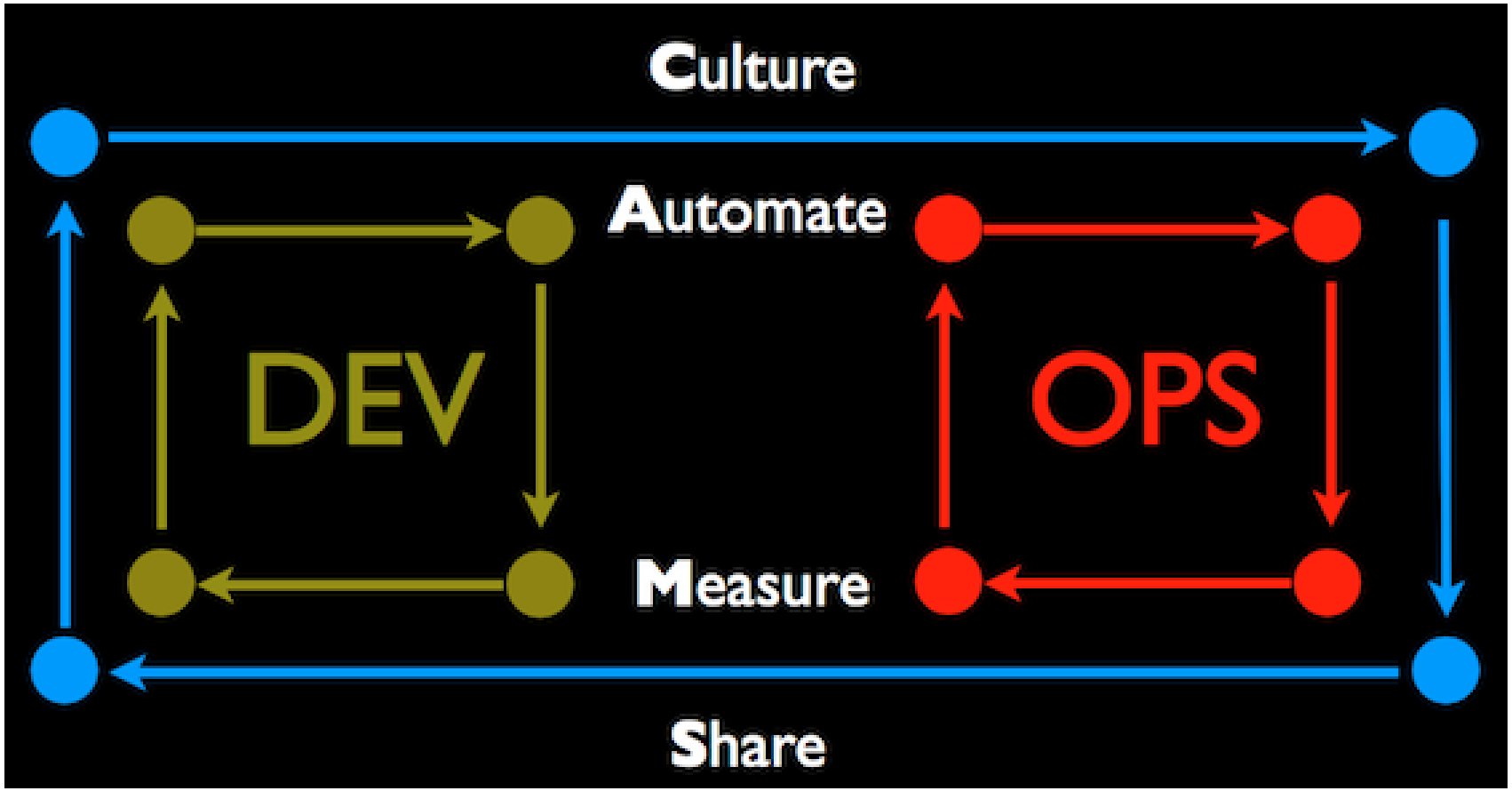
DevOps Framework in Practice



http://www.opscode.com/blog/2010/07/16/what-devops-means-to-me/

Business Agility – Typical Scenario

Businesses are under competitive pressure, narrow GTM window

lopment wants to add new features quick

Operations want stability

Customer's are loving our competitor's apps for those new features, I need the same on our app by next 30 days

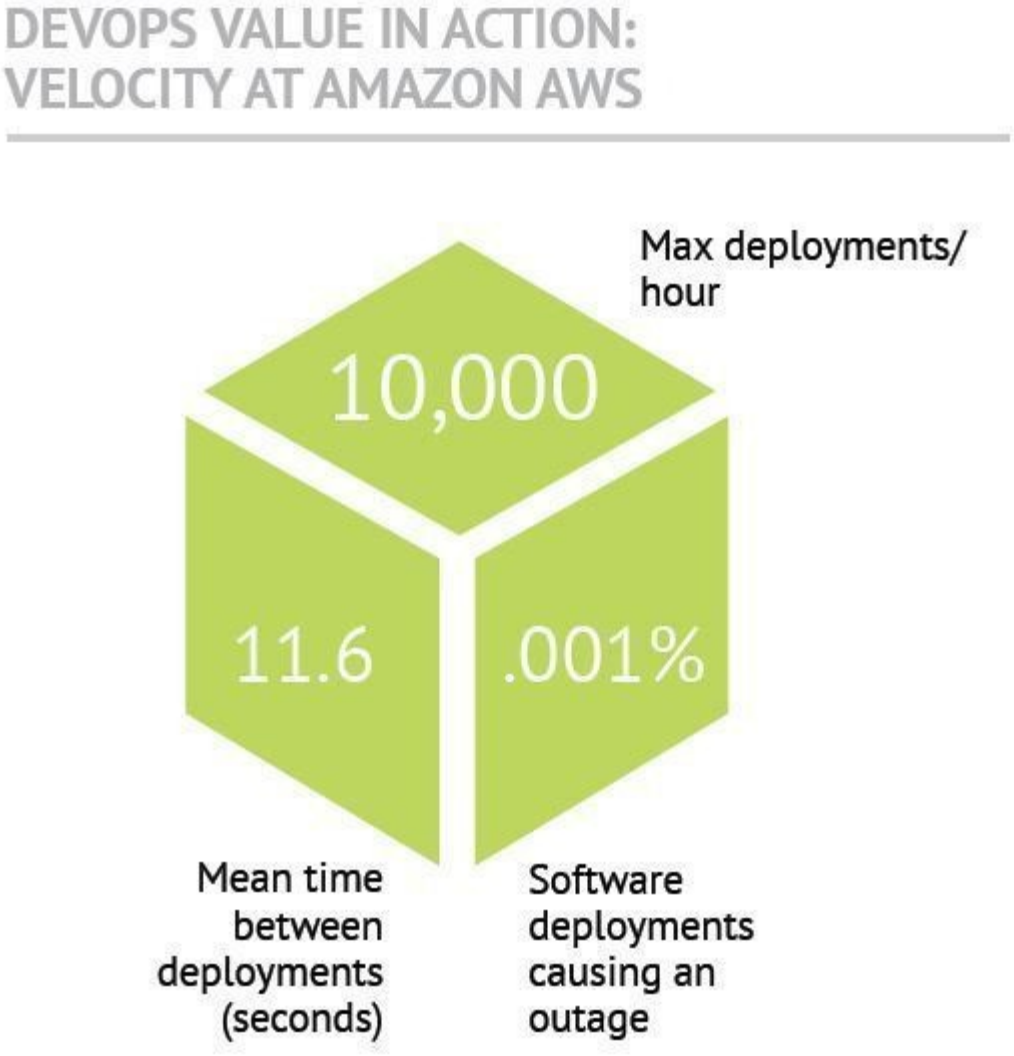
Done! In three weeks the development is complete!!

You Wish!! We will take six weeks to get servers and deploy

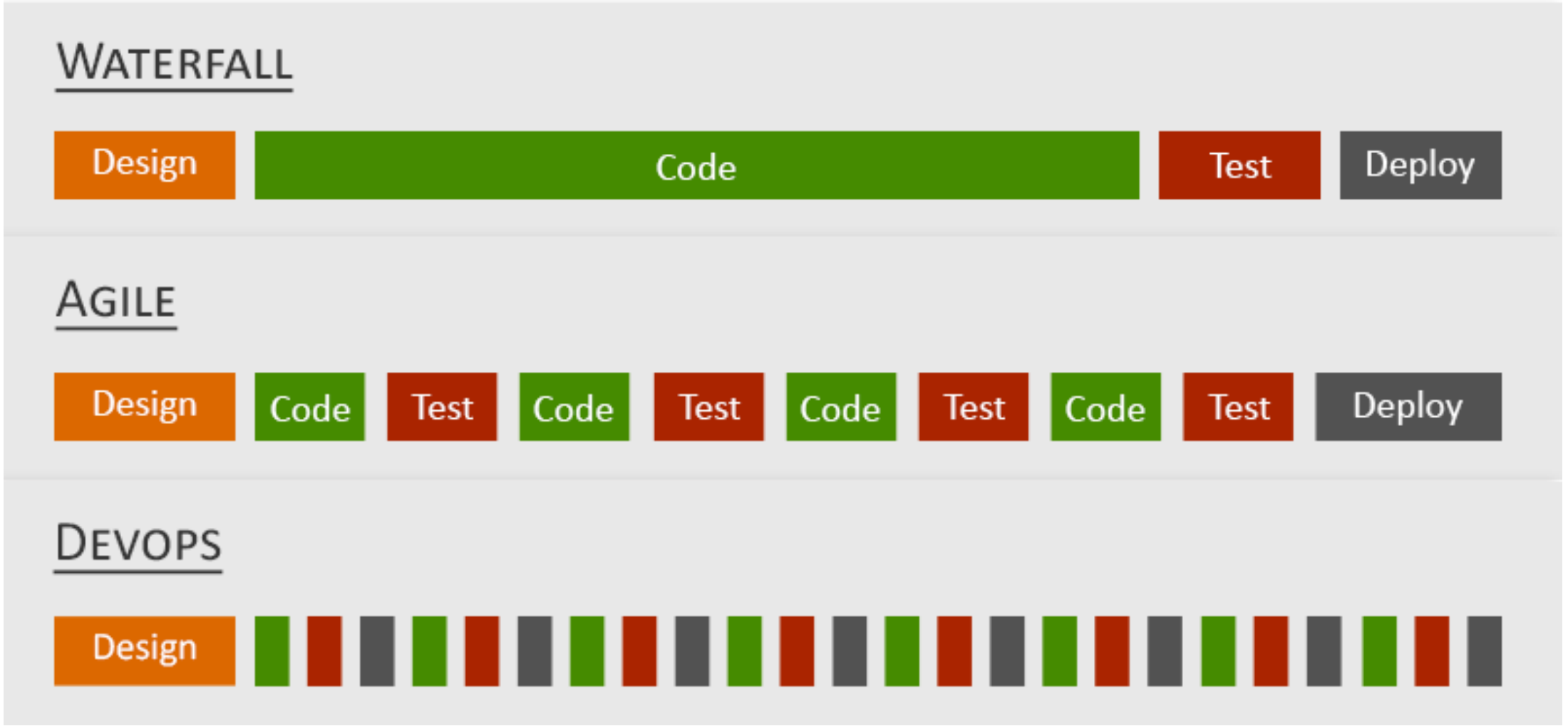
The biggest business problem in the new fully digitalized world is not the cost of IT operations or the DevOps team – it is the lost opportunity on not executing your business service delivery with enough quality and speed compared with the new breed of competitors attacking your business segment.

DevOps in Action

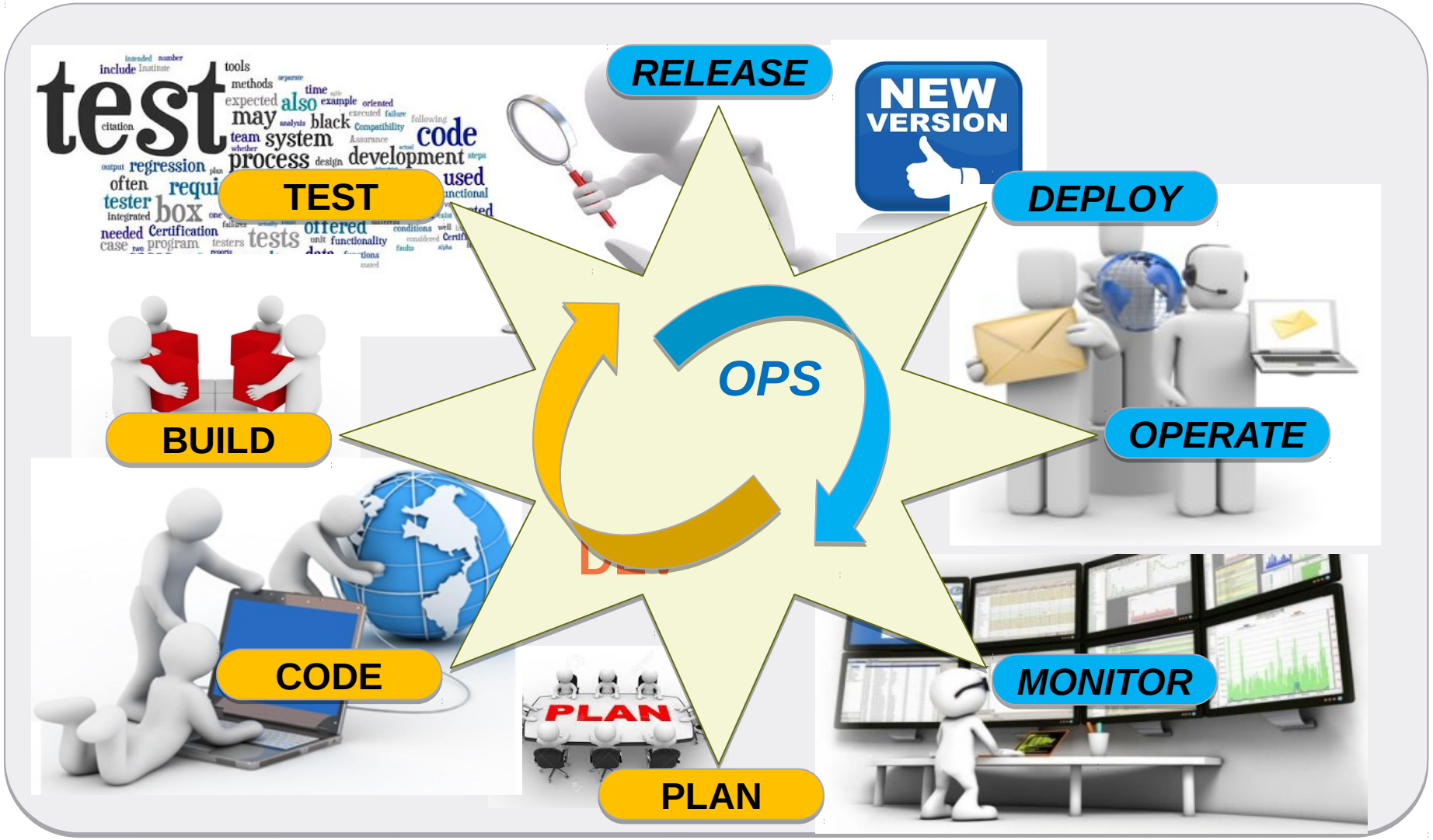
Company	Deploy Frequency	Deploy Lead Time	Reliability	Customer Responsiveness
Amazon	23,000 / day	minutes	high	high
Google	5,500 / day	minutes	high	high
Netflix	500 / day	minutes	high	high
Facebook	1 / day	hours	high	high
Twitter[2]	3 / week	hours	high	high
typical enterprise	once every 9 months	months or quarters	low/medium	low/medium



Project Execution Methodologies – The Change



DevOps Flow



- Agile breaks the wall between Business and Development team.
- DevOps breaks the wall between Development and Operations team.
- DevOps centers on the concept of sharing: sharing ideas, issues, processes

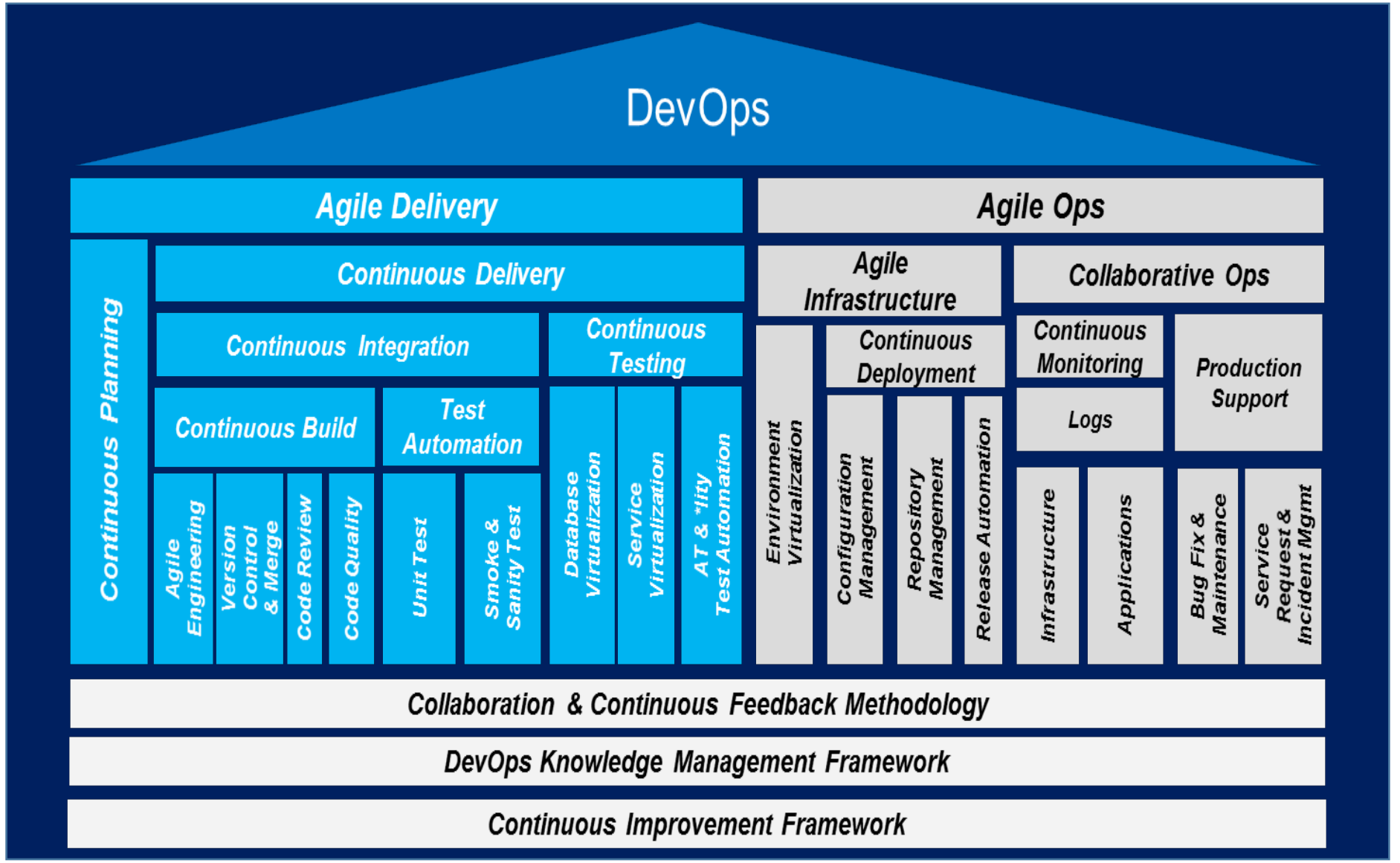
DevOps Basics

- **Dev** – People involved in developing product.
- **Ops** – System engineers, administrators, operations staff, release engineers, DBAs, network engineers and Security professionals.
- **Agile** Software Development – collaboration of customers, product management, developers and QA to fill in the gaps and rapidly iterate towards a better product.
- **DevOps** – extending Agile principles beyond the boundaries of “the code” to the entire delivered service.
- **Goal** of DevOps – span the entire delivery pipeline.
  - Improved deployment frequency
  - faster time to market
  - lower failure rate of new release
  - shortened lead time between fixes
  - faster mean time to recovery in the event of a new release crashing.

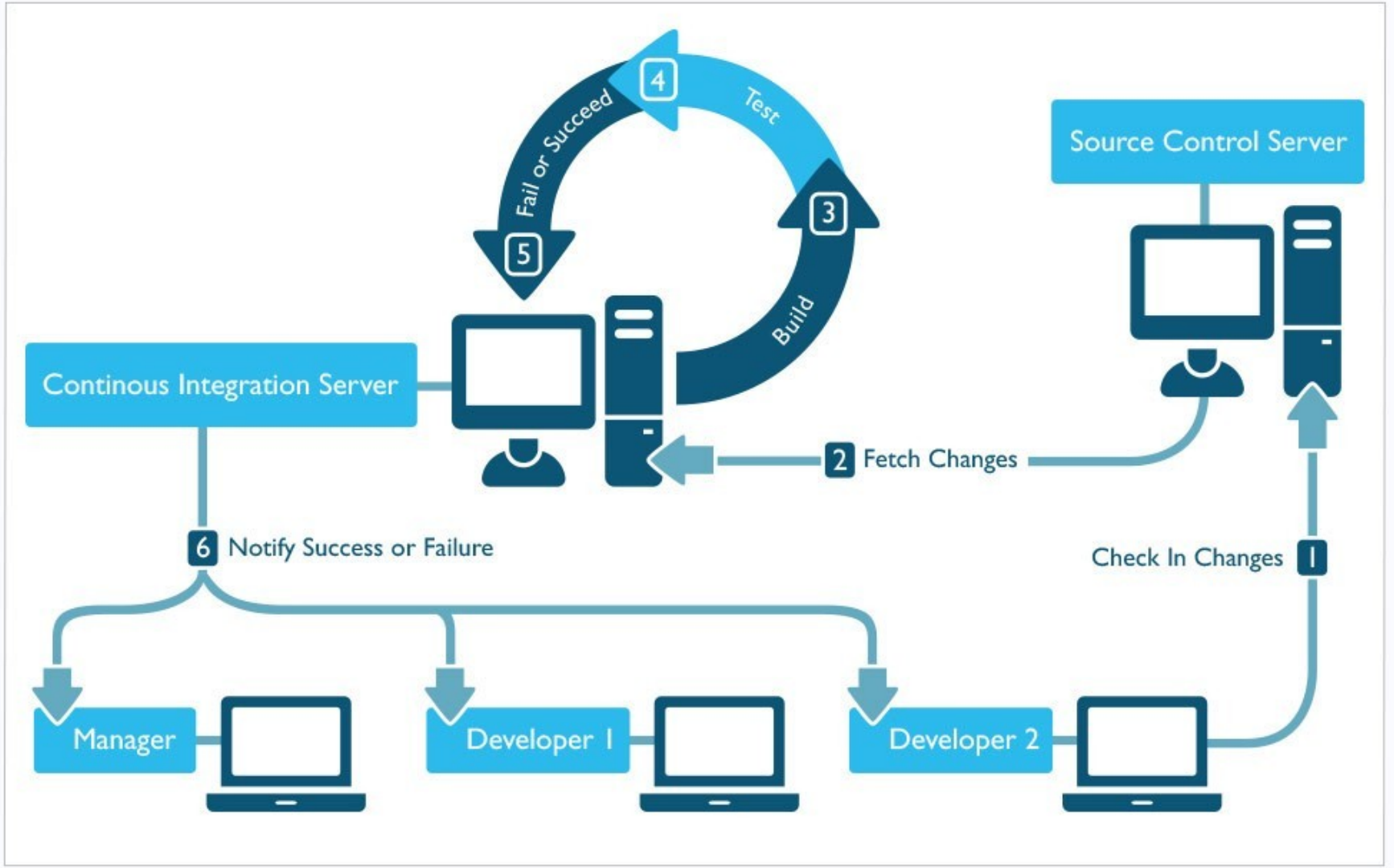
lead time - the time elapsed between the identification of a requirement and its fulfillment.

Mean time to failure is the length of time a system or application is expected to last in operation.

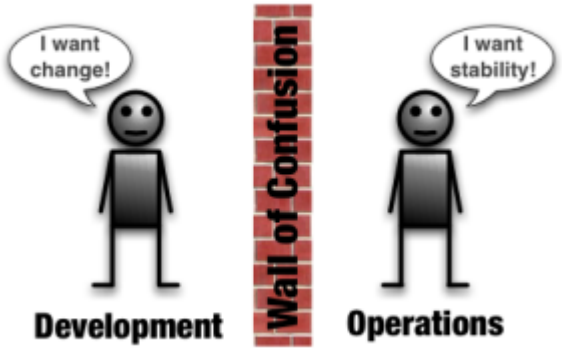
DevOps Architecture

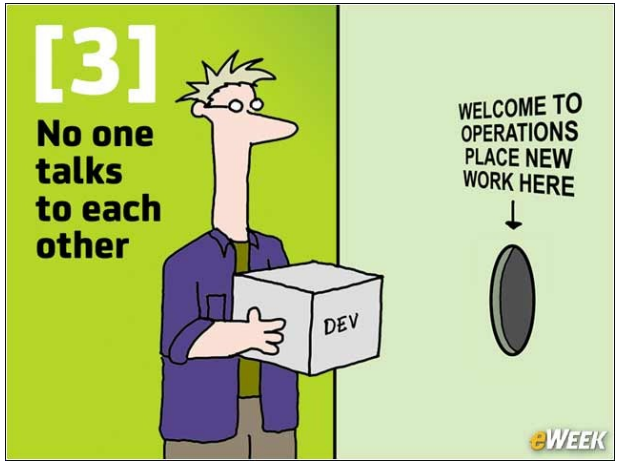


Software Development Life Cycle - Automation



DevOps Barriers



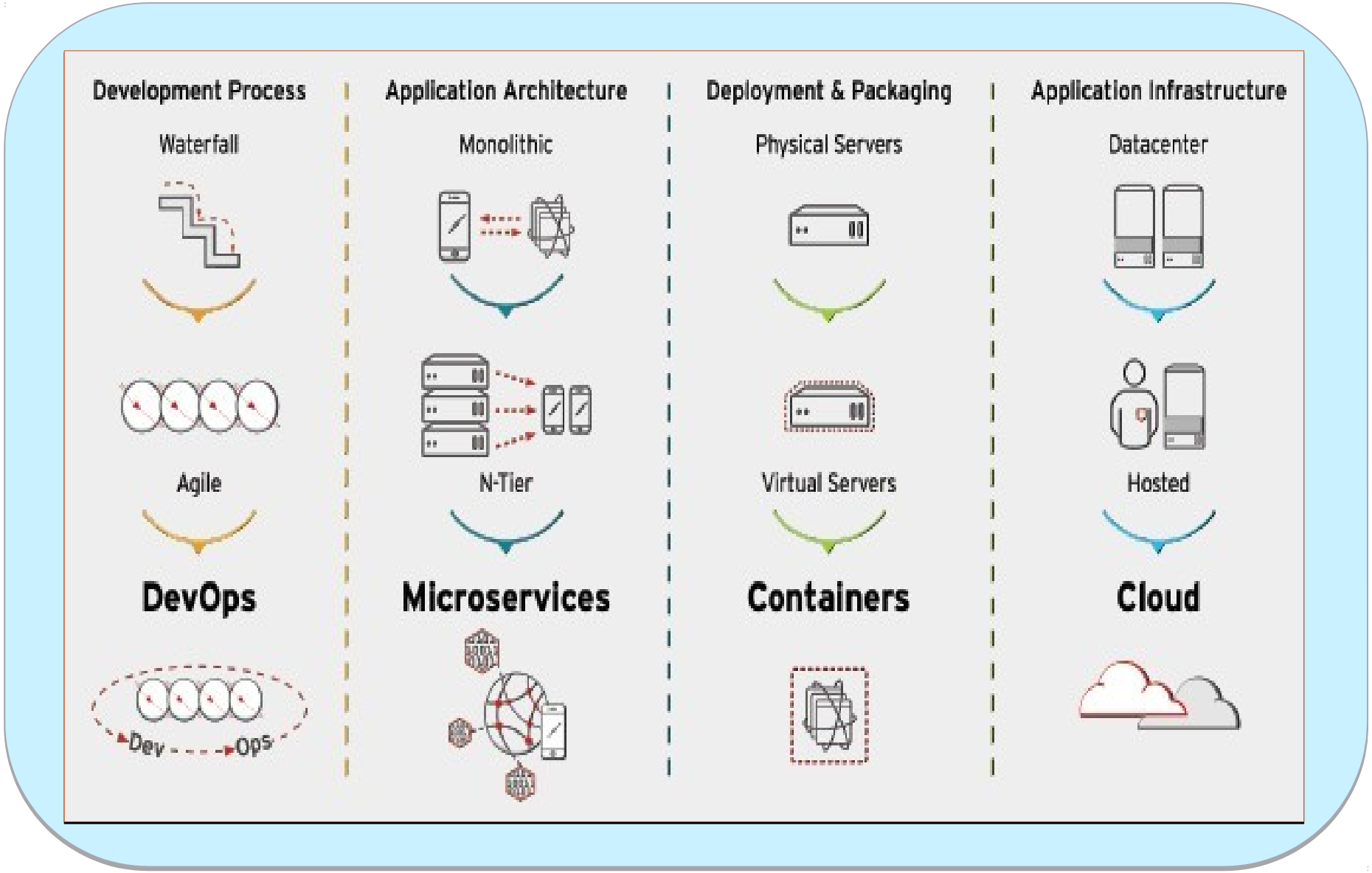


❖ This cultural change is made especially difficult because of the conflicting nature of departmental roles.

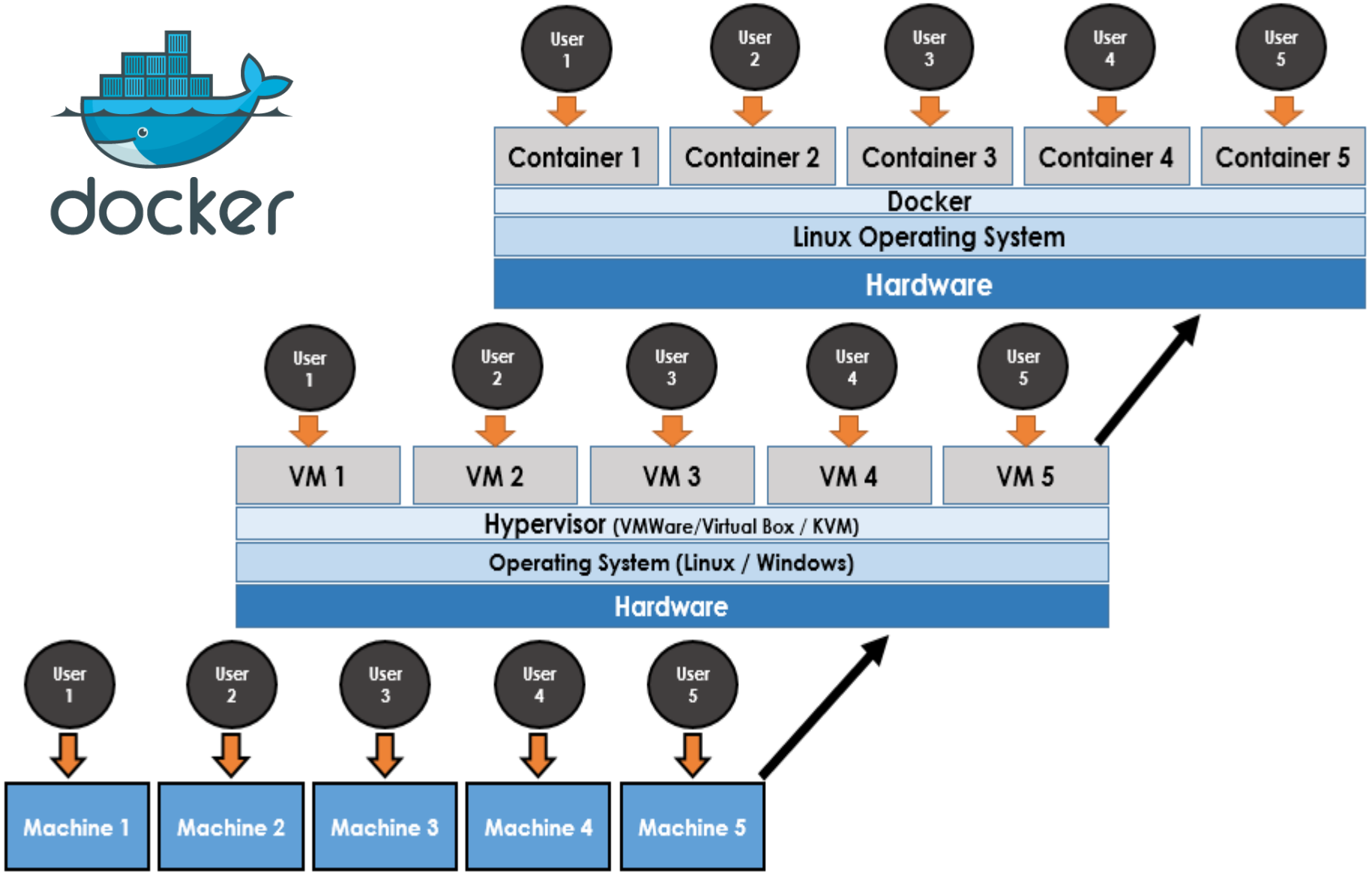
- ➢ Operations seeks organizational stability
- ➢ Developers seek change
- ➢ Testers seek risk reduction.

❖ Getting these people and opposing viewpoints to work cohesively is a critical challenge in enterprise DevOps adoption.

Enterprise Applications - Evolving Themes



Evolution of Infra Path

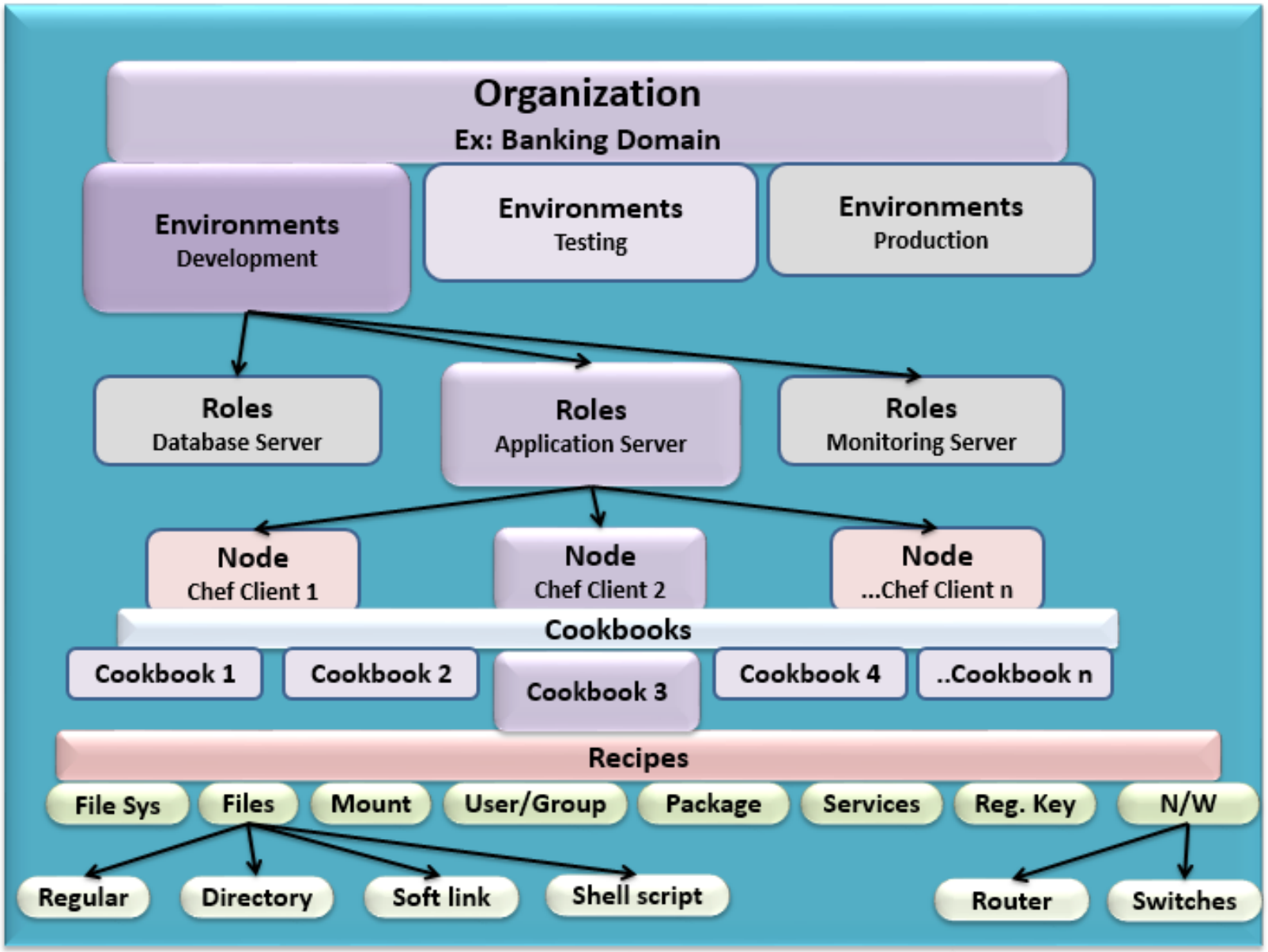


Infrastructure as Code

- CM enables ops to define their infrastructure in *code*
- Install packages, configure software, start/stop services
- Ensure a state of a machine
- Ensure policies and standards are in place
- Provide history of changes for a system
- Repeatable way of rebuild a system
- Orchestrate a cluster of services together

- Configuration management is the process of standardizing resource configurations and enforcing their state across IT infrastructure in an automated manner. Push Vs Pull

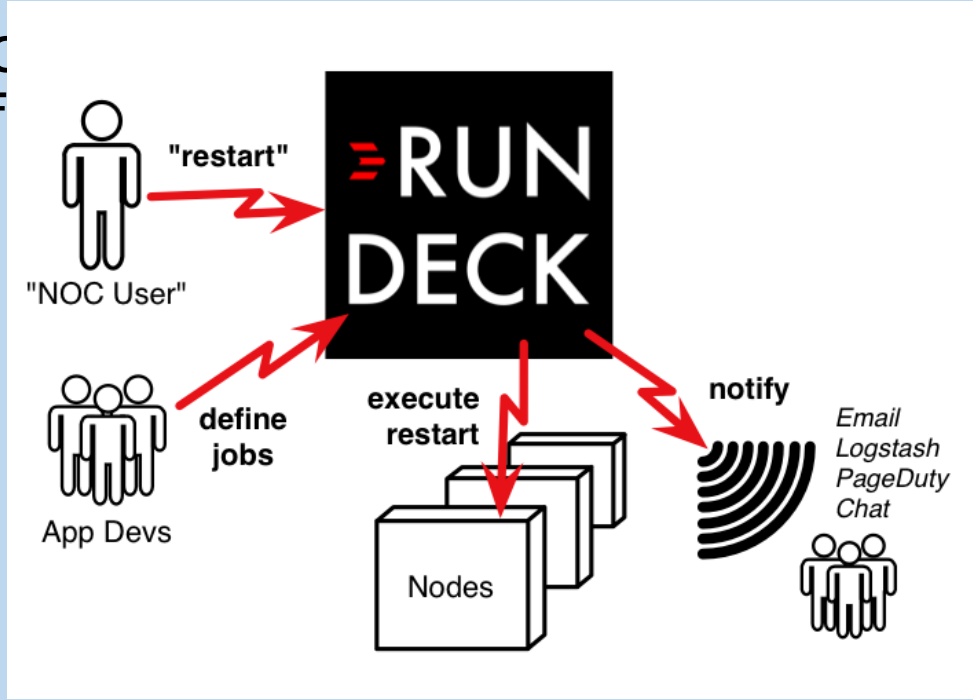
Configuration Management



RunDeck

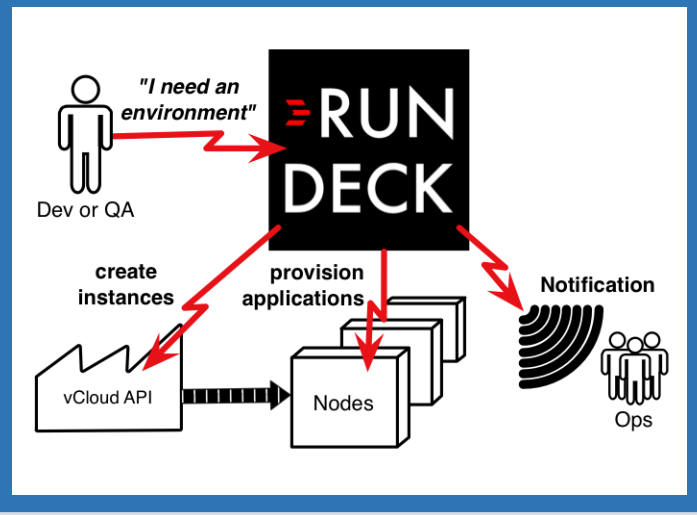
Centralized Runbook Automation System: RunDeck & Ansible Tower

- **Create a job** by defining a single step or a workflow that can execute any set of commands, scripts, or tools on any number of local or remote nodes.
- Jobs c uler or on-demand via the web interf

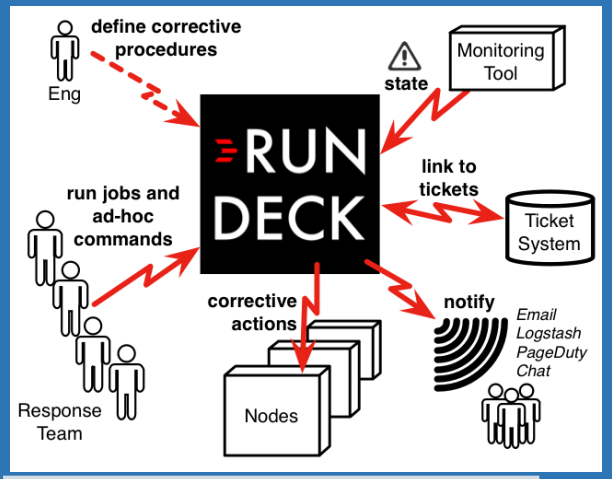


Share Standard Operating Procedures (Runbook Automation)

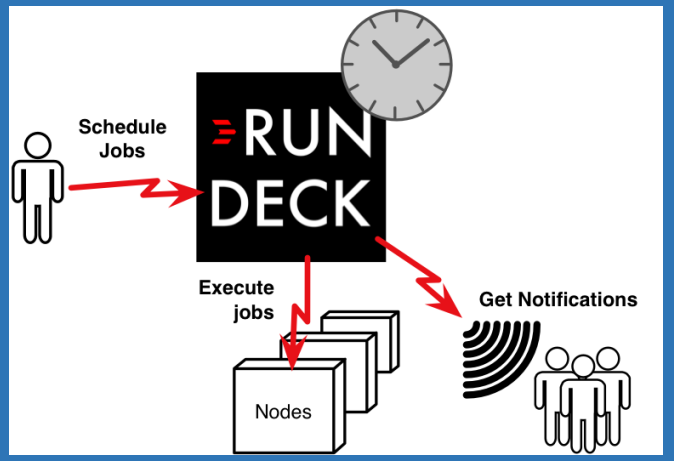
Rundeck



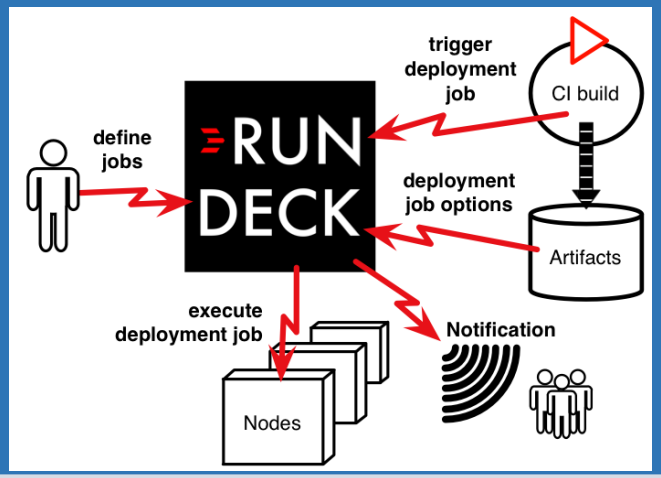
Self-Service Test Environments



Incident Response



Job Scheduler

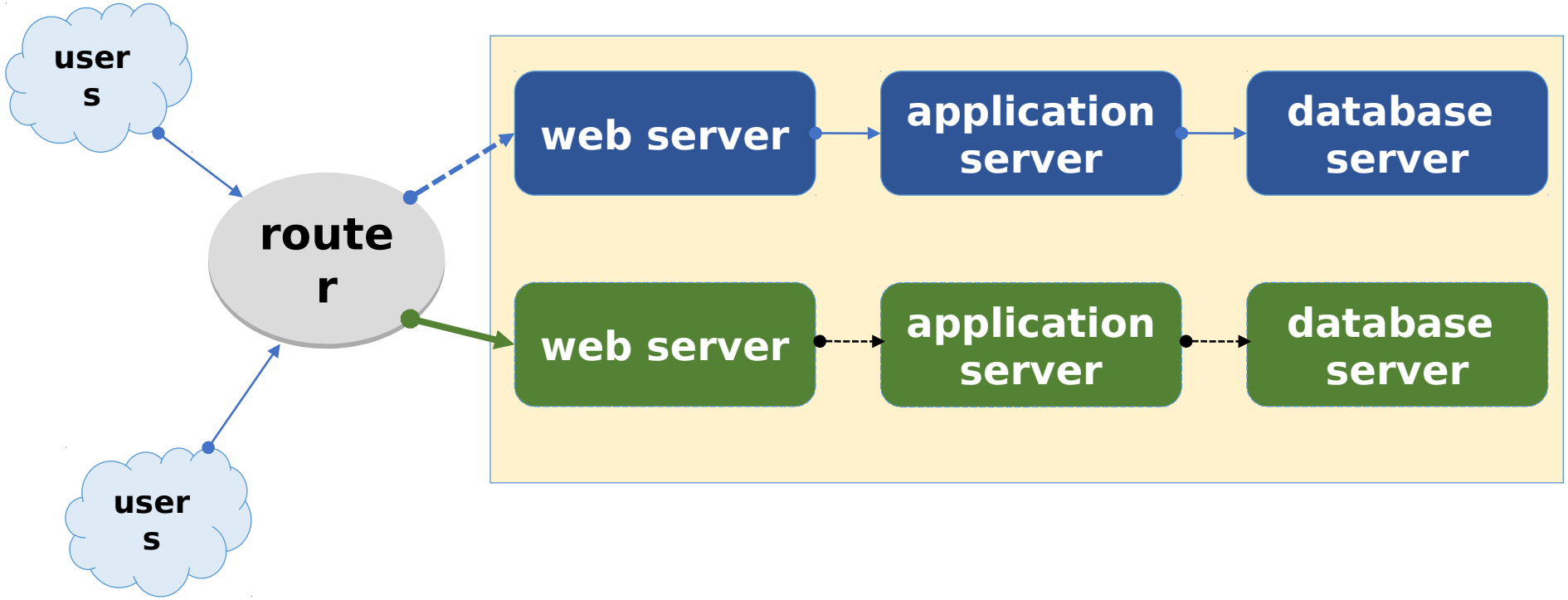


Automated Deployment After a Build

Who doesn’t need Continuous Deployment?

- When the application is large monolithic complex code with very high chances of getting broken due to frequent modifications (Complex SAP implementations)
- When business does not want to release every feature just as soon as they are ready but want to wait for certain reasons (Flipkart Big Billion Day Sale)
- When ITIL process supersedes DevOps process and mandates production releases to only follow a release calendar for ensuring better control on stability
- When there are production environmental changes which can not be automated but are dependencies of the application to be deployed

Blue Green Deployment Method



- **Blue-green deployment** is a release technique that reduces downtime and risk by running two identical production environments called **Blue** and **Green**.
- At any time, only one of the environments is live, with the live environment serving all production traffic.
- For this example, **Green** is currently live and **Blue** is idle.

DevOps Tools