What exactly is DevOps?

‘DevOps.’ It is nothing but the practice or methodology of making ‘Developers’ and the ‘Operations’ team work together.

(OR)

The word "DevOps" is a combination of the words "development" and "operation". This wordplay already serves to give us a hint of the basic nature of the idea behind DevOps.

(OR)

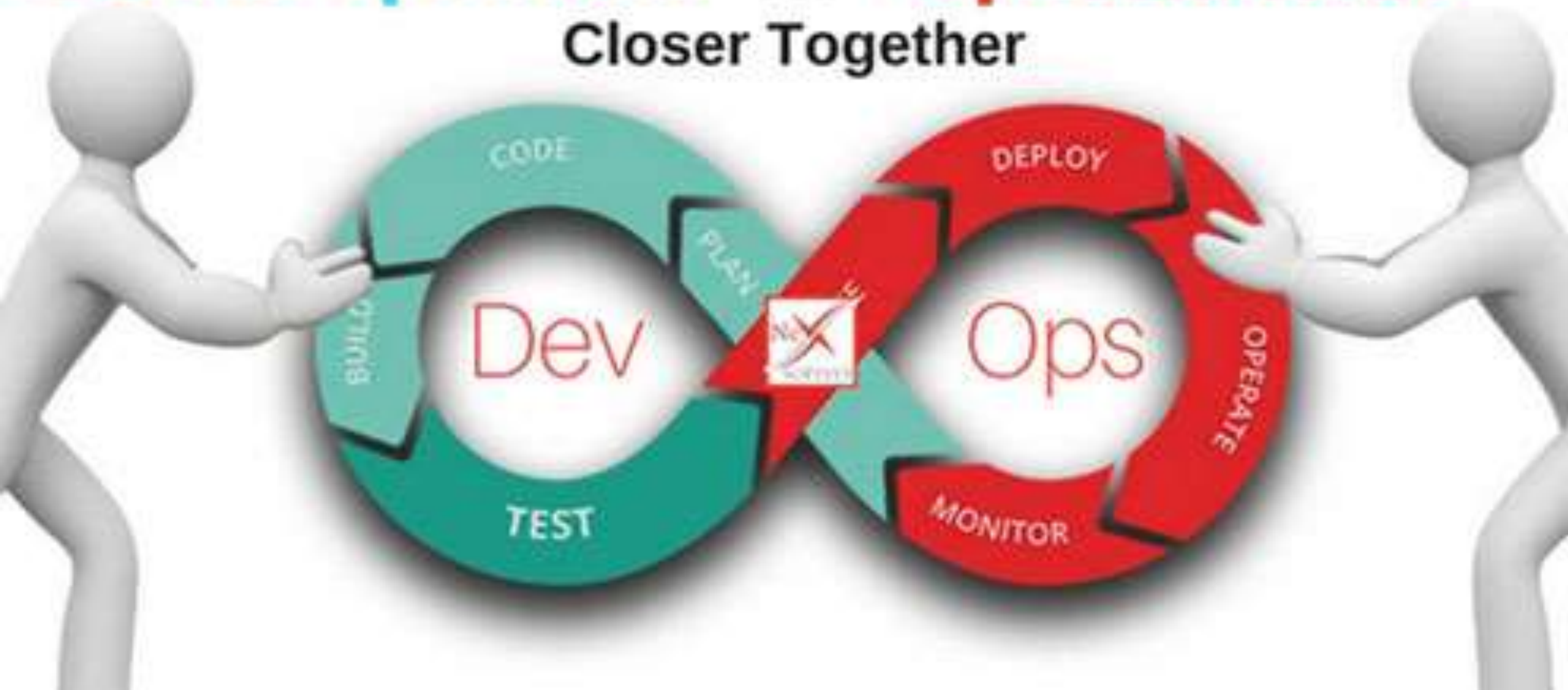
DevOps describes a culture and set of processes that bring development and operations teams together to complete software development

- It allows organizations to create and improve products at a faster pace than they can with traditional software development approaches.

Bringing

Development & Operations

Closer Together



History of DevOps

Before DevOps came into the limelight, our traditional ol' IT had two separate teams in an organization – the Development team and the Operations team.

The development team worked on the software, developing it and making sure that the code worked perfectly. After hours of hard work and a lot of trial and error, the team releases a code which has to be executed by the Operations team which is responsible for the release and operation of the code.

The operations team will be checking the application and its performance and reporting back any bugs, if present.

The concept of DevOps emerged out of a discussion between **Andrew Clay and Patrick Debois** in 2008. They were concerned about the drawbacks of Agile and wanted to come up with something better.

Agile refers to the continuous iterative approach, which focuses on collaboration, customer feedback, small, and rapid releases.


Before
Dev
OPS Team
CRASH
After

Simple example

For instance, let us say, the development team developed a code using an i7 processor, 8GB RAM, OS as Ubuntu, and php 5.6 scripting language, where as the Operations team ran the same code using i5 processor, 16GB RAM, OS as Centos and php 7.0 programming language.

When the operations team ran the same code, it wouldn't work.

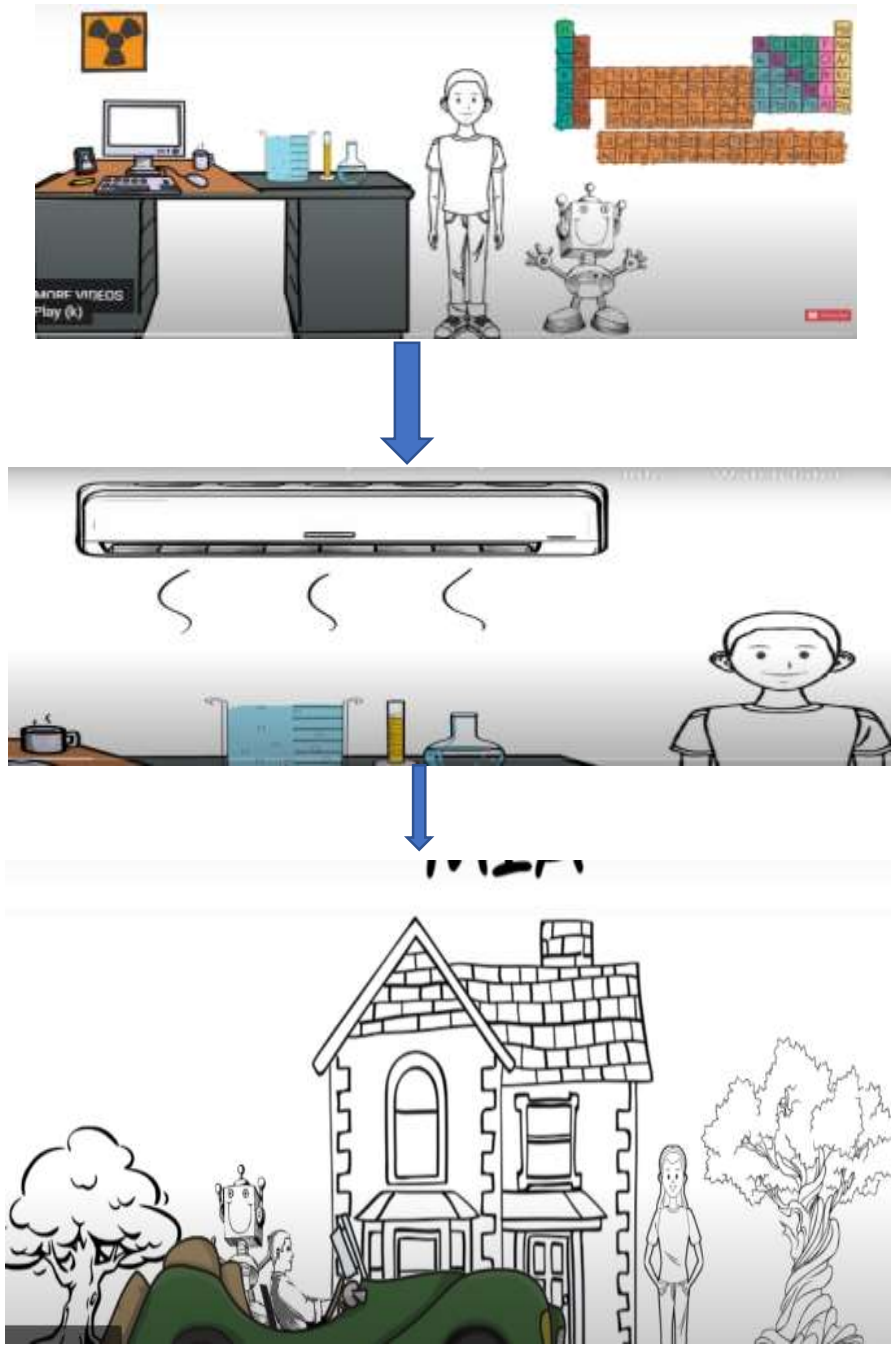
The reason for this could be the difference in the system environment or any missing software library.
The operations team flagged this code as faulty, even though the problem could exist in their own system. This resulted in a lot of back and forth between the Developers and the Operations team.

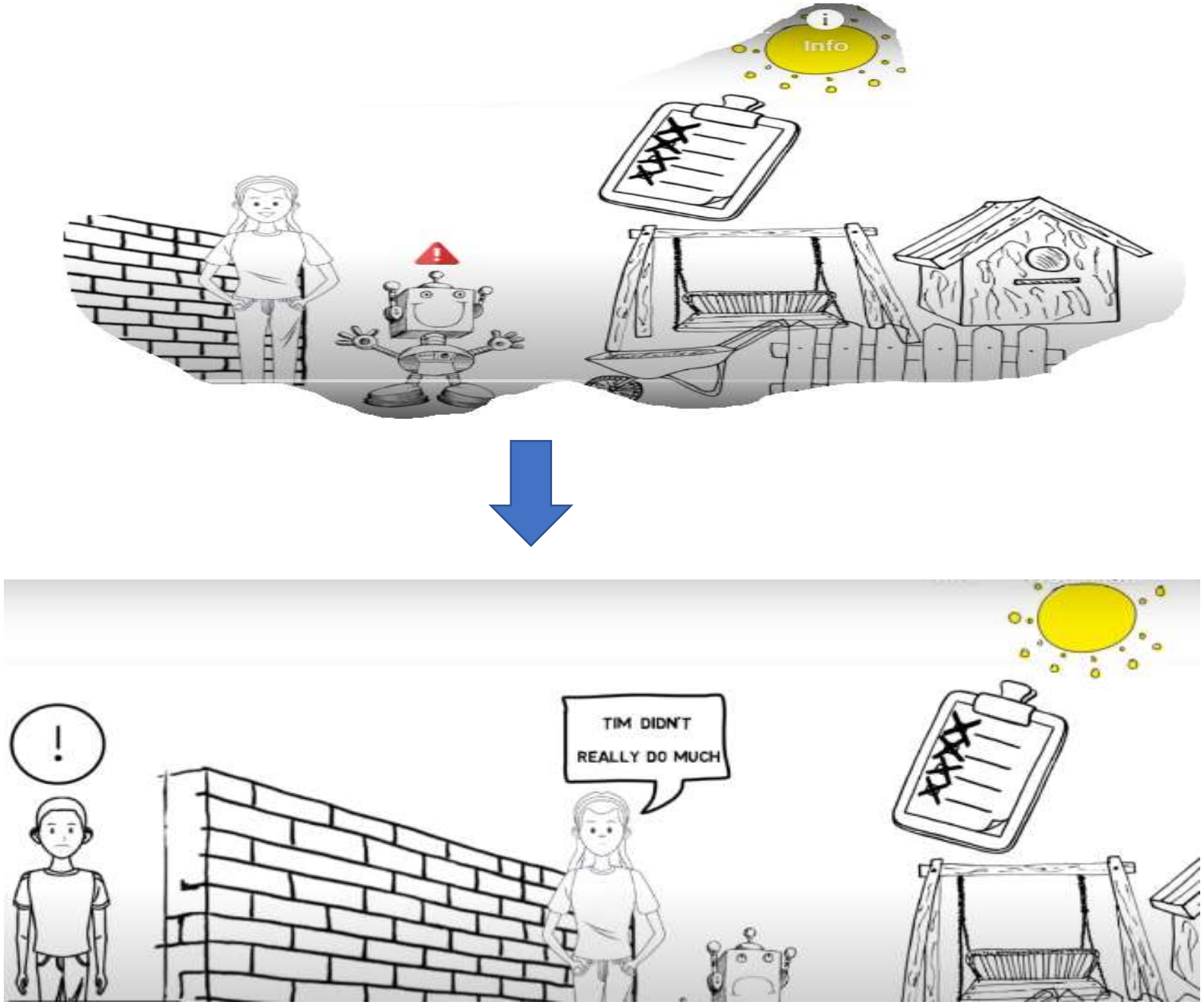
To bridge this gap, Development('Dev') team and Operations ('Ops') team collaborated giving rise to DevOps.
For example, to solve the above problem, the Development team encapsulated their code in a container which is a lightweight software environment.

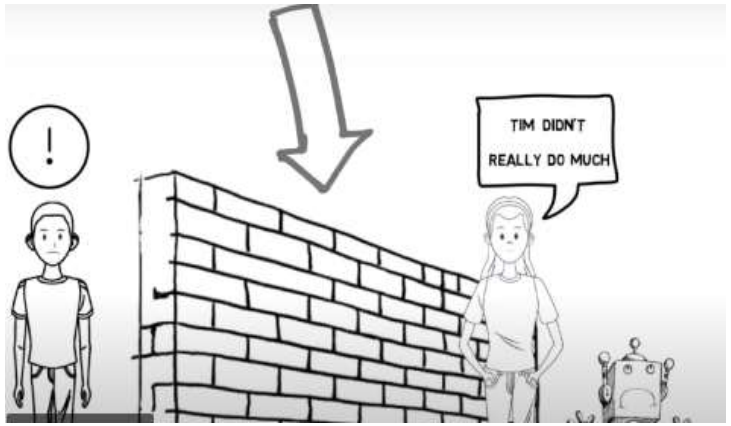
This software environment had all the required software encapsulated in it, which the code or the application will require to run as expected.

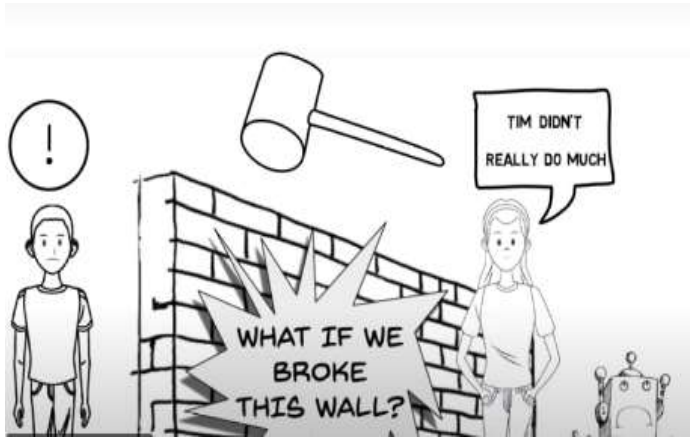
When the developers were done with their work, they would simply pass on this container along with the code to the operations team. The Ops will run this container, along with the code, and it worked as expected!

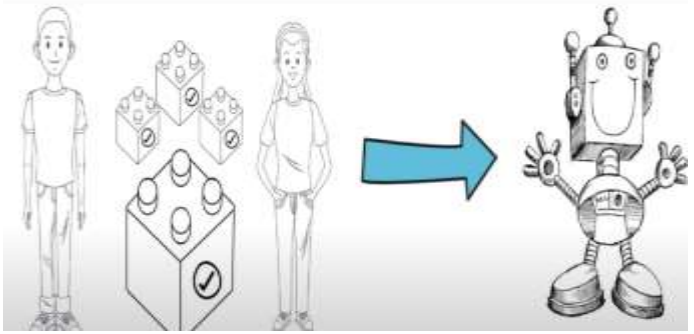
DevOps General Example

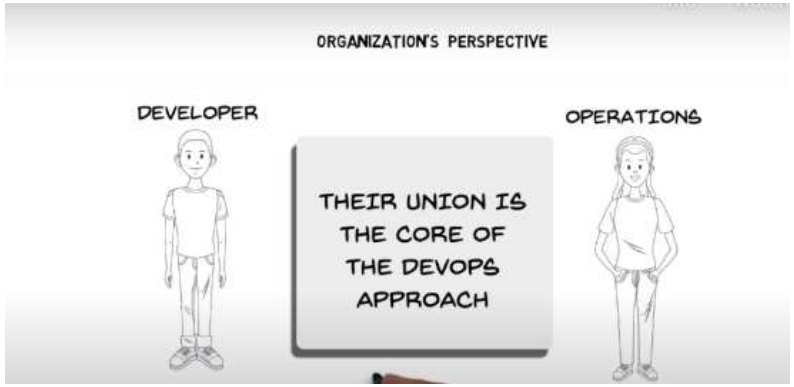


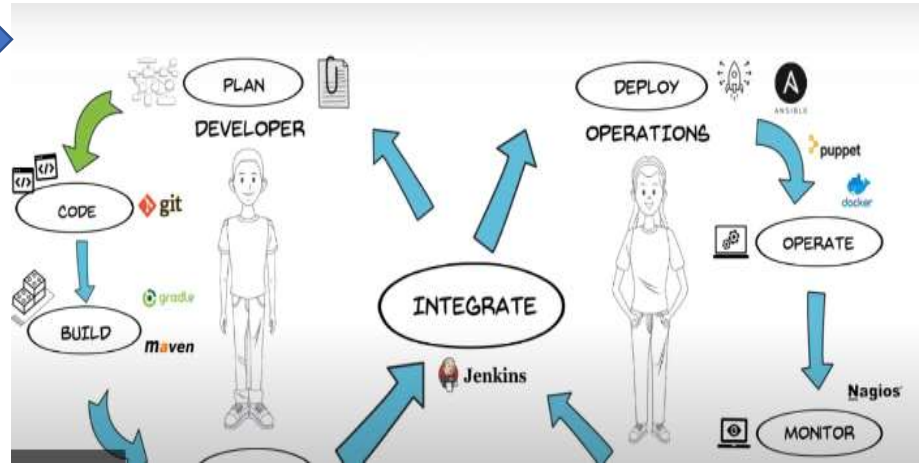

Info
XXXX
!
TIM DIDN'T
REALLY DO MUCH
XXXX


TIM DIDN'T
REALLY DO MUCH


TIM DIDN'T
REALLY DO MUCH
WHAT IF WE
BROKE
THIS WALL?




ORGANIZATION'S PERSPECTIVE
DEVELOPER
OPERATIONS
THEIR UNION IS THE CORE OF THE DEVOPS APPROACH


PLAN
DEVELOPER
CODE
git
BUILD
gradle
maven
INTEGRATE
Jenkins
DEPLOY
OPERATIONS
ANSIBLE
puppet
docker
OPERATE
Nagios
MONITOR


COMPANIES IMPLEMENTING DEVOPS
amazon
NETFLIX
Etsy
Walmart

Development Group:

The people who are involving
1) planning
2) coding
3) build
4) Testing are considered as **Development Group**.

Eg:

- **Business Analyst(BA) :** A **Business Analyst** is a person who helps businesses to analyze their processes, products, services, and systems to improve current processes and make profitable decisions through insights and data analysis.

- **System Analyst(SA) :**Systems analysts are problem solvers at heart. Their primary responsibility is to act as a link between an organization's IT and non-IT stakeholders, **designing or implementing the correct computer software, hardware, and cloud services to solve business problems**.

- **Design Architect(DA)**
- Design Architects **create plans and gather design requirements for new structures**. They may also be called upon to design alterations or repairs to existing buildings and structures. Their role is to focus on the style and look of the project while adhering to all building requirements and codes.

- **Build Engineer :** They are responsible for overseeing and ensuring timely software releases for organizations and may manage the software implementation process from development to execution.

- **Test Engineers/QA :** Software test engineers identify **and fix technical issues** across various aspects of a product, such as functionality, durability, safety, and speed, to ensure that the quality of the final product matches the quality guidelines and expectations set by the company.

- **Developers/coders :** Researching, designing, implementing, and managing software programs.

2) Operations Group:

The people who are involving

1) Release
2) Deploy
3) Operate
4) Monitor **are considered as Operations Group.**

Eg:

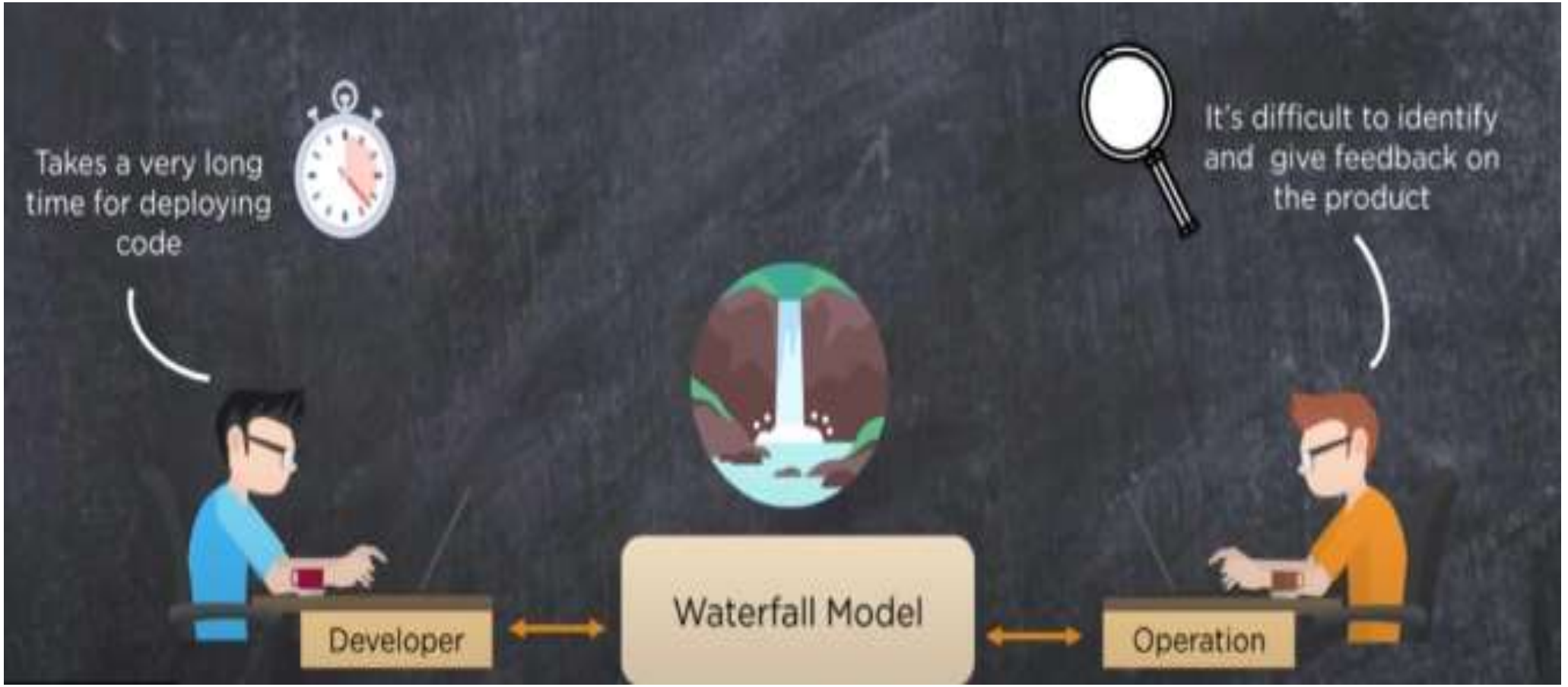
- **Release Engineers**
- **Configuration Engineer**
- **System Admin**
- **Database Admin**
- **Network Admin etc**

Operations Group responsibilities.. (Continued..)

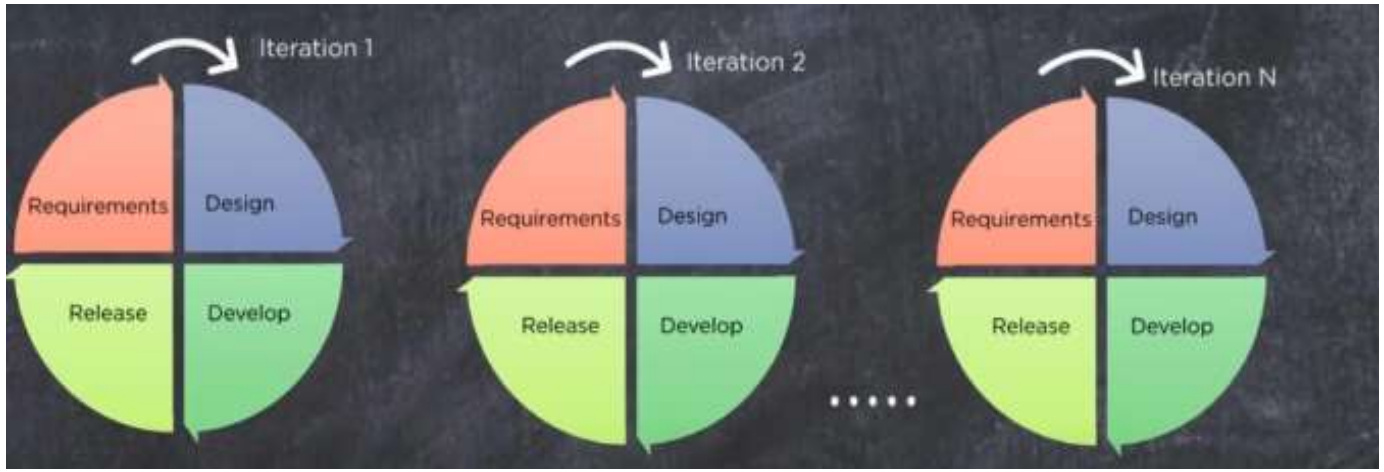
- Infrastructure provisioning covering both hardware and software - quickly and on-demand in order to support the development, testing, deployment, and maintenance of products or services
- automated and secure environments for change management
- Efficient monitoring and control of the systems
- Disaster recovery and outage management
- Compliance and security threat management There could be more functions that the Ops team does depend upon the size, complexity, and context of an enterprise but the typical ones should be the above.
- Infrastructure/Operating System and Hardware
- Desktop Packaging
- Database Vendor Products
- Onboarding Support Function

Why DevOps?

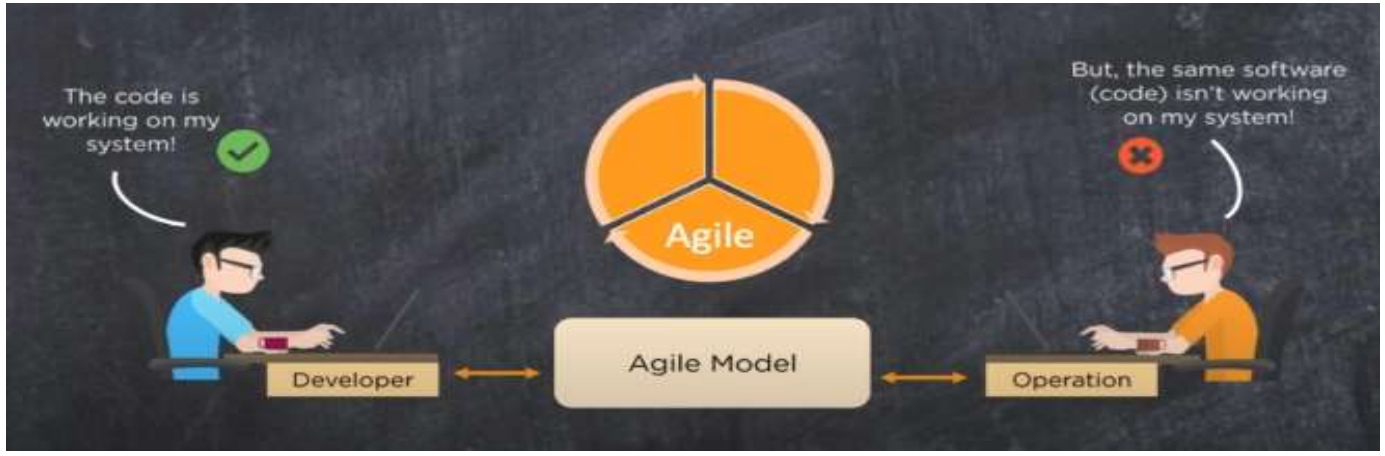
Before understanding the concepts and methodology of DevOps, we need to understand why do we even need DevOps? Why DevOps? Why not other methods?

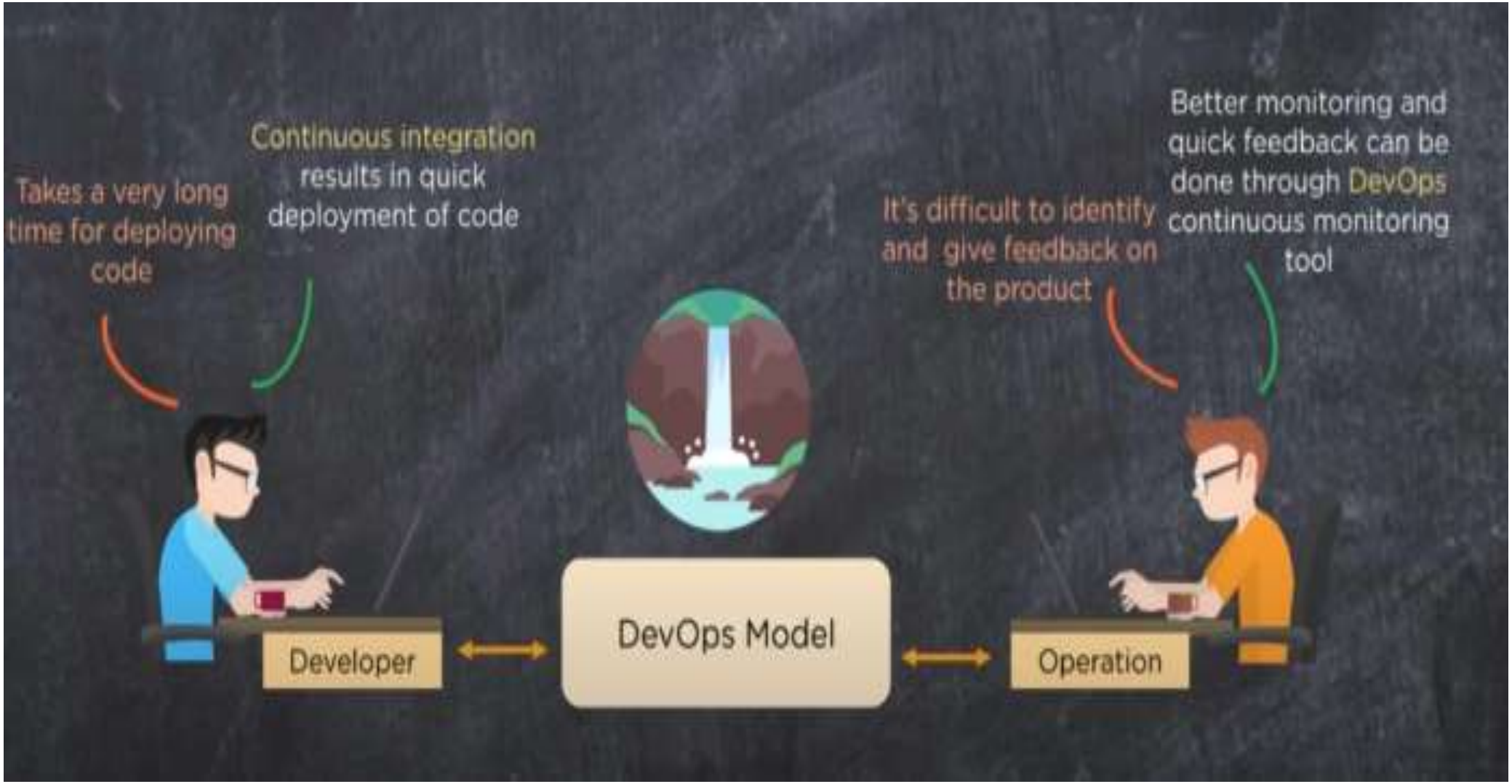


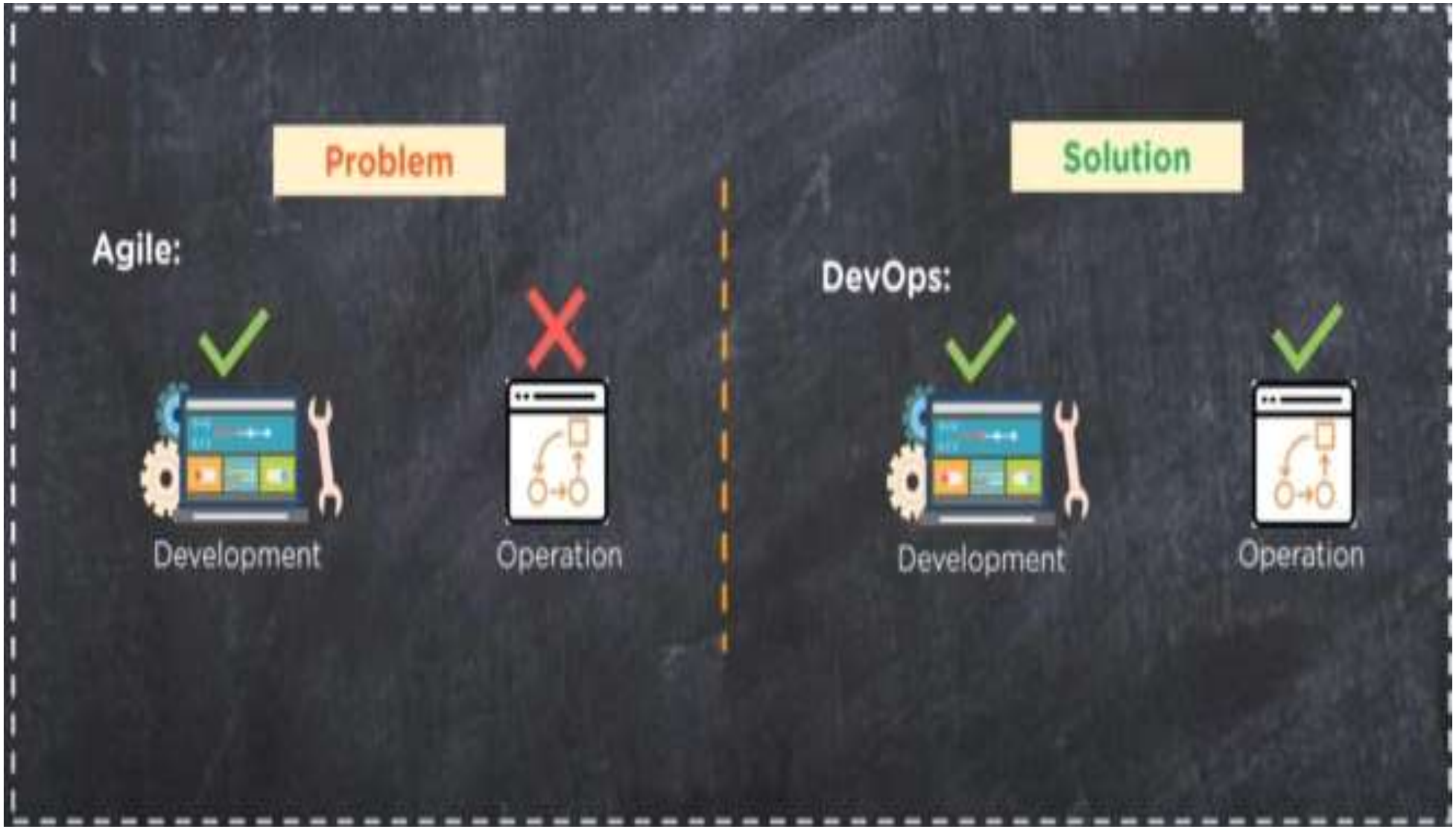
Agile:



- Agile is an approach in software development where each project is split into multiple iterations
- As a result, at the end of each iteration a software product is delivered




Takes a very long time for deploying code
Continuous integration results in quick deployment of code
It's difficult to identify and give feedback on the product
Better monitoring and quick feedback can be done through DevOps continuous monitoring tool
Developer
DevOps Model
Operation


Problem
Solution
Agile:
DevOps:
Development
Operation
Development
Operation