netmind
a bts company

06

CI/CD - Basics

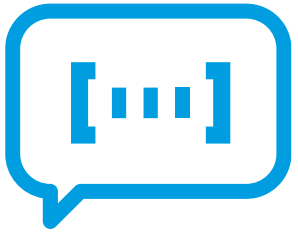
Objectives

In this module you will:

1. Learn the basic concepts of CI/CD
2. Understand the benefits compared with non automated solutions.
3. Learn to set up CI/CD pipelines using Jenkins.
4. Evaluate what kind of CI/CD pipeline is needed for a required product.
5. Understand the relation with Infrastructure as Code, GitOps and DevOps as Code.
6. Publish artifacts in Nexus.

netmind
a bts company

00



Welcome to pipelines World!

Delivering quickly and frequently

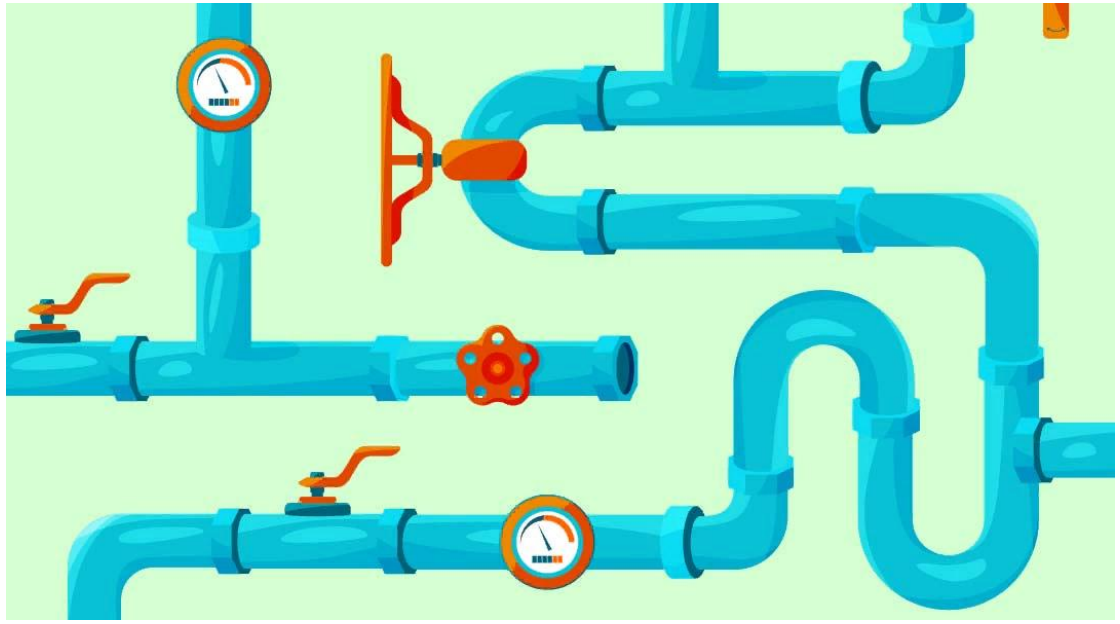


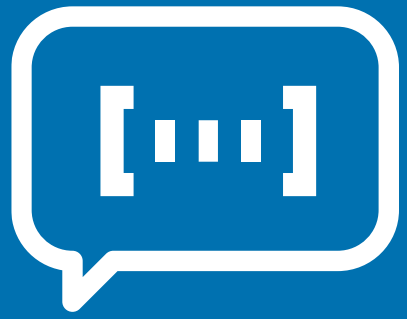
Image Source: devclass.com

As industries are looking for **digital transformation**, there arises a need to find ways to **enhance and accelerate the delivery** of new applications, services, and capabilities.

Companies across the world are **striving to seize the competitive advantages** of digital disruption.

Businesses are adopting **agile and digital transformation strategies** that help them to focus firmly on offering services in **less time while maintaining high quality**.

What is **the role of pipelines** in this scenario?



DISCUSSION

We don't like human slowness. How can we automate the app delivery?

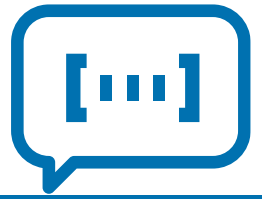
OBJECTIVE

Get insights about delivery workflow

INSTRUCTIONS

1. Think about the process an app follows from the point when code is ready and the app is delivered to final user.

2. **Meet** with your partner and try to answer **these questions**:
   - **How many times in a year do you think an app should be delivered?**
   - **How should those moments be like?**
   - **How do we mix code from the various developers? Where?**
   - **Must the whole functionalities be finished to deliver an app?**
   - **Should we go from the developer computer to the production server?**



3. Use post-its to **gather** the ideas.
4. **Prepare** to share your insights with the rest of the class.

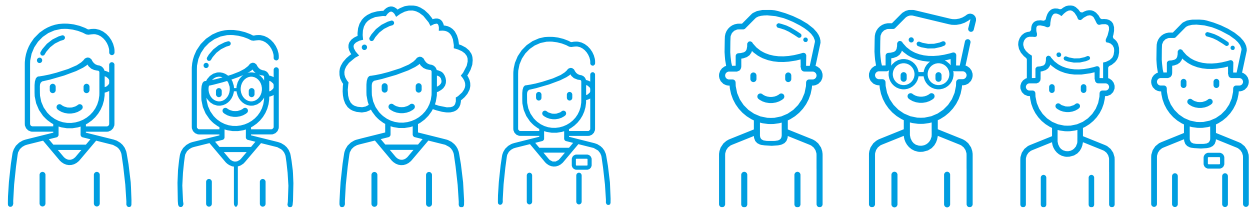
10 min

OBJECTIVE

Share your insights!

INSTRUCTIONS

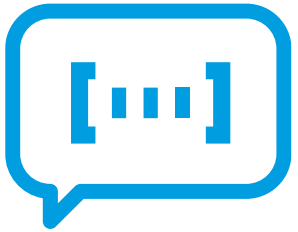
1. **Share** your insights with the rest of the class.
2. Generate **common conclussions**.



15 min

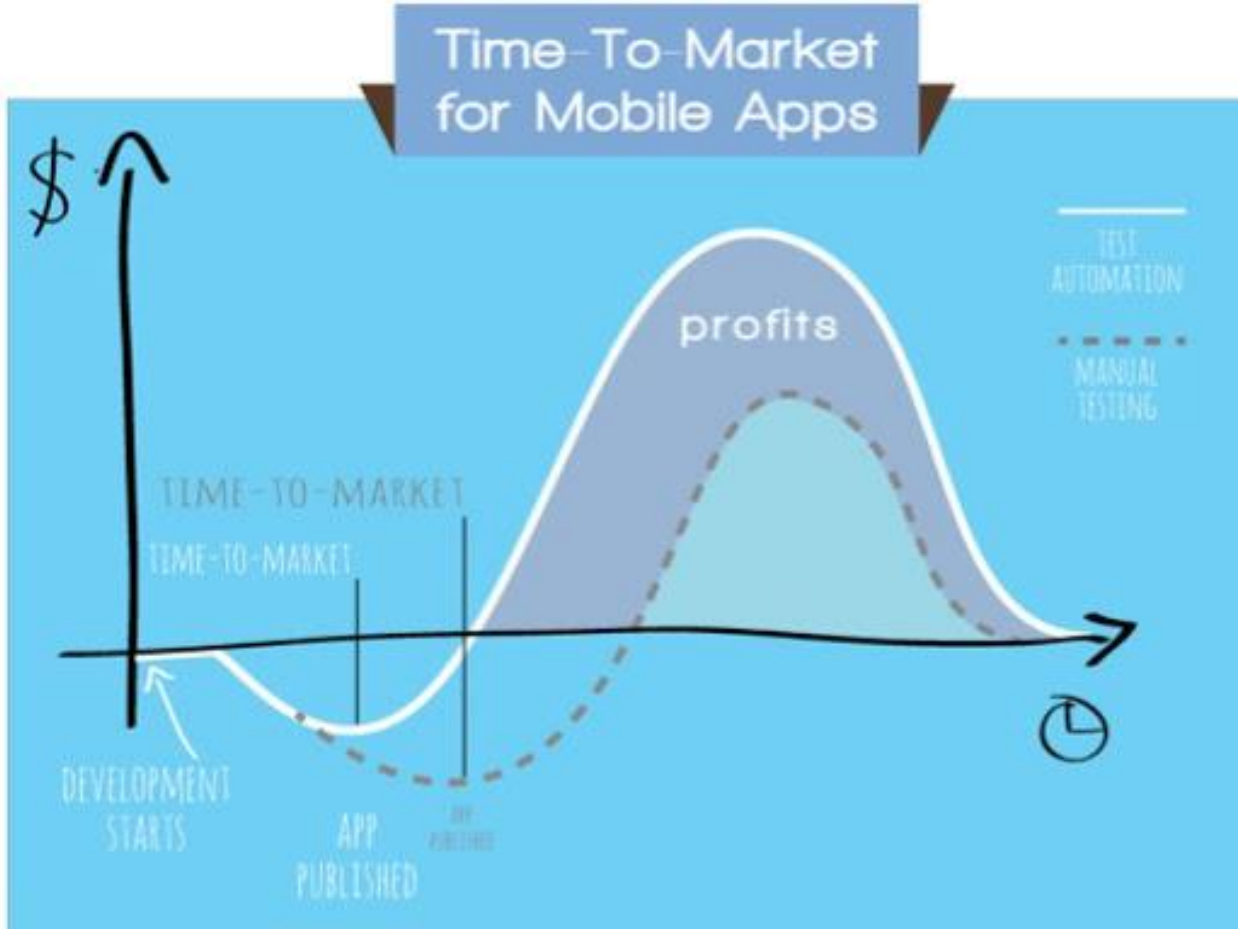
netmind
a bts company

01



CI/CD...

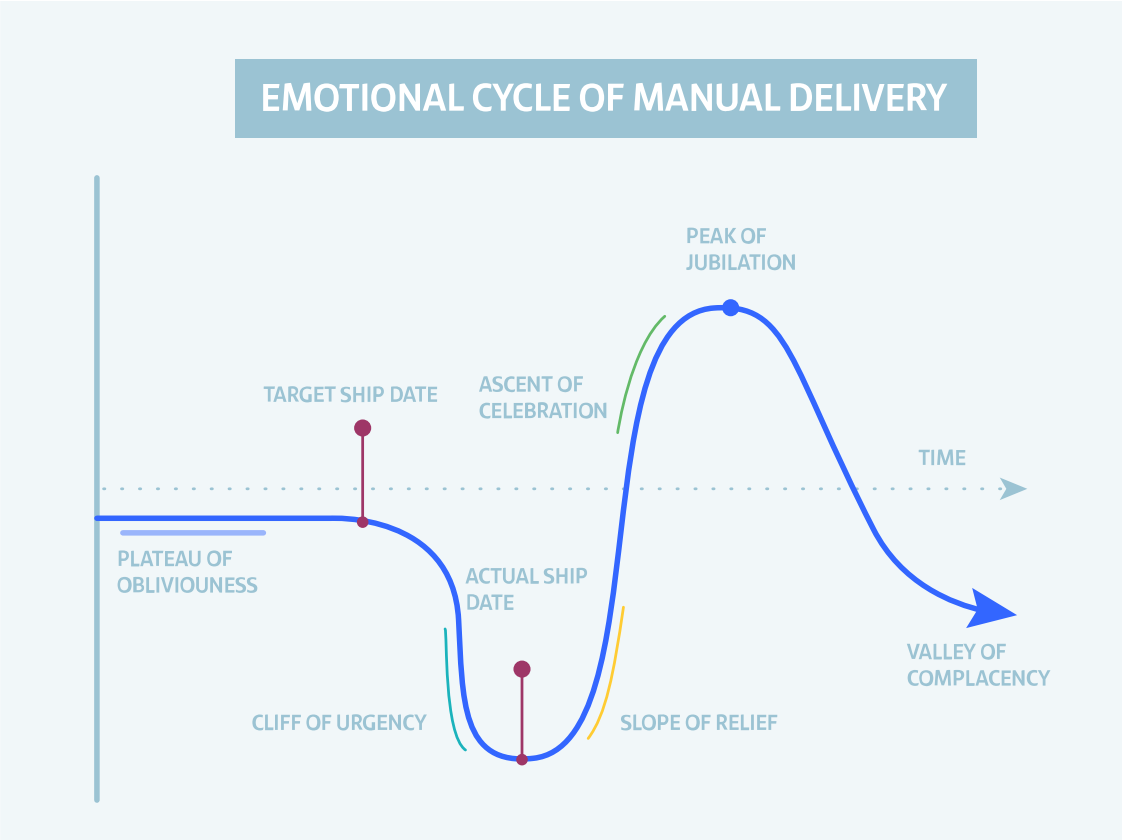
The need for speed



"software is eating the world"

With a low Time-to-market, organizations have a better chance to outmaneuver their competition and stay in business.

Manual releasing

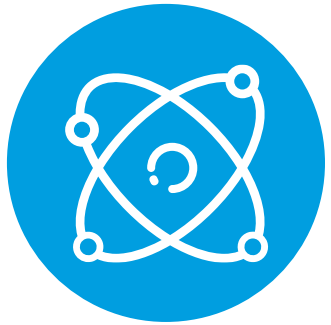


If your team is still living with manual testing to prepare for releases and manual or semi-scripted deploys to perform them, your feelings may be closer to "dread" and "blinding rage".

Moving toward continuity

- **In the continuous paradigm, quality products are released frequently and predictably to customers.**
- Therefore, the ceremony and the risk around releasing is reduced.
- **This is achieved through an automated delivery pipeline**
- If you're relying on your pipelines daily, you will notice (and resolve!) its deficiencies much quicker than if they flow once every few weeks or months.
- That is, reduce difficulty by increasing frequency of your product releases.
- So, **continuity is tightly related to automated tasks**. Let's examine how.

Continuity traits



Velocity

Automated software delivery pipelines help organizations respond to market changes better. Nowadays we have tools to automate almost every process in the delivery pipeline.

Productivity

Productivity increases when tedious and repetitive tasks, like filling out a bug report for every defect discovered, can be performed by pipelines instead of humans.

Sustainability

Consistently staying ahead of the pack can be even harder. It takes discipline and rigor. Working hard 24/7 will lead to premature burnouts.

CI/CD

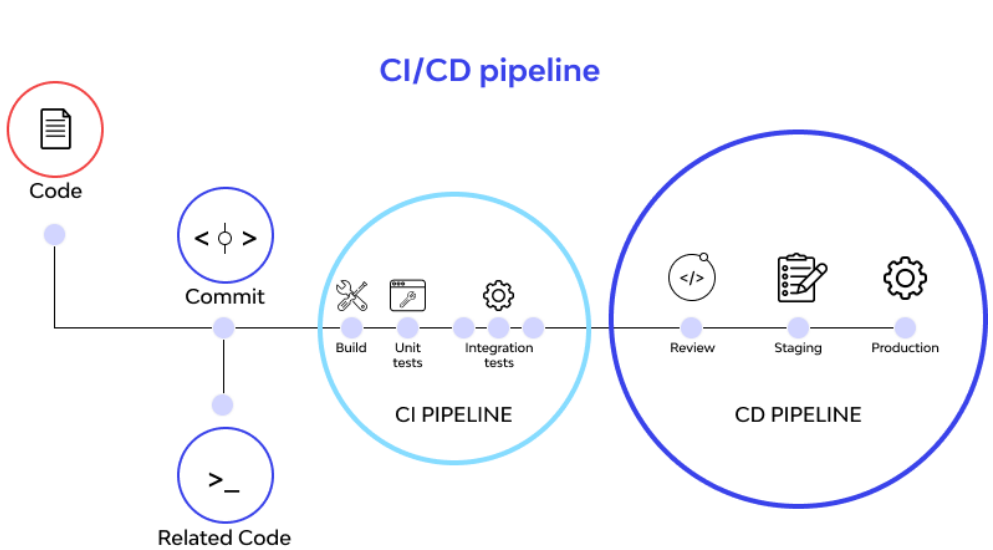
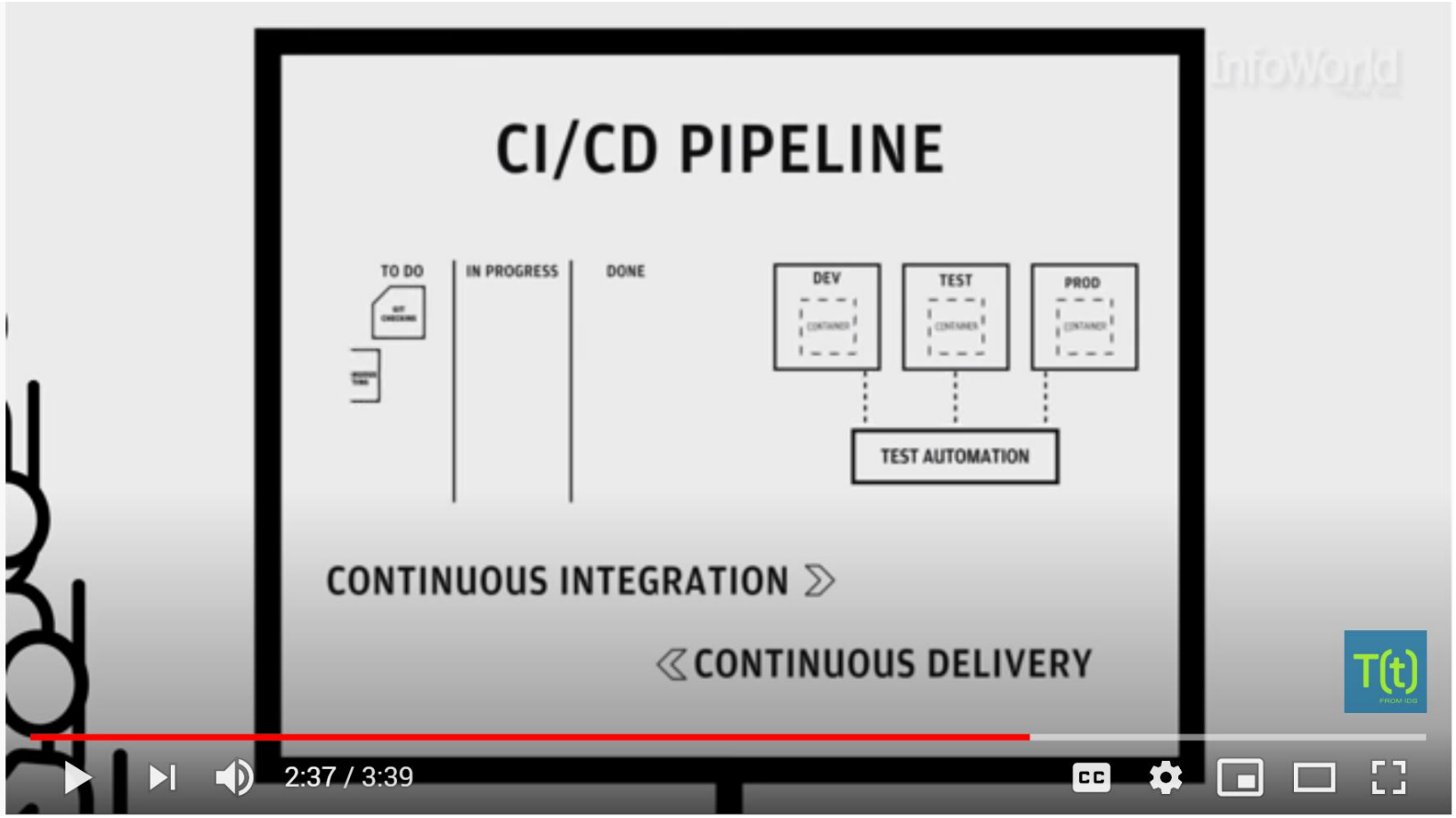


Image Source: wallarm.com

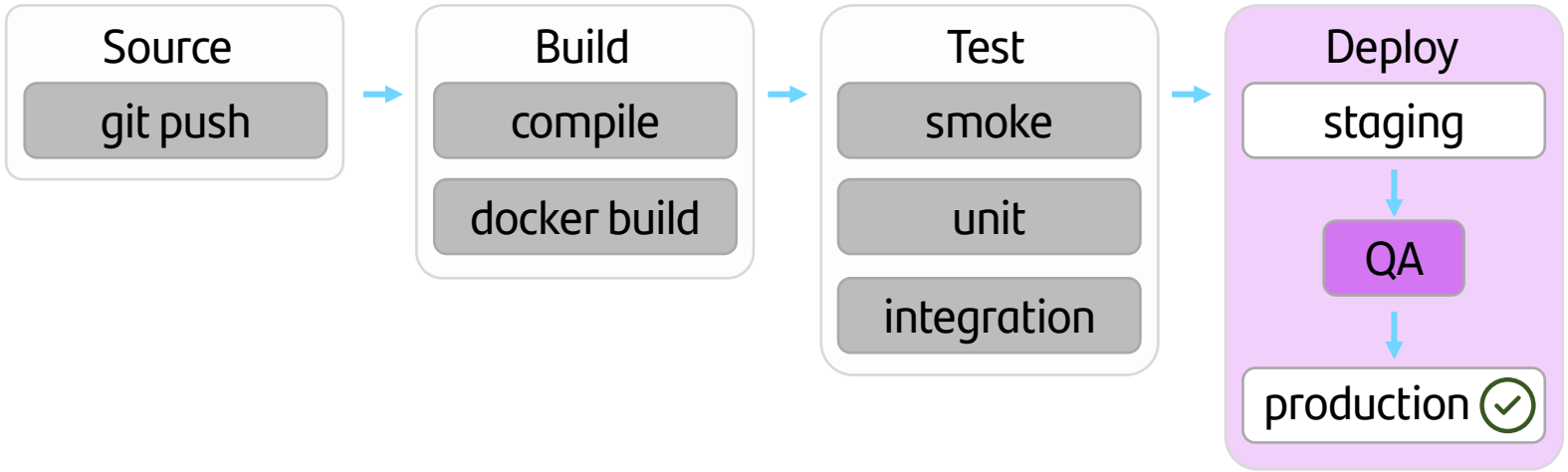
- Continuity and frequent delivery are put into action in organizations thought CI/CD practices.
- **CI/CD is a collection of operating principles and practices that help development teams to deliver frequent code changes reliably.**
- It is the ongoing automation and monitoring throughout the application life cycle - from integration and testing to product delivery and deployment phases.

How to deliver code faster with CI/CD



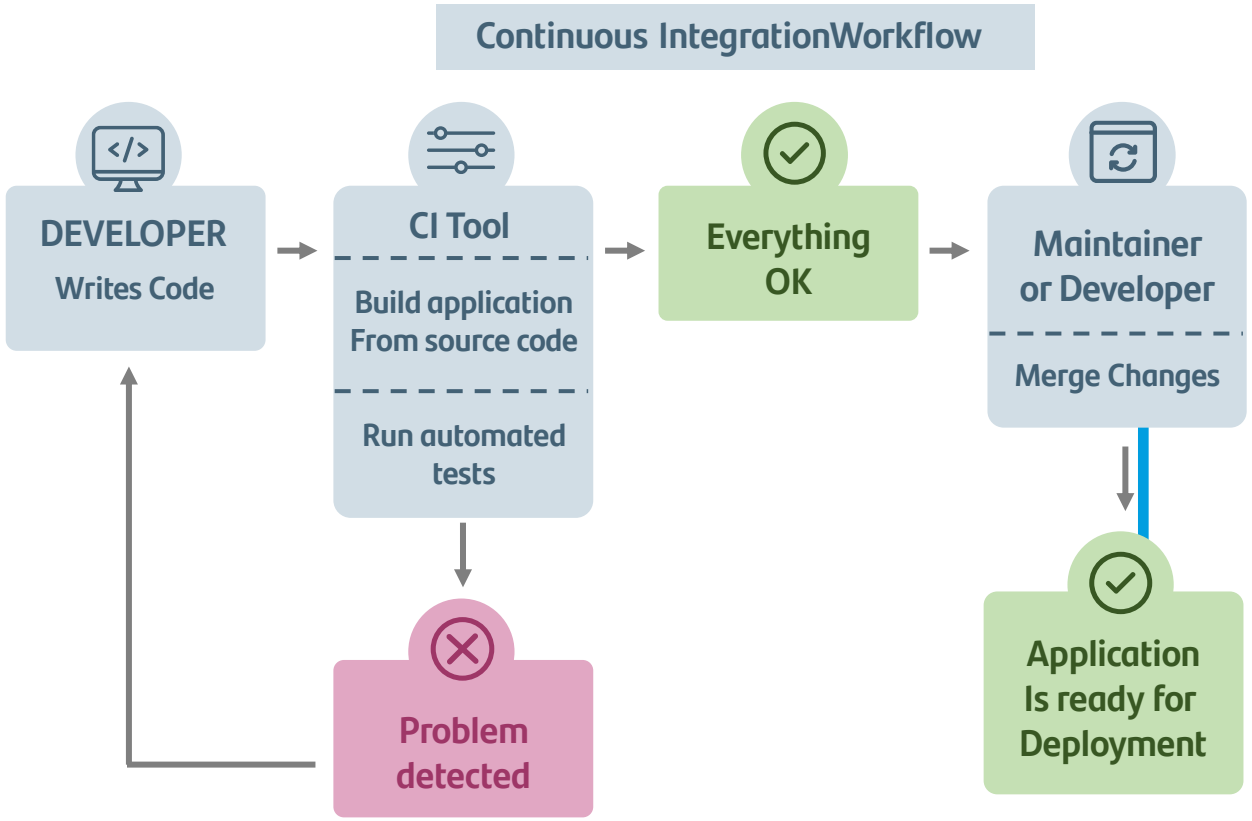
https://www.youtube.com/watch?v=Rq5TQlPyr8g

CI/CD Pipeline



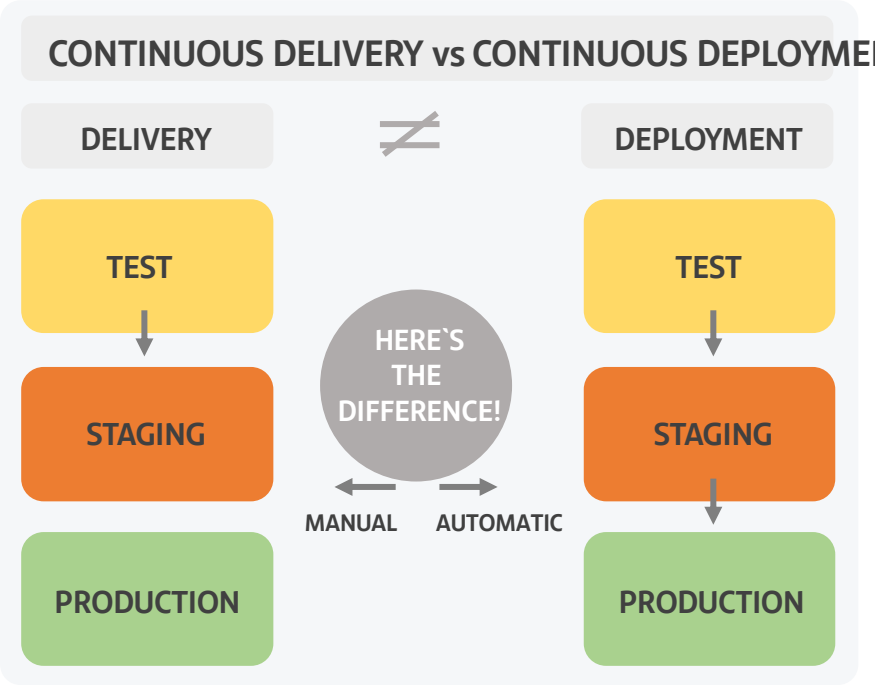
A CI/CD pipeline may sound like overhead but it really isn't.
It's essentially a runnable specification of the steps that need to be performed in order to deliver a new version of a software product.
In the absence of an automated pipeline, engineers would still need to perform these steps manually, and hence far less productively.

Continuous Integration



- CI is the practice of automating the **integration of code changes** from multiple contributors into a single software project.
- The CI process consists of automatic tools that **validate the correctness** of the new code before integration.
- Continuous integration puts a strong emphasis on test automation to verify that the application does not break every time new commits are integrated into the main branch.

Continuous Delivery and Continuous Deployment



- CI and CD are two acronyms that are often mentioned when people talk about modern development practices.
- **CI** is straightforward and stands for **continuous integration**, a practice that focuses on making preparing a release easier.
- But **CD** can either mean **continuous delivery** or **continuous deployment**, and while those two practices have a lot in common, they also have a significant difference that can have critical consequences for a business.

CI/CD stages

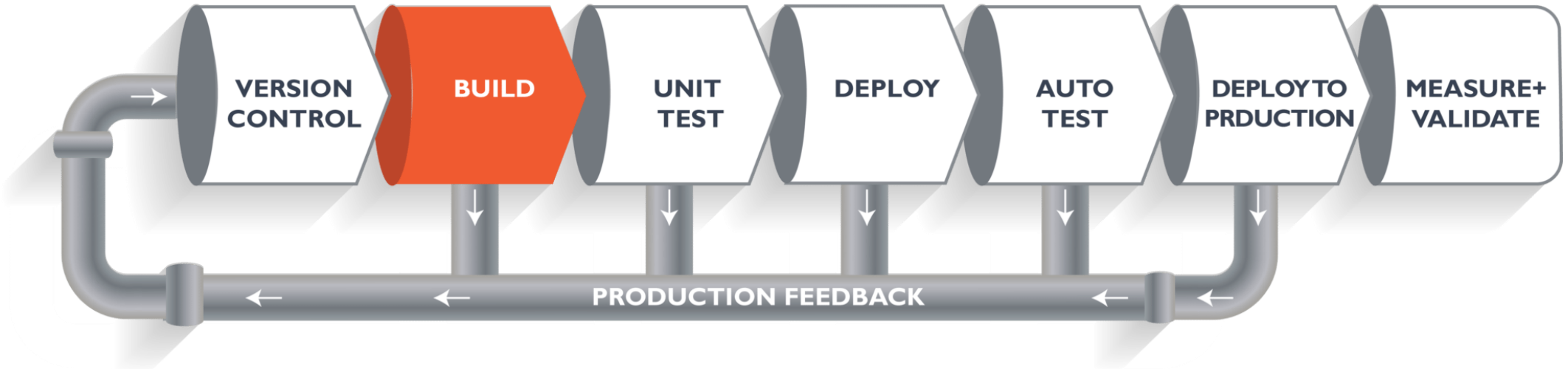


Image Source: dzone.com

CI/CD practices and their related tools are implemented in concrete **software delivery stages** in the pipeline, like commit changes, building, testing and so on.

OBJECTIVE

The 4 stages of CI/CD

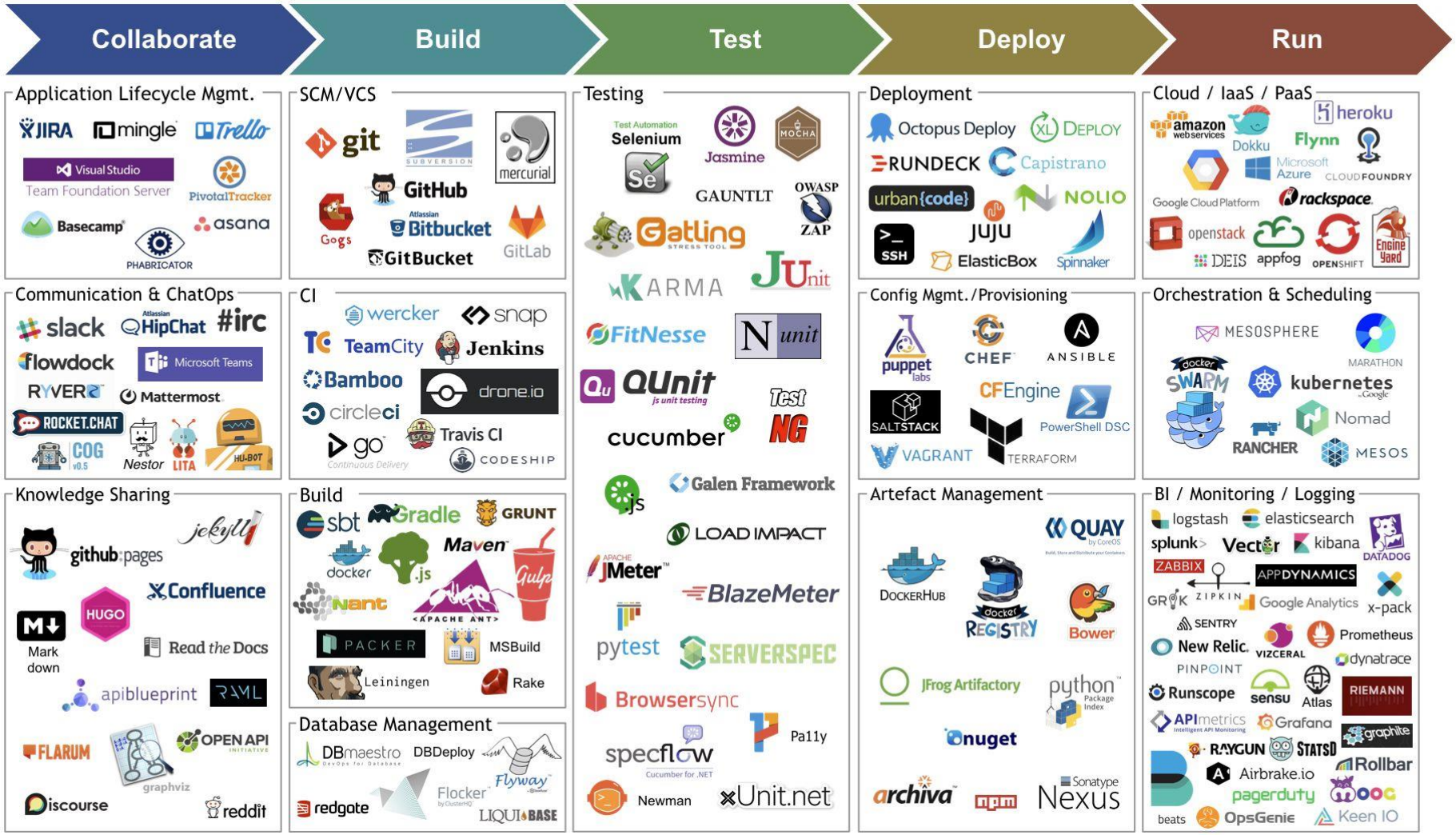
INSTRUCTIONS

1. Go to the next link for reading about CI/CD basic stages:
   - https://haritechworld.com/2020/08/13/concepts-the-4-stages-of-the-ci-cd-pipeline/
2. Complete next table.

20 min

Stage	Process	Key elements	Tools
<a stage>			
<a stage>			
<a stage>			
<a stage>			
<a stage>			

CI/CD tools



e Source:
...ng.com

There are literally tens of tools for CI/CD, various options for each stage.

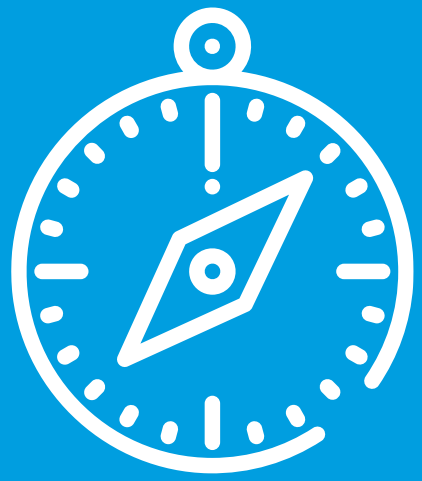
OBJECTIVE

Reviewing some CI/CD tools

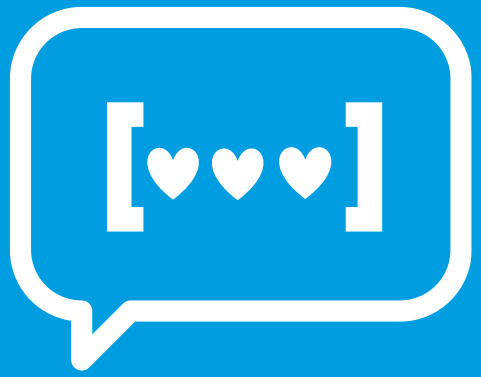
INSTRUCTIONS

1. Look at the detail of the CI/CD tools map:
   - https://i.pinimg.com/originals/d2/08/84/d208846d818b1ec49acc8e2e4a01858f.jpg
2. In each of the blocks (like CI, Build, Artefact management, …), google at least two tools you don't know.

15 min



Next steps



We would like to know your opinion!

Please, let us know what you think about the content.
From Netmind we want to say thank you, we appreciate time and effort you have taking in answering all of that is important in order to improve our training plans so that you will always be satisfied with having chosen us
quality@netmind.es

netmind
a bts company

Thanks!

Follow us: