

The Technology Value Stream

Module 1.2 Assignment

CSD 380 – DevOps

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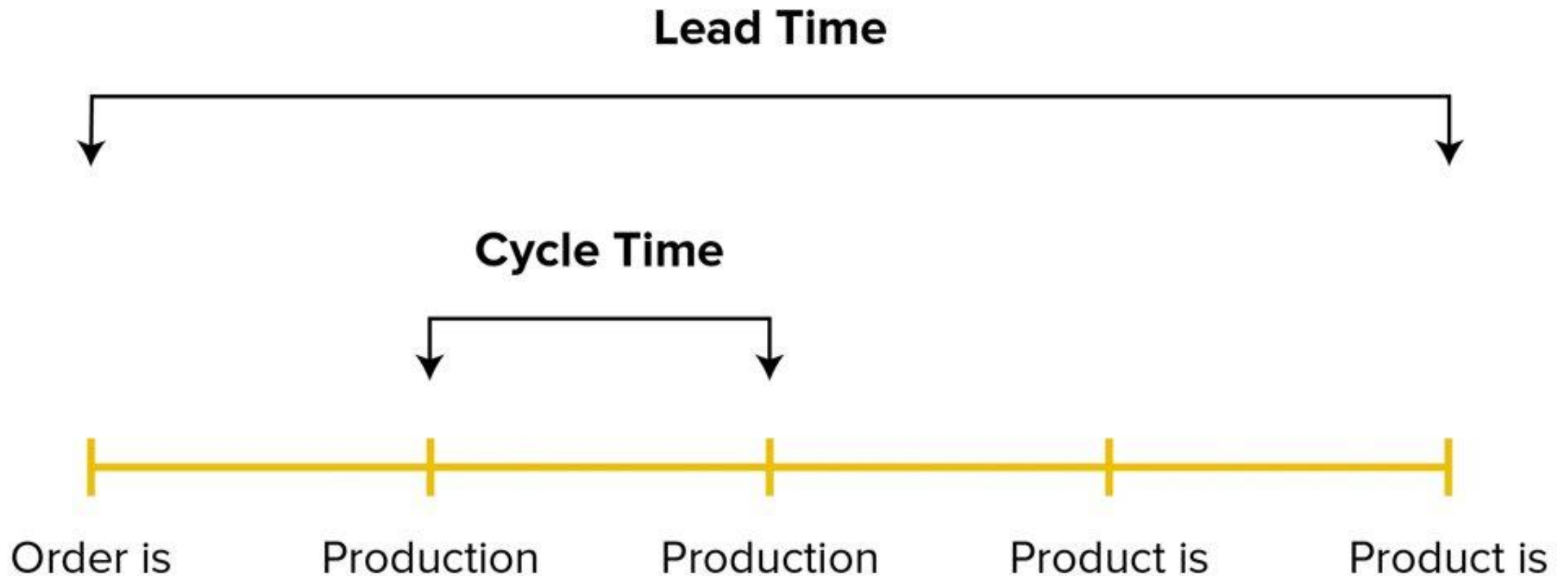
What is Technology Value Stream?

- DevOps transform business hypothesis into services or features that provide value to customers.
- Starts with defining business objectives and concepts.
- Agile processes break down ideas into user stories and implement them as code.
- Code is integrated, tested, and deployed from version control repositories.
- Value is created when services run seamlessly in production.
- Important to focus on efficient delivery while avoiding disruption like outages, security issues, or compliance failures.

Defining Lead Time vs. Processing Time

| Lead Time | Processing Time |
|--|--|
| Measures the total duration from the initial request to its fulfillment. | Measures only the active work performed on a request not including time spent in the queue. |
| Both active work and waiting periods while request is in the queue. | Focuses where workflows and be optimized for smoother task execution and increased productivity. |
| Reflects the overall customer experience. | Represents the proportion of active work into the lead time. |
| Reducing lead time enhances efficiency and customer satisfaction. | Improving processing time involves reducing variability and ensuring consistent workflows. |

Cycle Time Vs Lead Time



The Common Scenario: Deployment Lead Times Requiring Months

Challenge: Deployment process requires months especially for complex and large organizations.

Common issues:

- Systems are tightly interconnected and monolithic in structure.
- Limited availability of integration testing environments.
- Prolonged timelines for testing and preparing production environments

The Common Scenario: Deployment Lead Times Requiring Months

Consequences:

- Issues merging development team's updates resulting in broken builds and test failures.
- Debugging issues require extensive time and investigation to identify the root of the problem

Outcome:

- Problem results in significant delay.
- Negative customer satisfaction due to the extended deployment cycles.

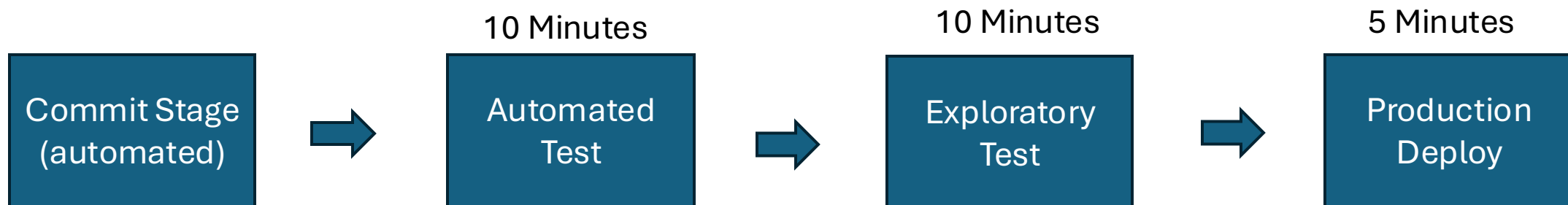
Our DevOps Ideal: Deployment Lead Times of Minutes

- Deployment lead times are in minutes to promote rapid and continuous feedback for developers.

Process:

- Developers integrate small code change into version control.
- Automated and exploratory test validate these changes.
- Code is deployed to production either independently by developers or through automated systems.

Our DevOps Ideal: Deployment Lead Times of Minutes



Total Cycle Time: 25 Minutes

References

- Kim, G., Humble, J., Debois, P., & Willis, J. (2021). *The DevOps Handbook* (2nd ed., pp. 8-11). IT Revolution.
- A, K. (2024). *A Detailed Understanding Of Takt Time, Cycle Time, And Lead Time* [Photograph]. <https://www.lystloc.com/blog/a-detailed-understanding-of-takt-time-cycle-time-and-lead-time/>
- Kim, G., Humble, J., Debois, P., & Willis, J. (2019). *The DevOps HandBook* [Photograph]. Page 11.