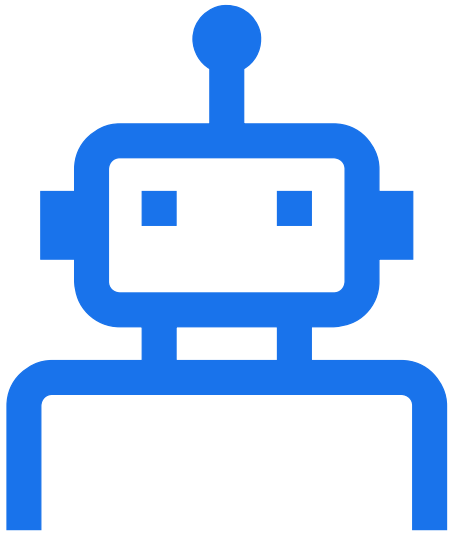
The Technology Value Stream

Understanding Lead Time, Processing Time, and DevOps Deployment Speed

By: Noel Miranda

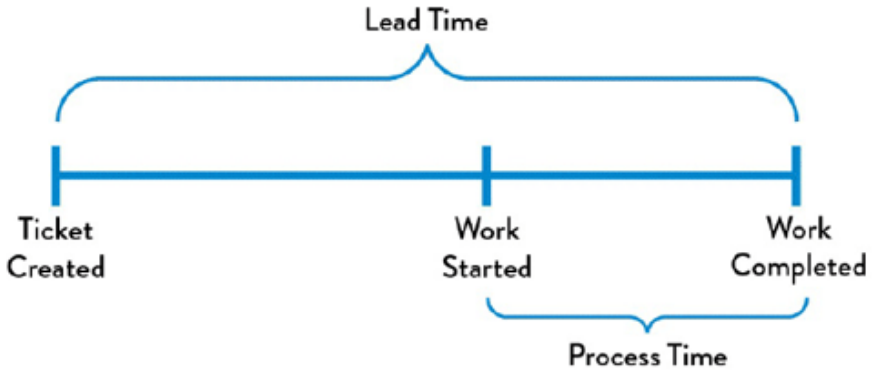
Course: DevOps

Introduction



- **The Technology Value Stream (textbook definition):** "The process required to convert a business hypothesis into a technology-enabled service or feature that delivers value to the customer" (Kim et al., 2021, p. 8).
- **Why it matters:** Optimizing this process improves efficiency, reduces delays, and enhances software delivery.
- **Objective of this Presentation:**
  - Define lead time vs. processing time
  - Discuss traditional deployment delays
  - Explain DevOps' goal of near-instant deployments

Defining Lead Time vs. Processing Time



- **Lead Time:** The total time from when a request is made until it is fulfilled, encompassing all stages from the initial idea to final delivery (Brown, 2024).
- **Processing Time (Cycle Time):** The time taken to complete a specific task or process, from the start of actual work to its completion (Brown, 2024).
- **Key Insight:** Long lead times often result from extended waiting periods rather than the actual time spent on task execution.
- **Diagram to the left Illustrates Lead Time vs. Processing Time (Kim et al., 2021, p. 9):**

The Common Scenario – Deployment Lead Times Requiring Months

- Many organizations experience deployment cycles that span weeks or even months.
- **Contributing Factors according to The DevOps Handbook:**
  - Manual testing and numerous approval processes.
  - Siloed teams (Development, Operations, and QA all working independently).
  - Bureaucratic change management procedures.
- **Consequences:**
  - Slower innovation cycles.
  - Increased risk of catastrophic deployment failures.
  - Developer dissatisfaction due to prolonged feedback loops.

- Information on this slide retrieved from (Kim et al., 2021, p. 10).

The DevOps Ideal – Deployment Lead Times of Minutes

- **DevOps Goal:** Achieve deployment lead times measured in minutes.
- **Enablers:**
  - Continuous Integration (CI): Automated merging and testing of code changes.
  - Continuous Delivery (CD): Rapid and reliable deployment processes.
  - Automated Testing and Monitoring: Minimizes human intervention and errors.
- **Outcomes:**
  - Accelerated release cycles.
  - Reduced deployment failure rates.
  - Enhanced satisfaction among developers and end-users.

- Information on this slide retrieved from (Kim et al., 2021, p. 10-11).

Graphic Representation

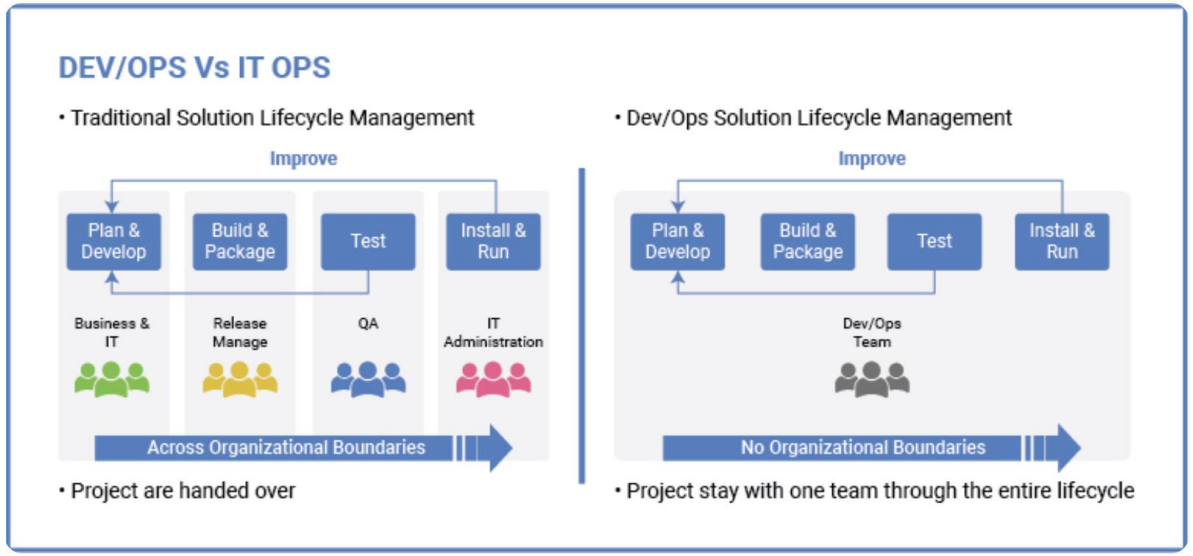


Diagram retrieved from: https://www.kellton.com/kellton-tech-blog/4-approaches-extending-digital-business-platform-devops-infrastructure-agility

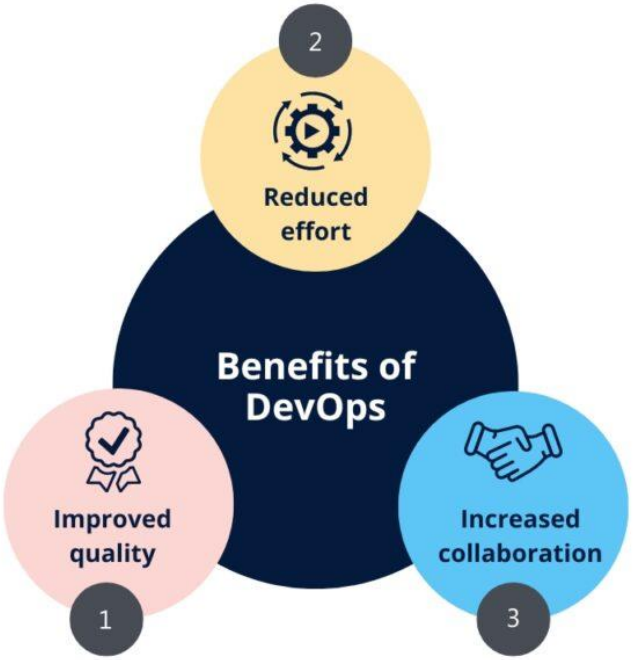
- **Traditional Pipeline:** Characterized by extended wait times and multiple approval stages.
- **DevOps Pipeline:** Features automation, collaboration, CI/CD practices, and swift releases.

Benefits of Reducing Lead Time

- **Enhanced Innovation:** New features are released more quickly.
- **Improved Team Morale:** Streamlined processes reduce stress and burnout.
- **Increased Reliability:** Automated deployments lead to fewer errors.
- **Superior Customer Experience:** Quick updates and new features enhance user satisfaction.
- **Key Takeaway:** Reducing lead time not only accelerates delivery but also improves overall quality and efficiency.

- Information on this slide retrieved from (Kim et al., 2021, p. 10-56).

Conclusion



- **Traditional deployment slows down software delivery (lead time & processing time).**
- **Adopting DevOps practices transforms deployment cycles from months to minutes.**
- **Organizations embracing DevOps also benefit from improved collaboration, efficiency, and customer satisfaction.**

References

- Brown, L. (2024, June 10). *Cycle Time vs. Lead Time: A Comprehensive Guide*. IT Revolution. https://itrevolution.com/articles/cycle-time-vs-lead-time/
- Johnson, B. (2022, August 17). *Lead Time vs Cycle Time in Software Development | LinearB Blog*. Linearb.io. https://linearb.io/blog/lead-time-vs-cycle-time
- Kim, G., Humble, J., Debois, P., Willis, J., & Forsgren, N. (2021). *The DevOps Handbook, Second Edition*. IT Revolution.