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DevOps in Software Development Lifecycle

Traditional SDLC vs. Agile vs. DevOps. The role of CI and CD. Collaboration and Communication.

Understanding the SDLC

Software Development Lifecycle definition: planning, developing, testing, deploying, and maintaining software.

Common models: Waterfall, Agile, DevOps

1. **Planning**
2. **Developing**
3. **Testing**
4. **Deployment**
5. **Maintenance**

Traditional SDLC: Waterfall

Sequential, step-by-step approach with high documentation and low flexibility.

Challenges: Slow delivery, late testing, poor collaboration

Sequential Steps

Each phase must be completed before moving on.

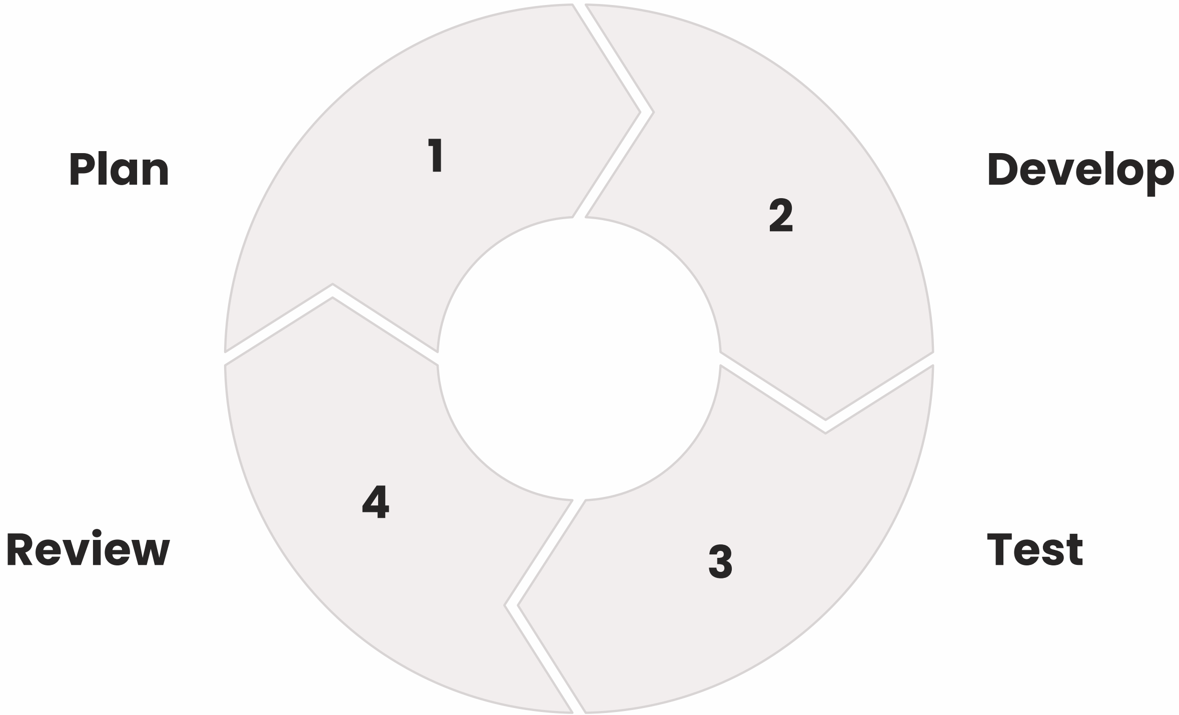
Documentation Heavy

Requires extensive documentation at each stage.

Agile SDLC: Iterative Progress

Iterative & incremental development with frequent releases & feedback. Cross-functional collaboration.

Faster delivery and early problem detection.



DevOps in SDLC

Combines Agile development with IT operations.

Features: Continuous development & delivery. Automation-driven testing & deployment.

1 **Continuous**

Development and delivery

2 **Automation**

Testing and deployment

3 **Collaboration**

Between all teams

SDLC Models Compared

A side-by-side comparison.

Feature	Traditional SDLC	Agile	DevOps
Approach	Sequential	Iterative	Continuous
Speed	Slow	Faster	Fastest
Collaboration	Low	Moderate	High
Automation	Minimal	Some	Extensive
Feedback	Late	Frequent	Continuous

CI: Continuous Integration

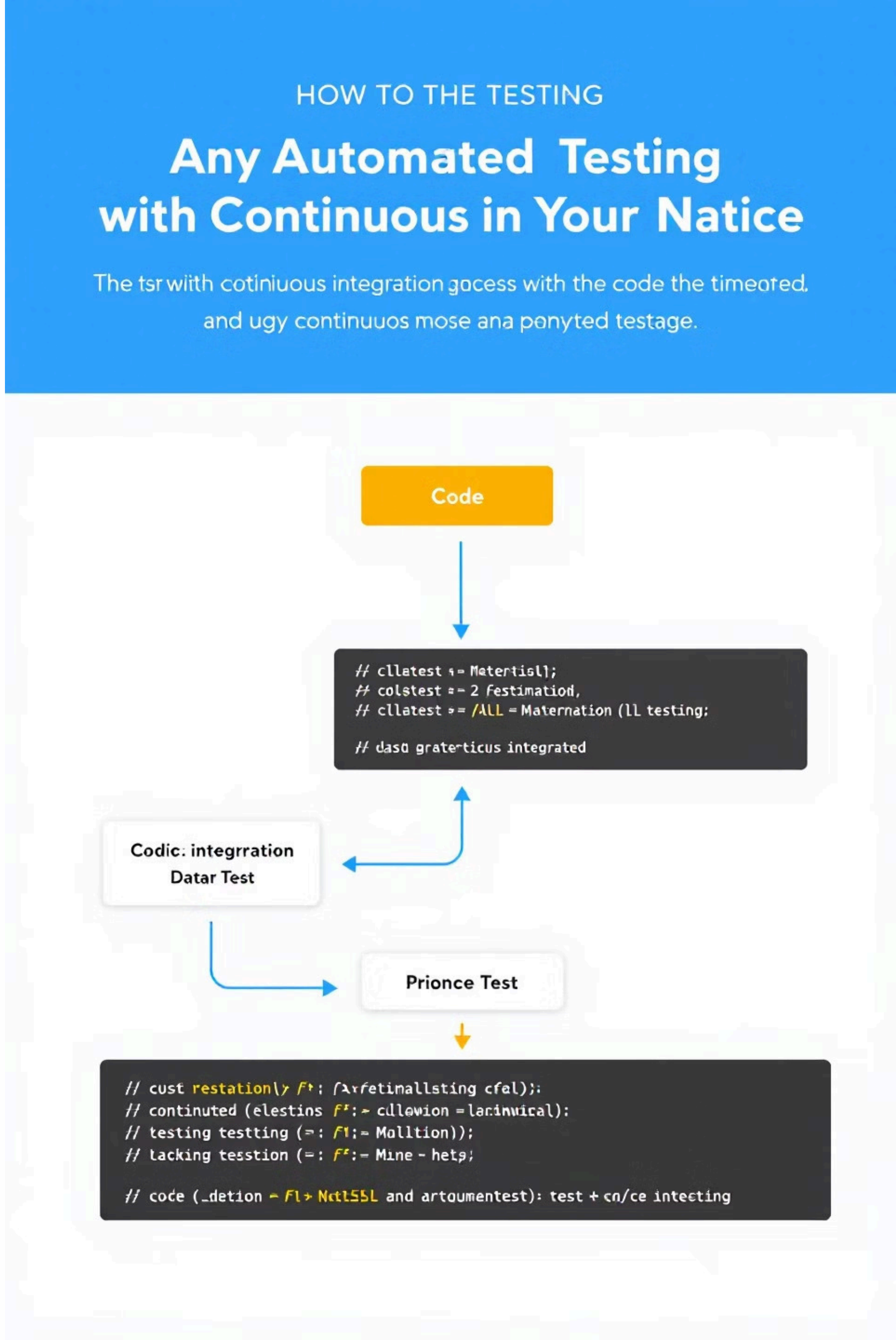
Merging & testing code frequently to detect issues early.

Reduces integration issues and speeds up development.

Early Bug Detection

Reduce Integration Issues

Speeds Development



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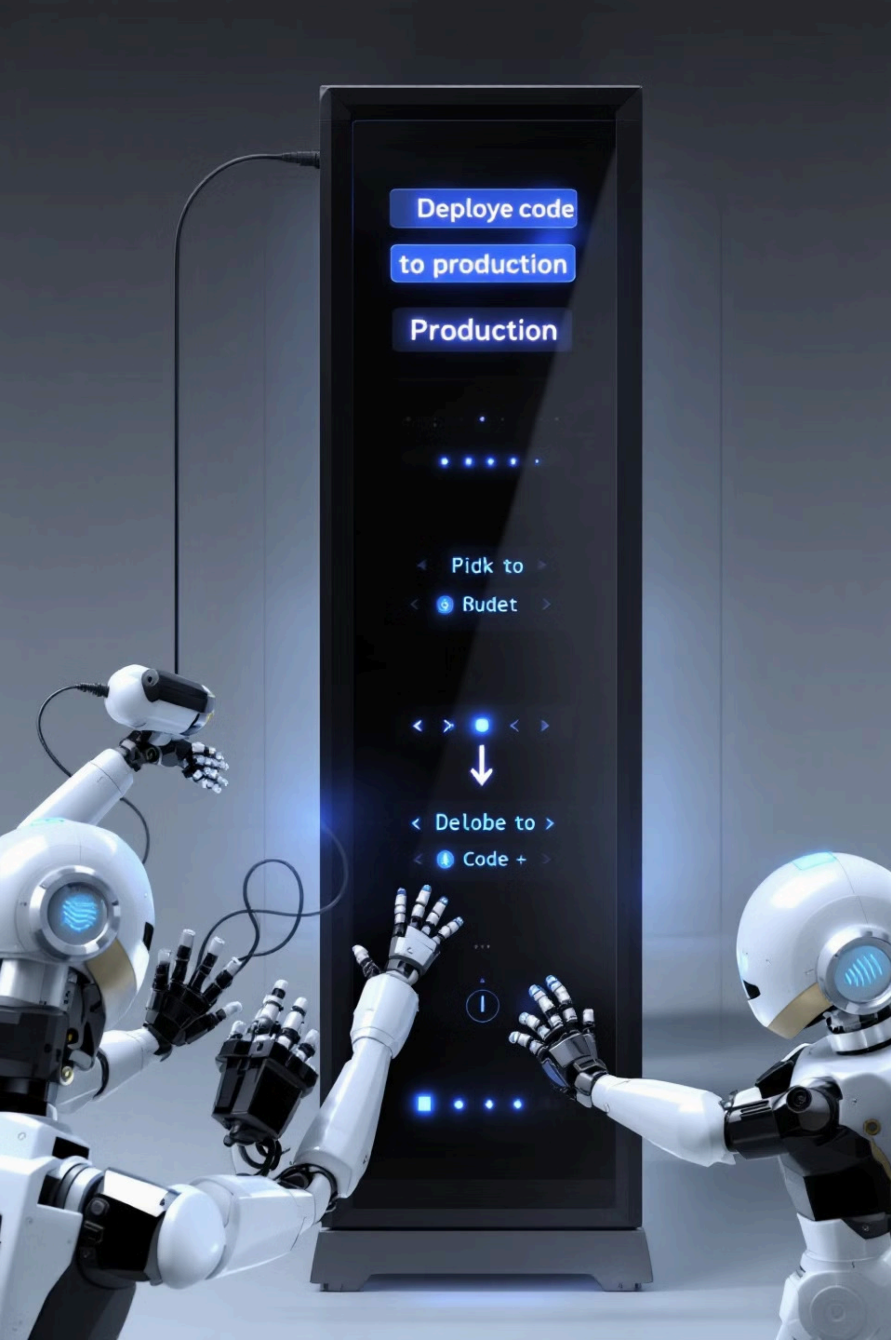


CD: Continuous Deployment/Delivery

Automatically deploying tested code to production.

Ensures smooth updates without downtime and reduces errors.

1 **Code Commit**

2 **Automated Testing**

3 **Staging Deployment**

4 **Production Deployment**

Collaboration in DevOps

Reduces friction, increases software quality, and enables faster issue resolution.

Use communication tools and encourage a shared responsibility mindset.

Reduce Friction

Between Dev & Ops

Increase Quality

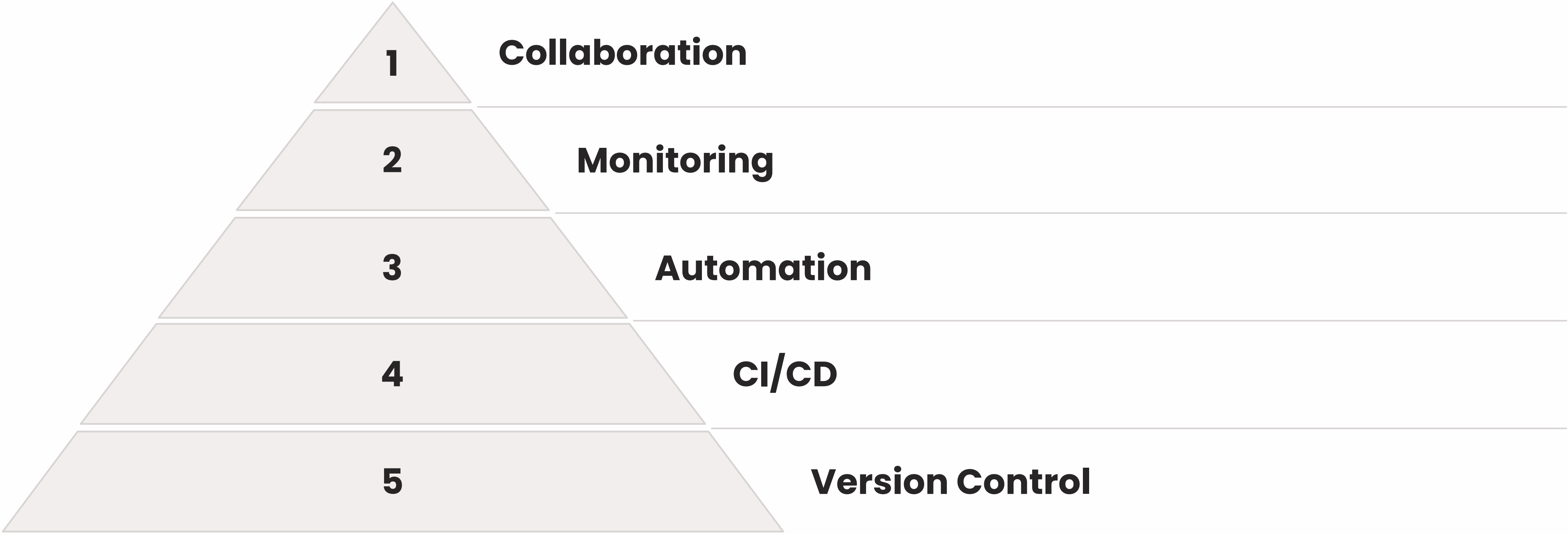
Faster issue resolution

Faster

Issue resolution

DevOps Toolchain

Tools for version control, CI/CD, infrastructure automation, monitoring & logging, and collaboration.



1 Collaboration

2 Monitoring

3 Automation

4 CI/CD

5 Version Control

Key Takeaways

DevOps improves SDLC, CI/CD ensures automation, and collaboration is key.

1 **DevOps**

Improves SDLC

2 **CI/CD**

Ensures automation

3 **Collaboration**

Key to DevOps success