DevOps Meets AI: Automating Reliability in the Age of Intelligence

Speaker: Patrick Bashizi

Event: Build With AI - GDG Kinshasa 2025

Date: 10 May 2025

by Patrick Bashizi

About the Speaker

1. **Role**

   Patrick Bashizi is a Lead Systems Engineer at C Squared.

2. **Specialty**

   He specializes in Cloud, DevOps and Site Reliability Engineering

3. **Passion**

   He is passionate about intelligent automation and AI-driven DevOps innovation.

4. **Focus**

   He focuses on building self-healing systems by combining observability, automation, and AI; while actively contributing to open-source tools.

5. **In the Past**

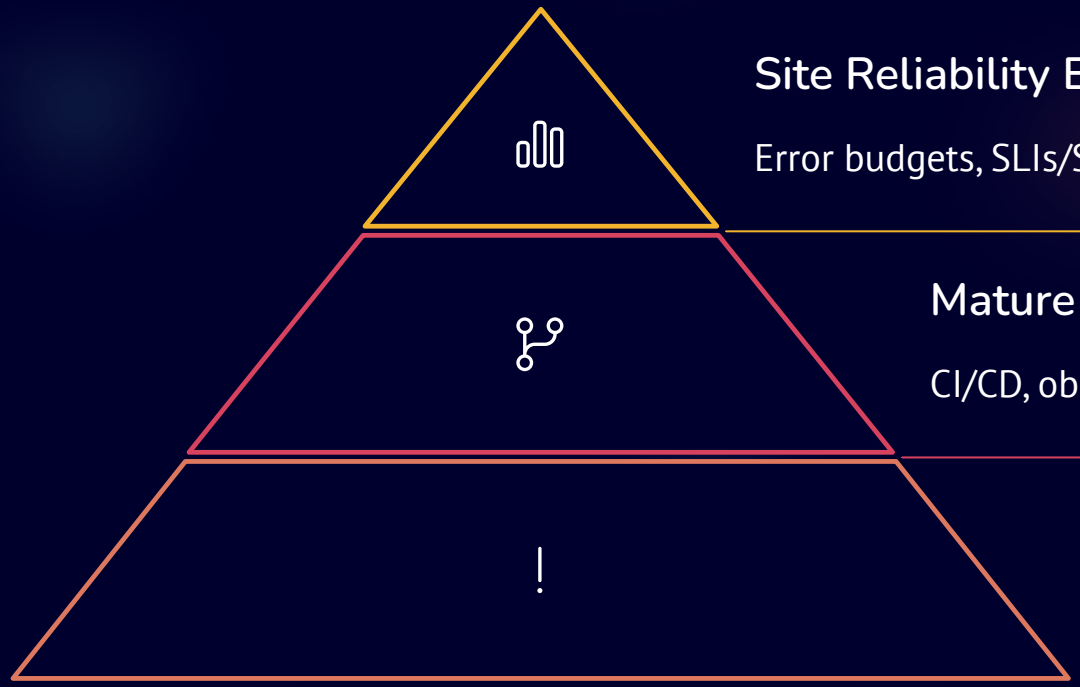
   Patrick has over 10 years of Software Engineering, all Platforms included.

   He is the founder of the GDG Kishasa Community in July 2011

Problem Statement

- Modern systems are highly complex, distributed, and fast-changing
- Ensuring reliability is harder than ever
- Ops teams are overwhelmed with alerts, incidents, and manual toil

DevOps Today



Site Reliability Engineering

Error budgets, SLIs/SLOs

Mature DevOps practices

CI/CD, observability, infrastructure as code

Current limitations

Many tasks are still manual or reactive

The AI Shift in DevOps

Manual Operations 🧍

Manual fixes, scripting, and toil dominate this stage.

- High toil and repetitive alerts
- Reactive response to issues

1

Traditional DevOps 👩‍💻

Focus on automation, CI/CD pipelines, and monitoring.

- Efficiency via dashboards and alerting
- Reactive or partial automation

2

AI-Augmented DevOps 🤖

AI empowers self-healing, predictive alerts, and dynamic decisions.

- Intelligent insights leading to action
- Proactive, autonomous operations

3

The AI Shift

Data Collection

AI can learn from logs, metrics, traces, and code patterns

Intelligence Layer

Move from reactive to predictive incident management

Augmentation

Augment DevOps with intelligent automation

Demo Introduction

Objective

Use AI to analyze PRs and suggest fixes in real-time

Live Demo

Let's walk through a live demo of AI-enhanced DevOps

Technology Stack

GitHub, Cloud Build, Trivy, Vertex AI, Cloud Functions

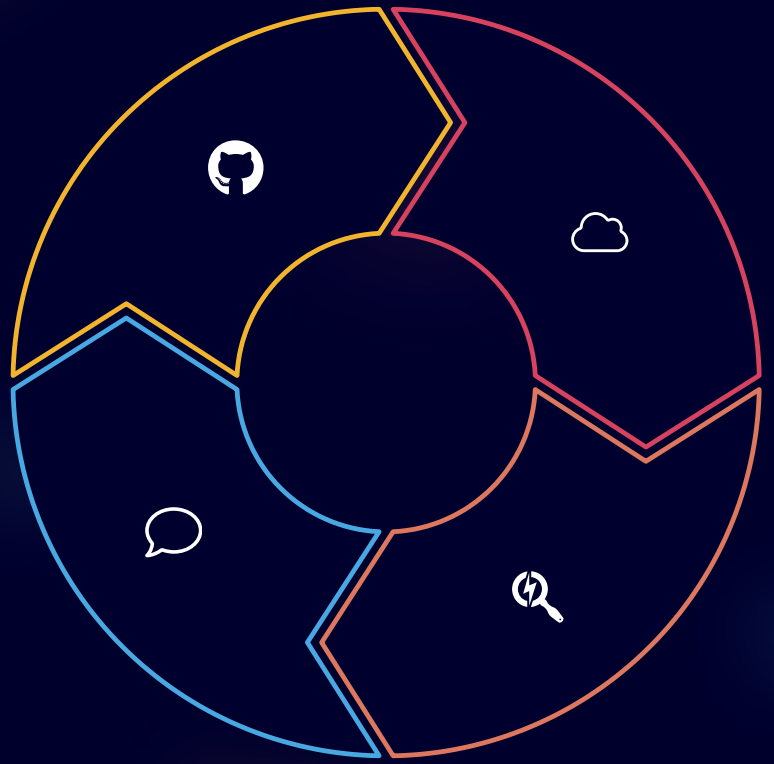
Pipeline Architecture

1 Developer PR

Developer opens or updates a Pull Request on GitHub

4 AI Integration

Python script processes results and provides feedback



2 GitHub Actions

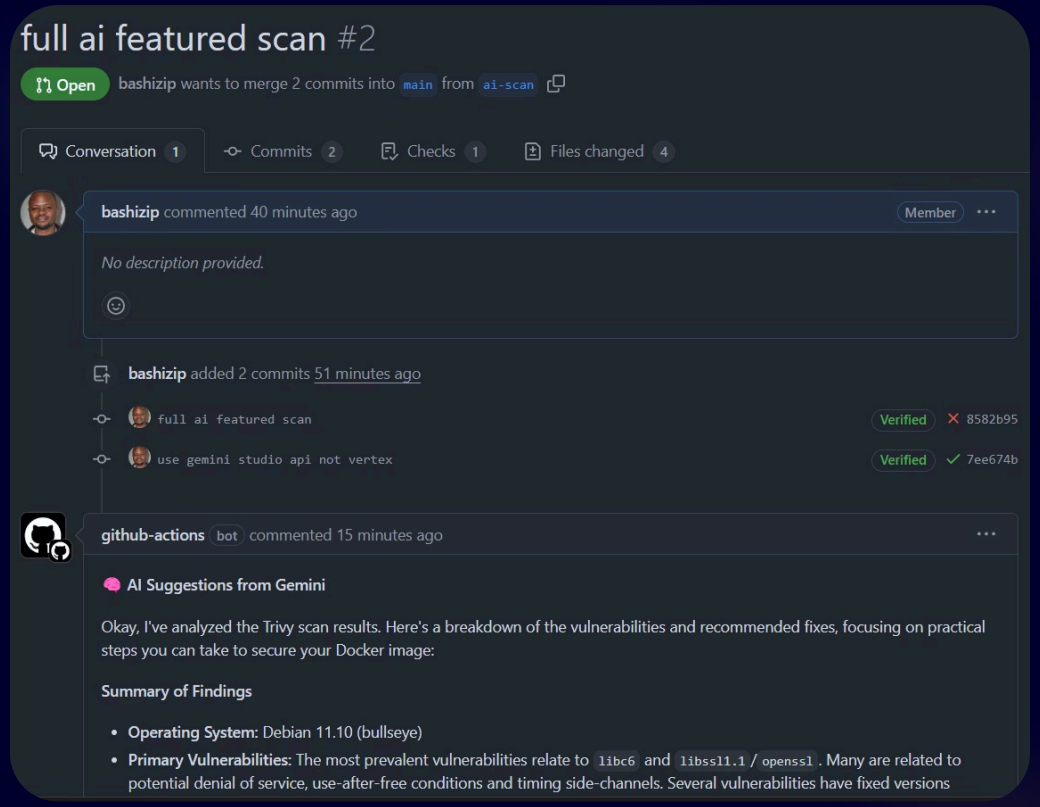
Workflow is triggered automatically

3 CI Pipeline Steps

- Checkout code
- Build Docker image from Dockerfile
- Scan image using Trivy
- Save scan results as JSON

AI in Action

PR Suggestions



Key Characteristics

- Clarity in explanations
- Accuracy of suggestions
- Developer-friendly tone

Emphasize how AI augments—not replaces—human review

Benefits Observed

Faster pull request reviews

Early detection of security issues

Less manual effort in triage and remediation

Consistent feedback across teams

Challenges & Limits

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Trust issues

Trust in AI-generated suggestions?

AI limitations

Handling hallucinations and false positives

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Resource concerns

Cost and performance tuning of AI pipelines

Human oversight

Need for human oversight and guardrails

What's Next & Conclusion

Future Developments

- Smart incident routing and auto-resolution
- AI-assisted root cause analysis (RCA)
- Feedback loops to continuously improve suggestions
- Integration with observability and incident tools

Conclusion

DevOps is evolving with AI at its side

Embrace intelligent automation to boost reliability

Collaboration between Devs, Ops, and AI is the future

Thank You! Questions?

Feel free to reach out for more insights and discussion.

1

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