

Is Test-driven Development All I Need?



Jason Olson

Staff Software Engineer

@jolson88 www.jolson88.com

Recap



What is test-driven development?

Testing applications

Common techniques for testing code

Test-driven development gotchas



Is Test-driven Development All I Need?



Overview

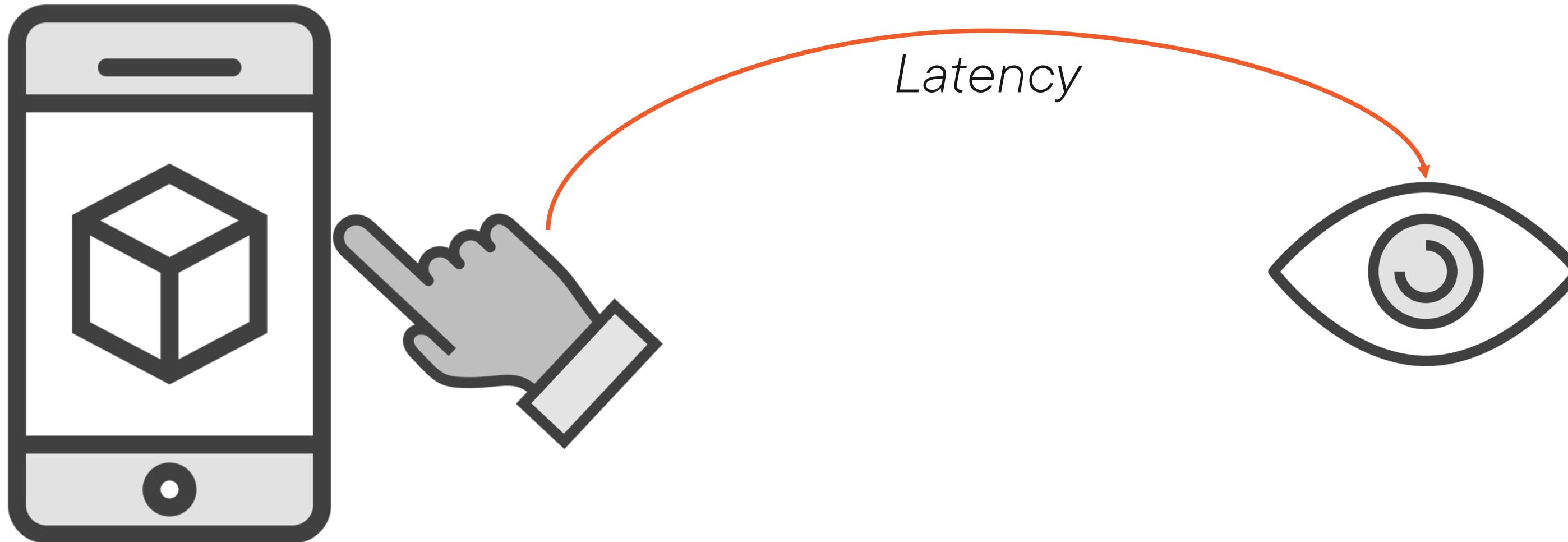


- How is my software performing?**
- Is my production software behaving?**
- Is my software secure?**



How Is My Software Performing?

Latency



150-300 milliseconds is **acceptable!**



Core Web Vitals

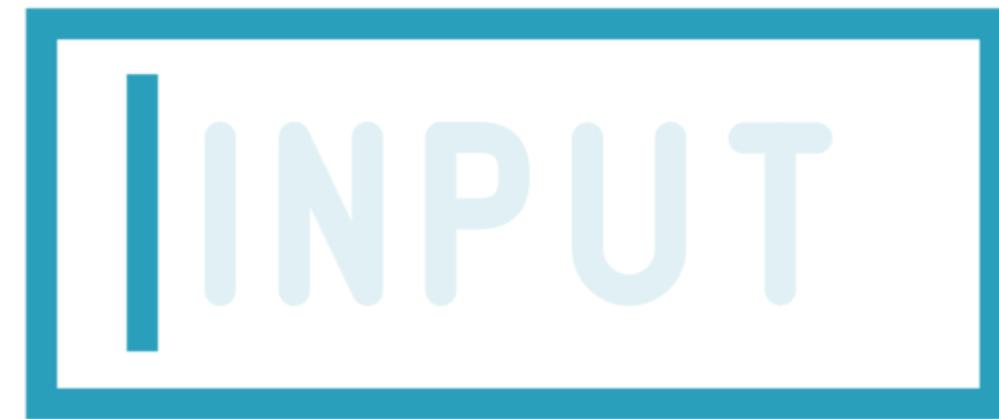
“**Core Web Vitals** includes metrics, as well as target thresholds for each metric, which help developers qualitatively understand whether the experience of their site is ‘good’, ‘needs improvement’, or is ‘poor’”

- <https://web.dev>



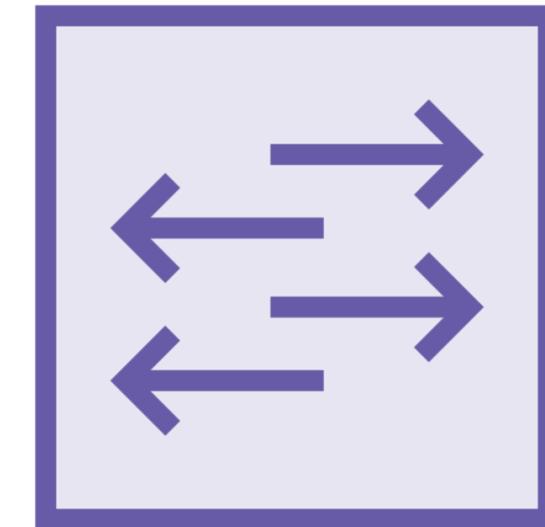
LCP

Largest Contentful Paint
(Loading)



FID

First Input Delay
(Interactivity)



CLS

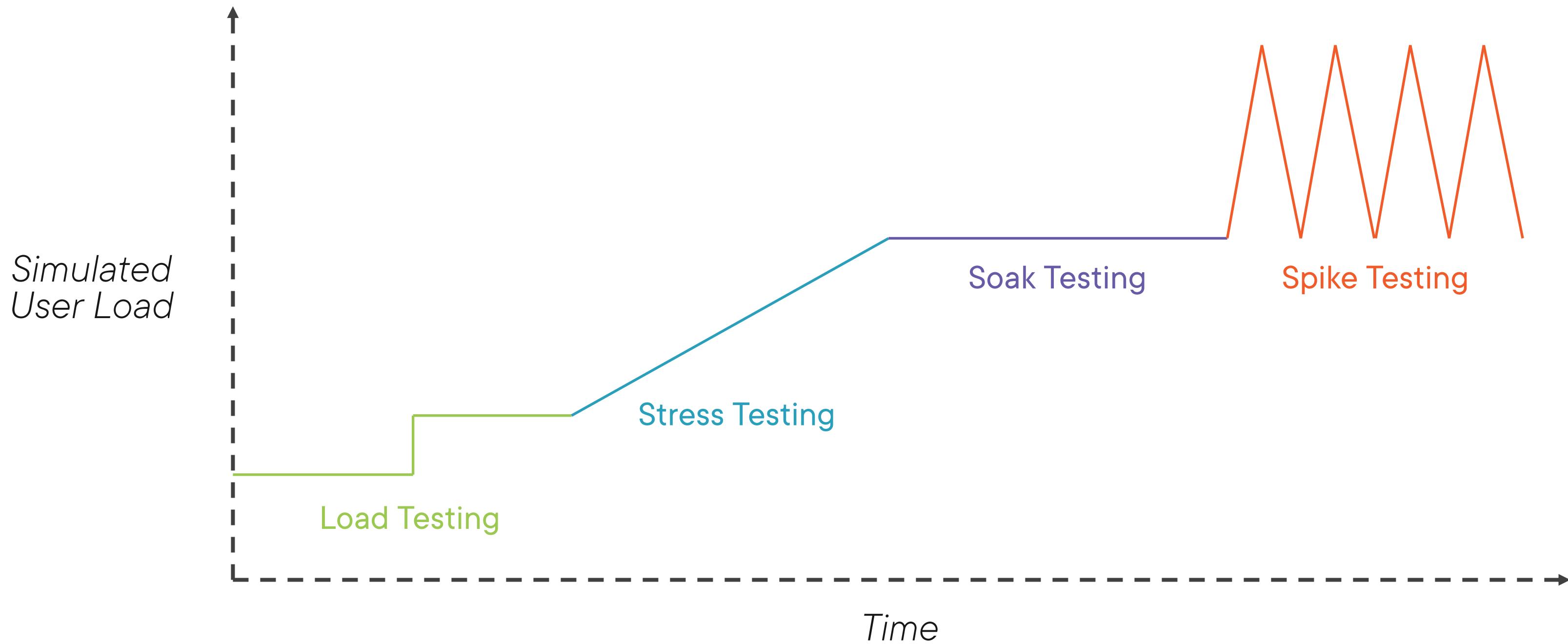
Cumulative Layout Shift
(Visual Stability)





Performance is important!

Performance Testing



Rinse and Repeat



Is My Production Software Behaving?



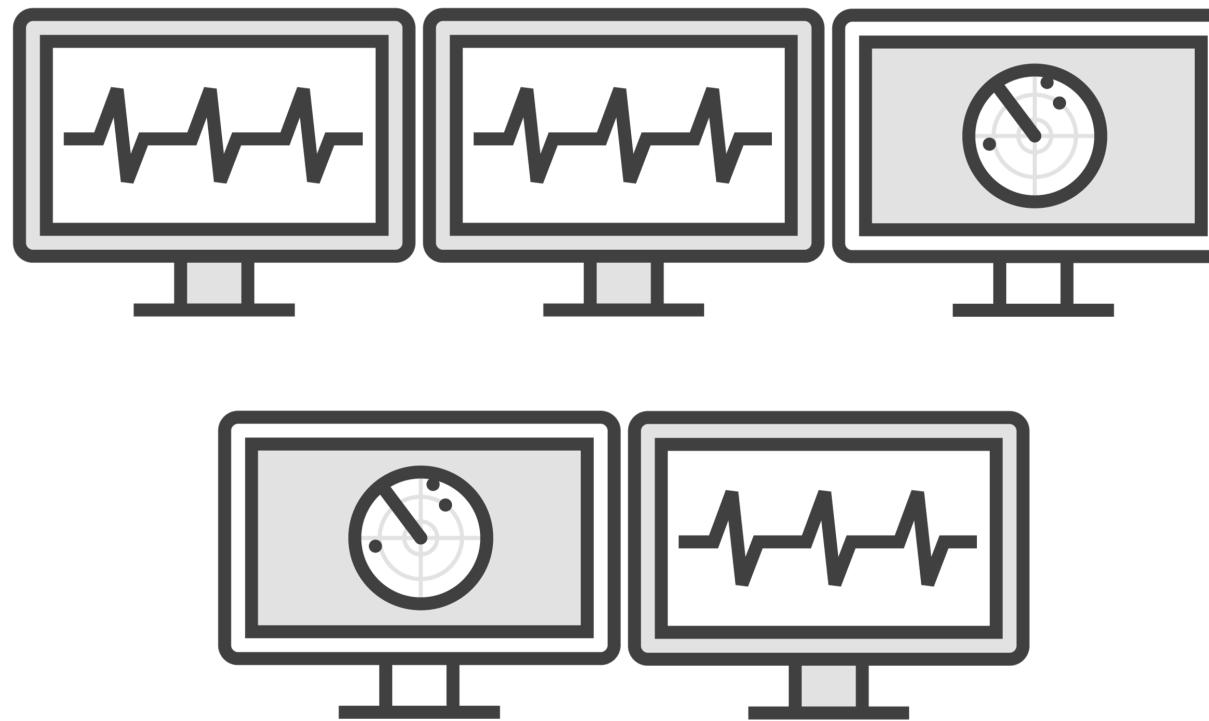
Synthetic Monitoring



Chaos Engineering



Monitoring Systems



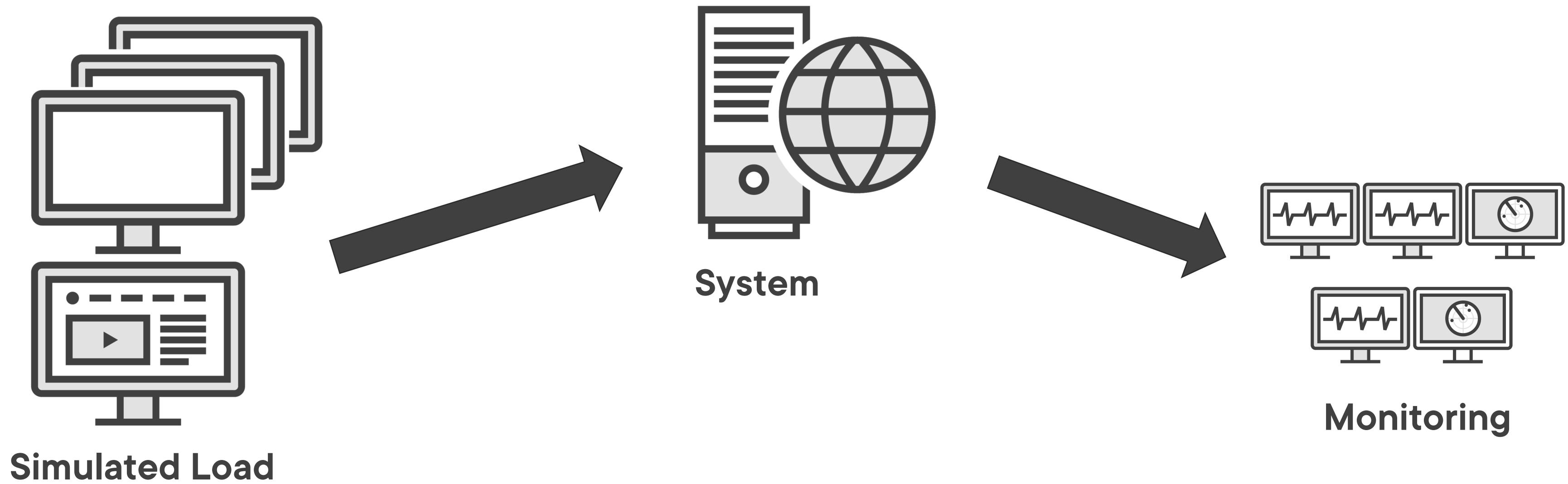
Observability



What happens when there is no activity?



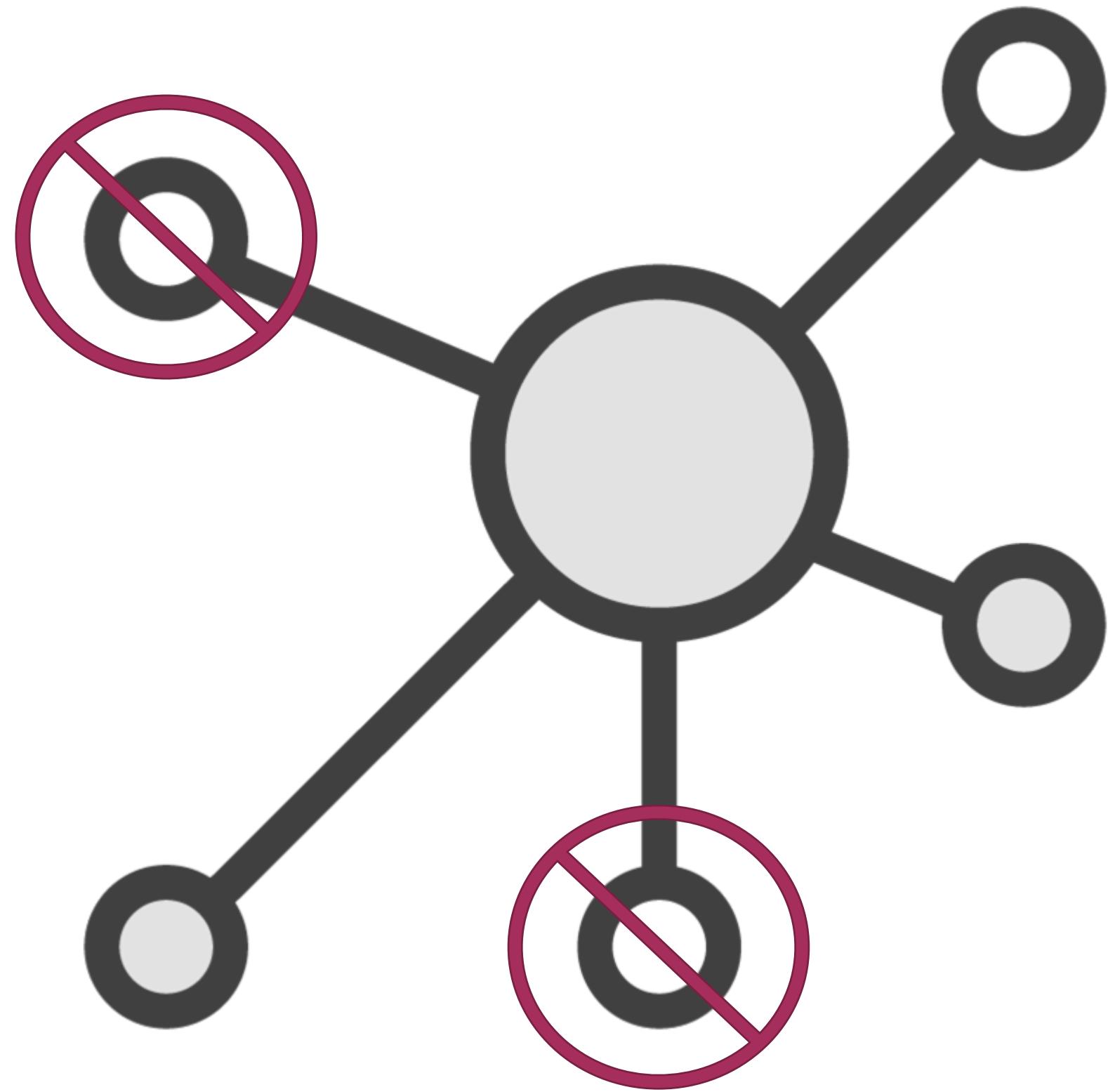
Synthetic Monitoring



Do we see any issues?



Chaos Engineering

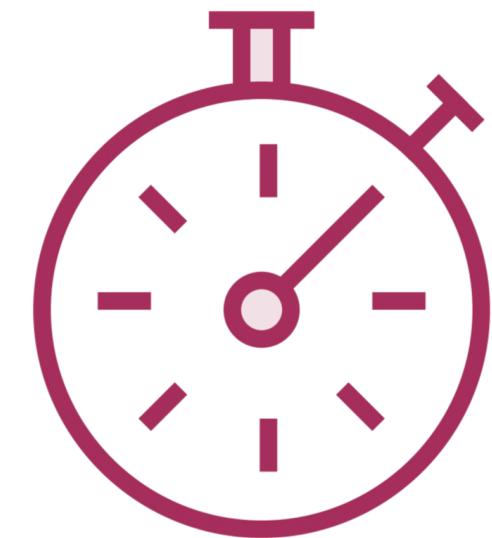


Chaos Engineering

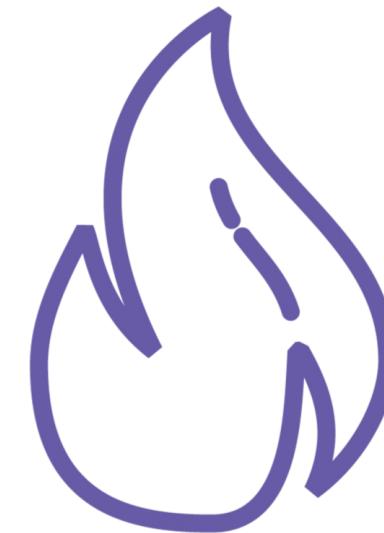
Can we tolerate different types of failures?



Resource exhaustion



Long latencies



Machine failure

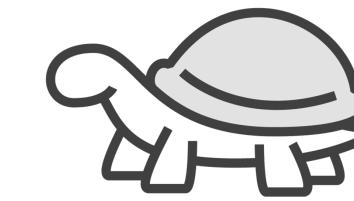


Chaos Engineering

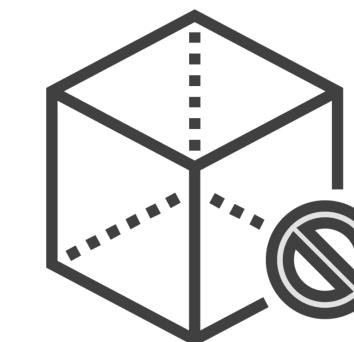


Bugs

Build more resilient systems!

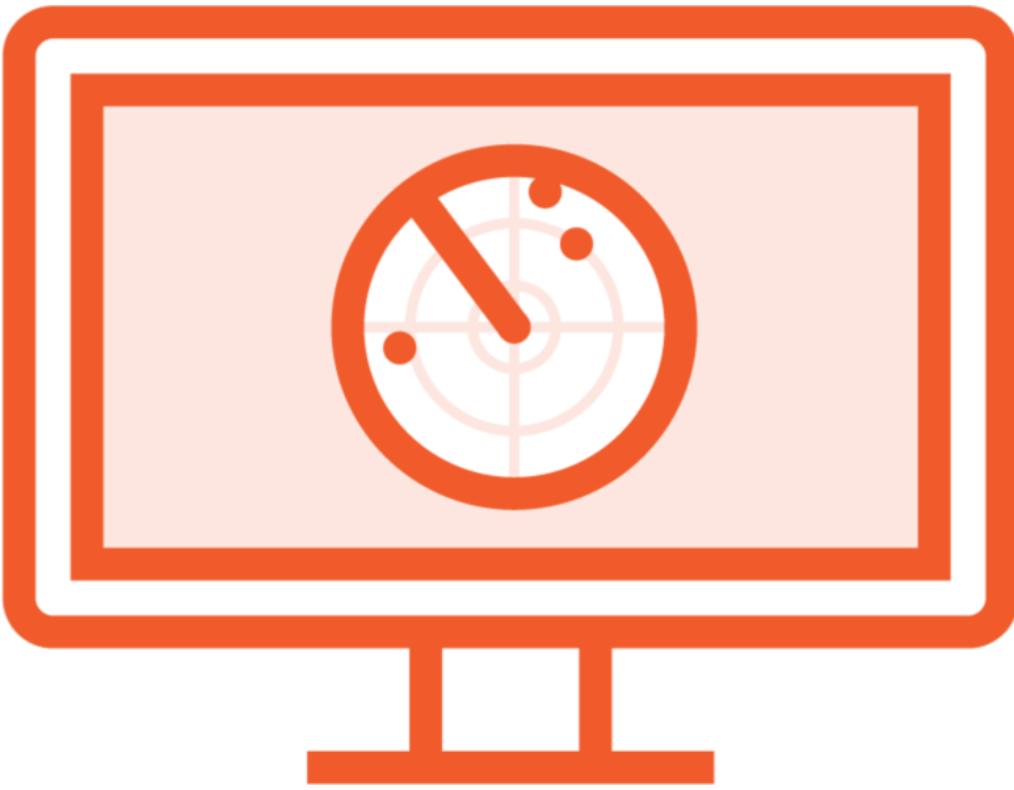


Bottlenecks



Design Flaws





Synthetic Monitoring



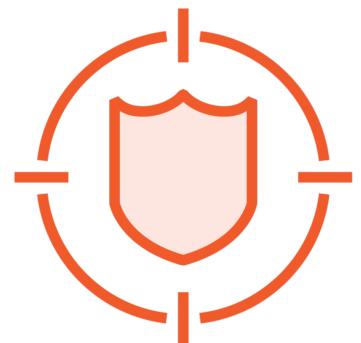
Chaos Engineering

Not the best match for a test-driven development process!



Is My Software Secure?

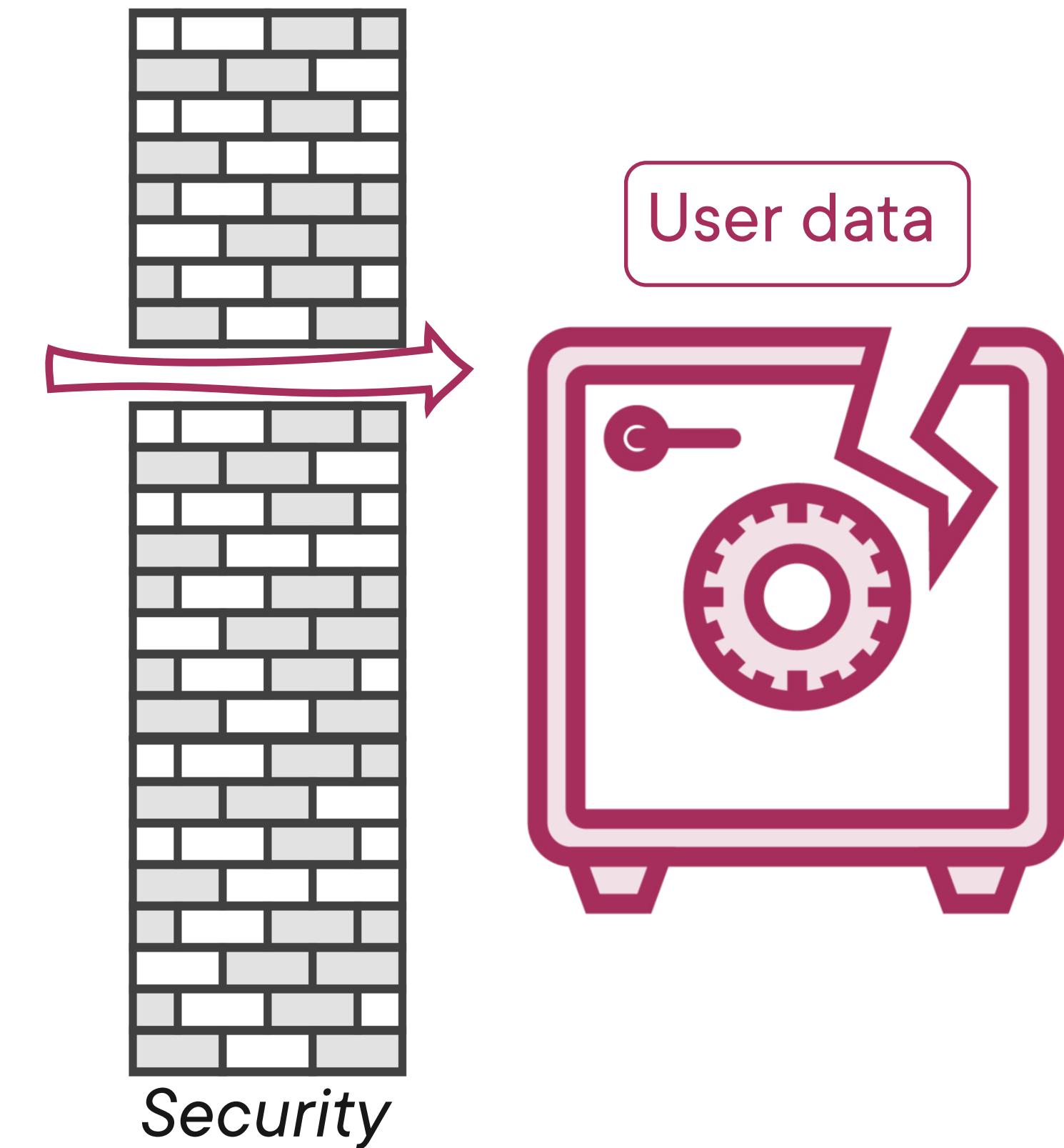
Penetration Testing



Simulated attacks



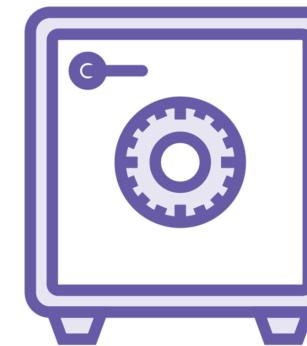
Software vulnerabilities



Compliance



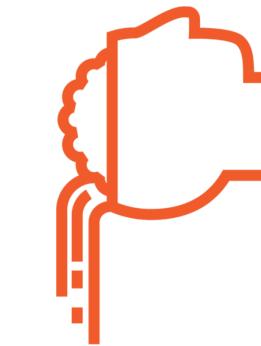
**General
Data
Protection
Regulation**



Privacy by design



Data breach notification



Right to be forgotten



Business Certifications



International
Organization for
Standardization





Manual Steps



External Interactions

Not the best match for a test-driven development process!



Summary



Is test-driven development all I need?

No!



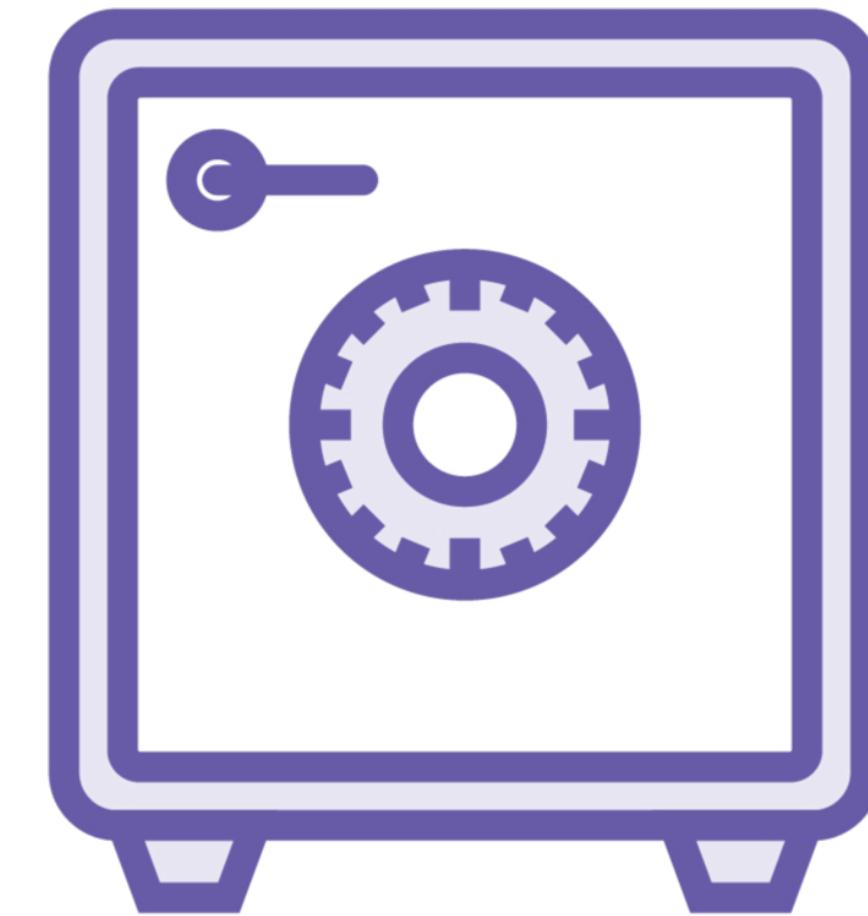
Summary



Performance



Production Health



Security/Compliance



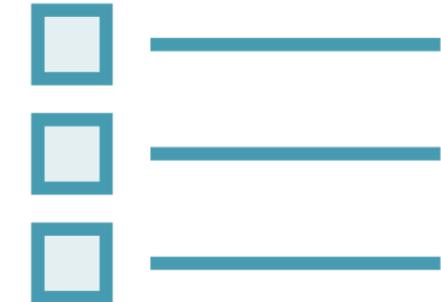
Summary - What Is Test-driven Development?

Test

“A procedure intended to establish the quality, performance, or reliability of something, especially before it is taken into widespread use.”



Satisfies
Requirements



Responds Correctly
to all Input



Acceptable
Performance



Test-driven Development

“A software development process that relies on the repetition of a very short development cycle: requirements are turned into very specific test cases, then the software is improved to pass the new tests, only.” - Wikipedia

“Red – Green - Refactor”



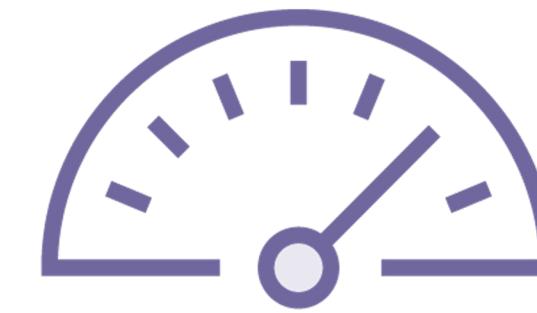
Maintenance accounts for **65%**
of all software development costs!



**Customer
Focus**



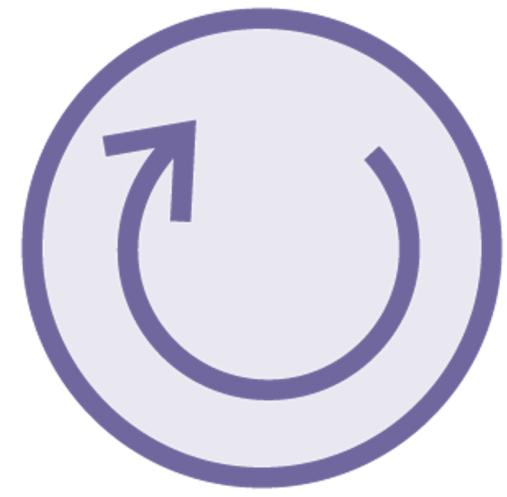
**Avoid
Over-engineering**



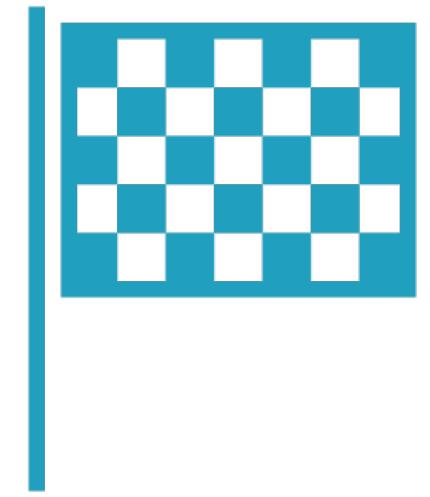
**Confidence
And
Momentum**



Next Steps



**Continuous
Improvement**



**From Legacy
to Supported**



**Share
Your Journey**



Related Topics

Agile Development



TDD for Your Language



Refactoring



Continuous Integration



Continuous Deployment



Thoughts? Comments? Questions?

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Common techniques for testing code

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