Component Tests

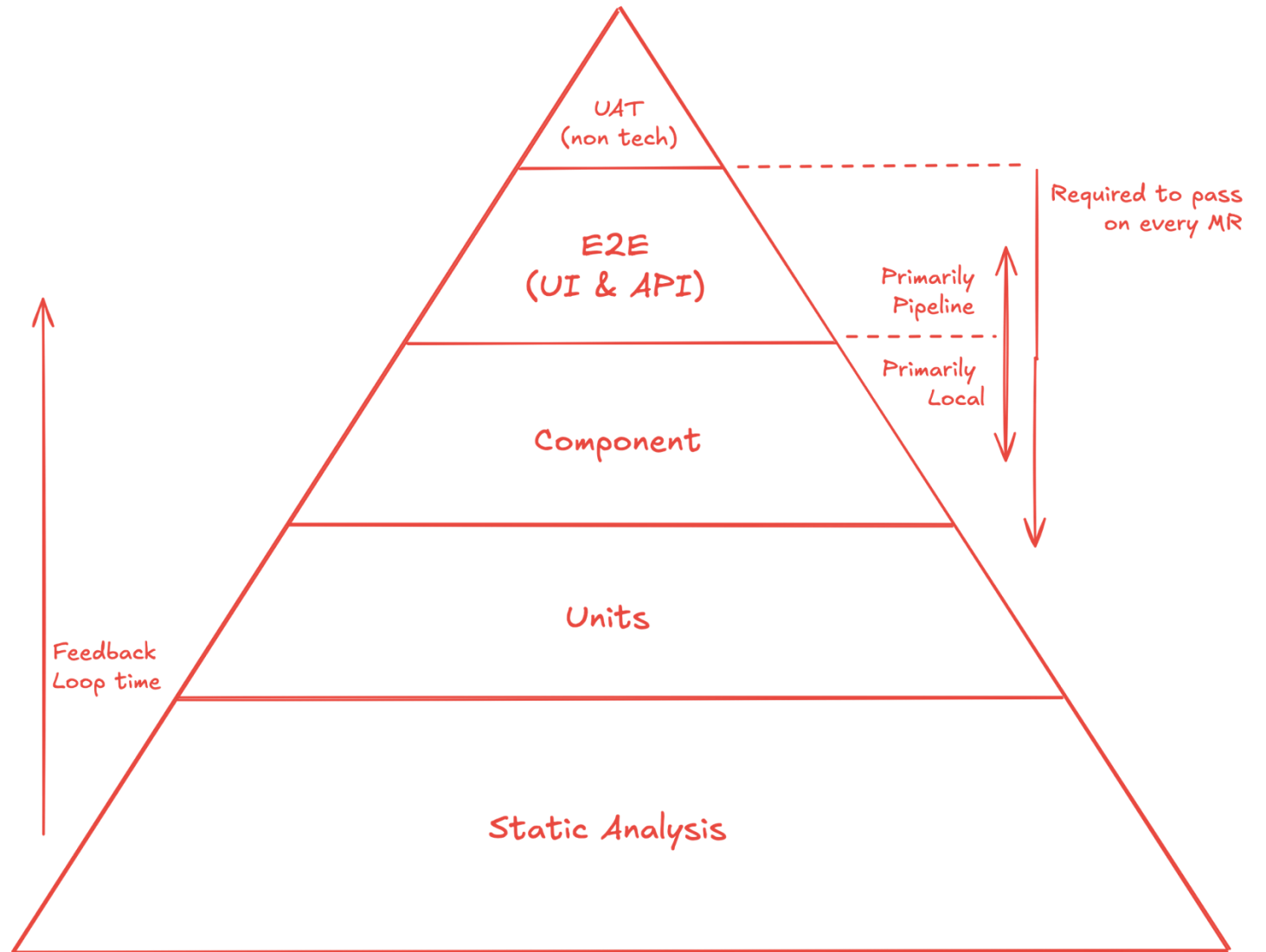The missing piece in your pipelines

Who Am I?
Shanmukha Vaddi

- Experienced software developer with 17 years of expertise across multiple programming languages and technology stacks

- Passionate about functional programming, distributed systems, event driven systems, observability and building resilient software guided by the test pyramid

- Likes to read books and browse tech
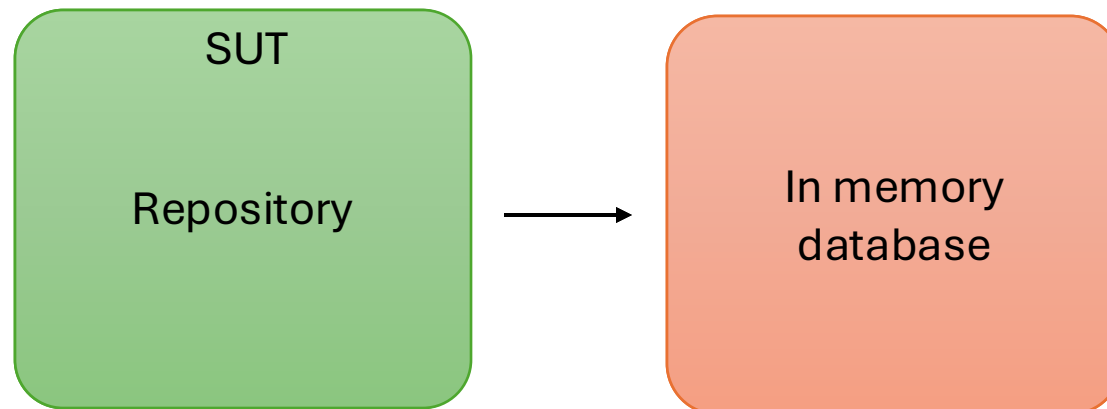
What is a component test?

- Component testing focuses on validating the functionality of individual components within a software product.

- The confusion about testing terminology

UAT
(non tech)

E2E
(UI & API)

Component

Units

Static Analysis

Feedback
Loop time

Required to pass
on every MR

Primarily
Pipeline

Primarily
Local

Thoughtworks - Tech Radar → Adopt Component Test (October 2024)

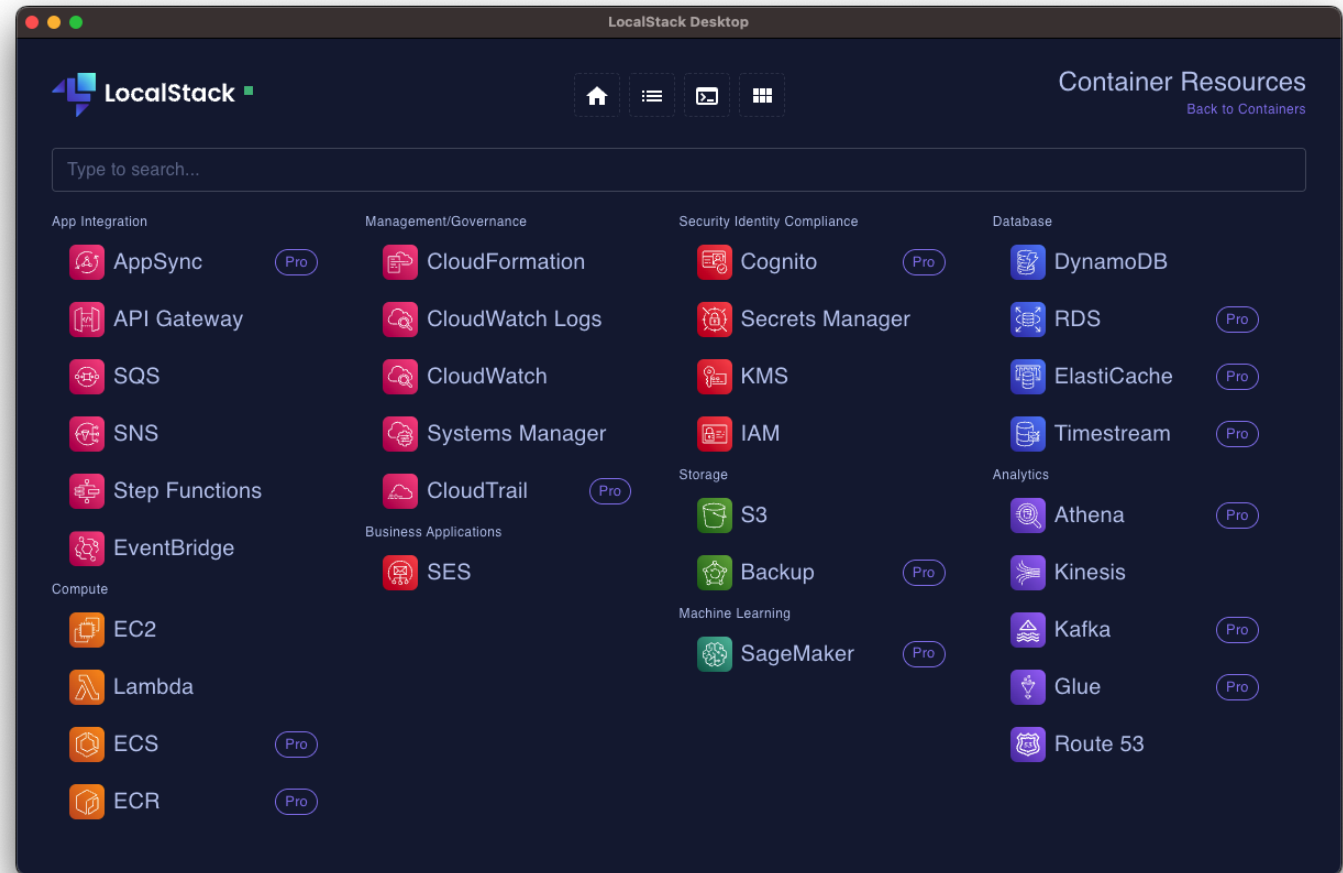# What a component test is NOT

- Not an end-to-end or full system test

- Does not test multiple components together

- Not focused on UI or external systems

- Not a simple integration test
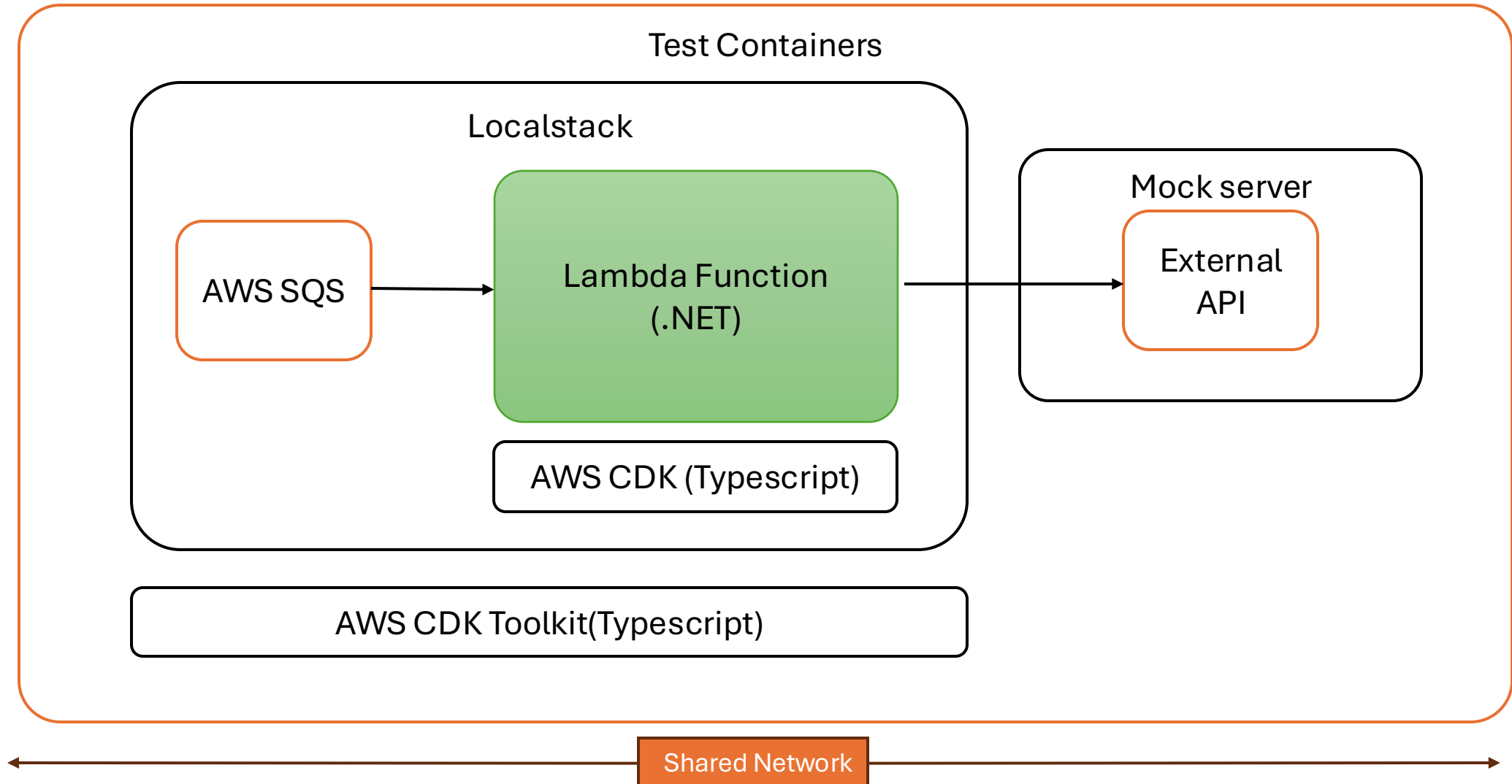
This is an integration test

Component Test – AWS Hosted Services Localstack!

- LocalStack is a **local cloud service emulator** that lets you **develop and test AWS applications offline**.

- Works seamlessly with CI/CD Pipelines

- Supports services like S3, Lambda, Dynamo DB, SQS, SNS, and more

- Open source with enterprise-grade extensions available.

[Localstack](#)

Component Test - AWS Hosted services Contd..

Why it's important to do component tests?

- Pinpoint issues within specific larger artefacts and ensures each external endpoint behaves correctly before deployment

- Provides a safety net, allowing developers to refactor code with confidence even big dependency updates

- Frequent testing of components ensures that new changes don't introduce regressions

- Improves maintainability

- Verify infrastructure configuration and capabilities

- Empowers people to experiment in a bolder way without breaking stuff

DEMO

Thank you

References

- Demo code
  https://github.com/shannu-vaddi/localstack-demo

- Tech radar
  https://www.thoughtworks.com/radar/techniques/component-testing

- Test pyramid
  https://martinfowler.com/articles/practical-test-pyramid.html

- Localstack
  https://www.localstack.cloud