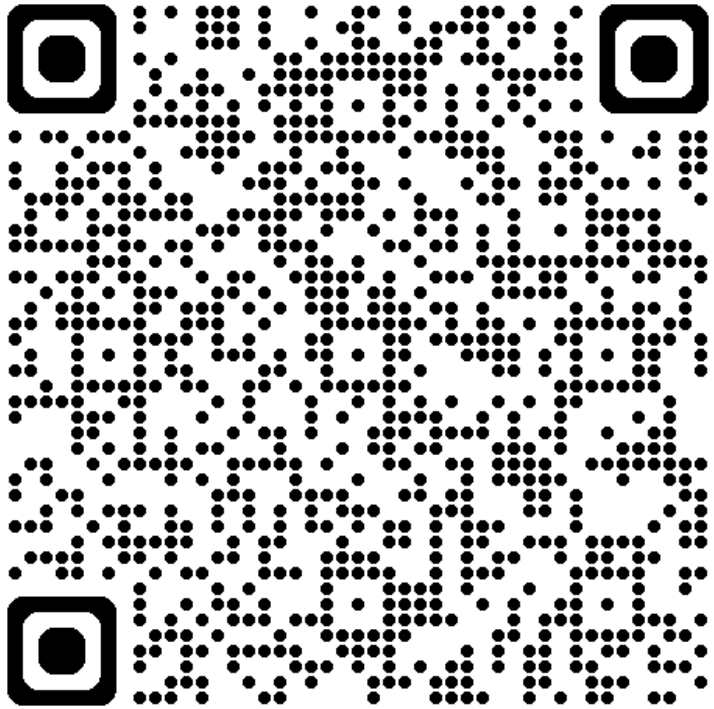
No More SQLite



How to Write Tests with EF Core Using Testcontainers

Daniel Ward

Slides and repo at daninacan.com

LEAN TECHNIQUES

MVP

SAN ANTONIO .NET

AUSTIN .NET

Me

- Software developer, consultant
- Microsoft .NET MVP
- Co-organizer of the San Antonio/Austin .NET User Group
- daninacan.com
- @danielwarddev
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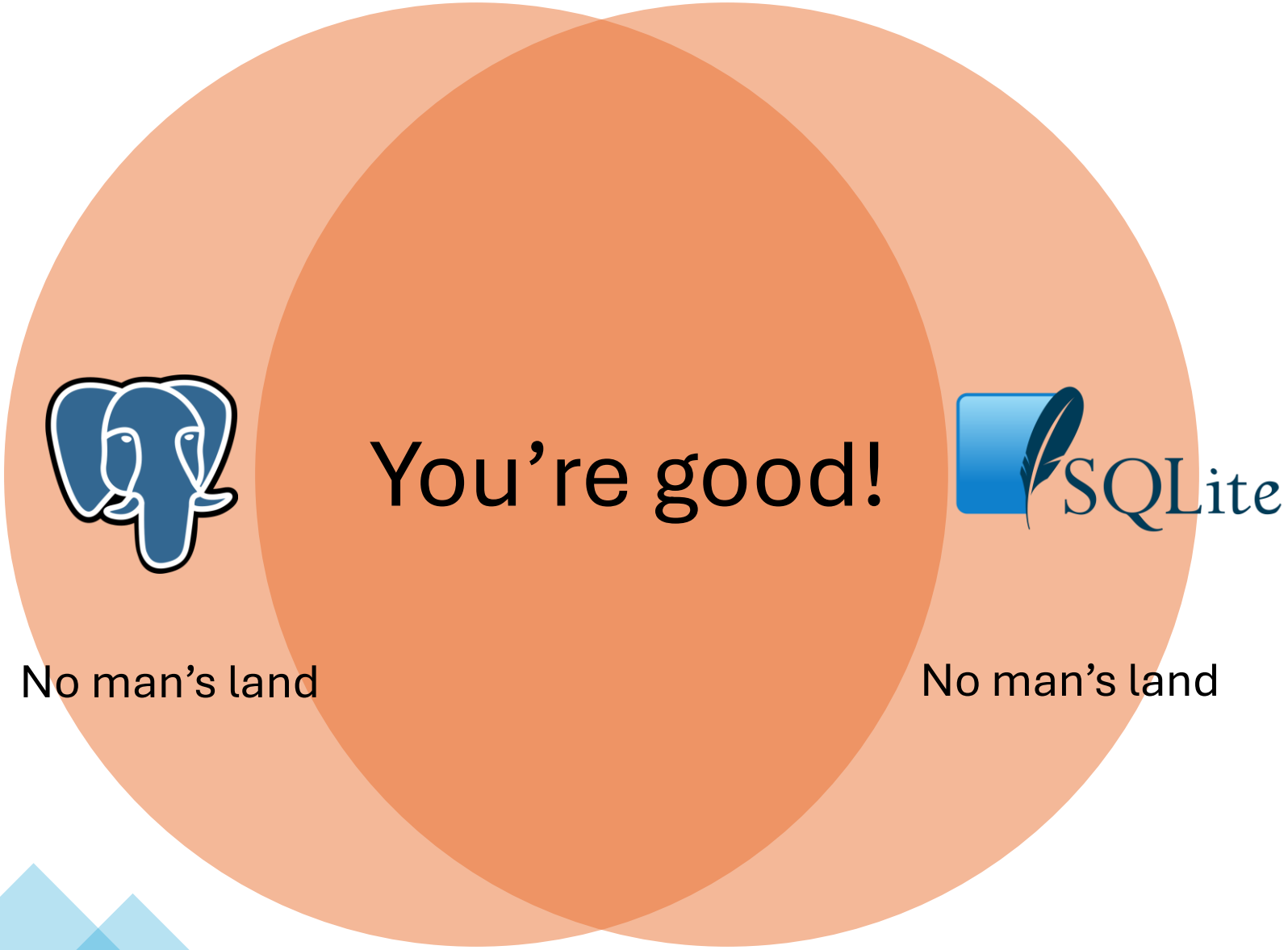
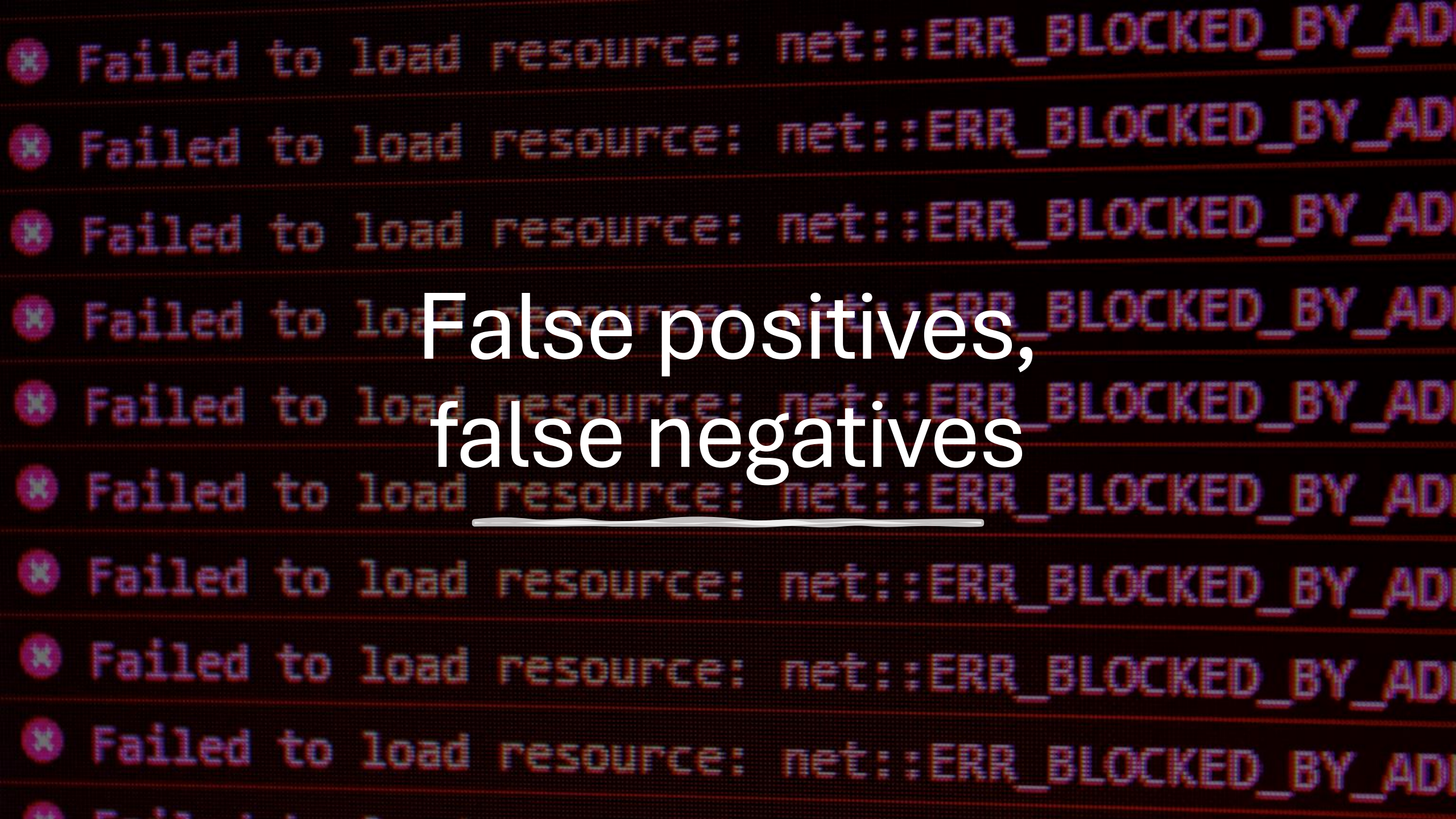
Works on my machine


You’re good!
SQLite
No man’s land
No man’s land


Failed to load resource: net::ERR_BLOCKED_BY_AD
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Failed to load resource: net::ERR_BLOCKED_BY_AD
Failed to load resource: net::ERR_BLOCKED_BY_AD
False positives,
false negatives

If you use a different SQL engine, you are testing a different system!

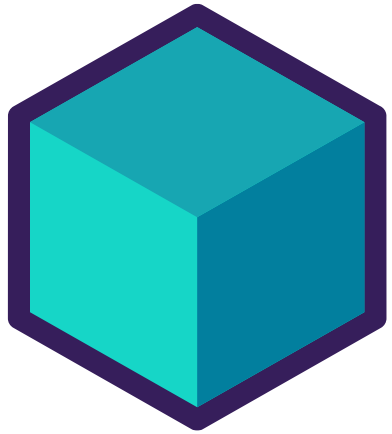
Why does that matter?

Traditional Options

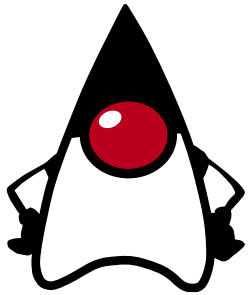
	Pros	Cons
EF in-memory provider	Easy to set up	Very unlike real database
SQLite provider	Easy to set up	Unlike real database
Real database	Same engine as production	Lots more work to maintain
Docker container	Same engine as production	More work to maintain

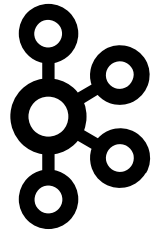
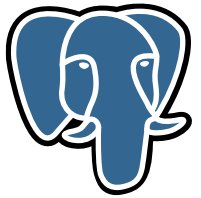
Take the existing Docker workflow, but automate it and add tooling

Slides and repo at daninacan.com

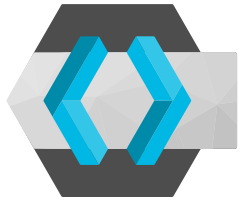


Testcontainers

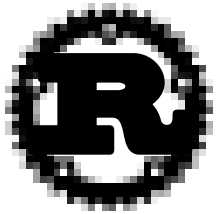


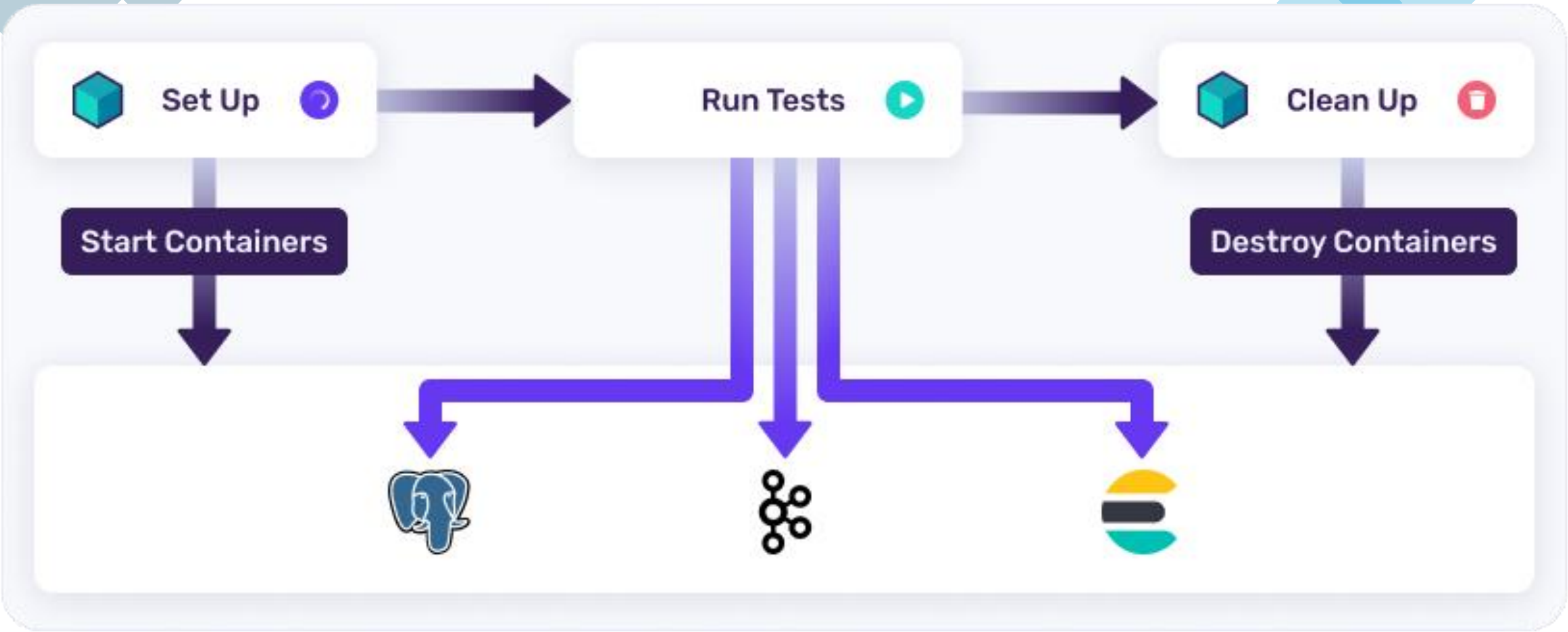





Lightweight, throwaway containers





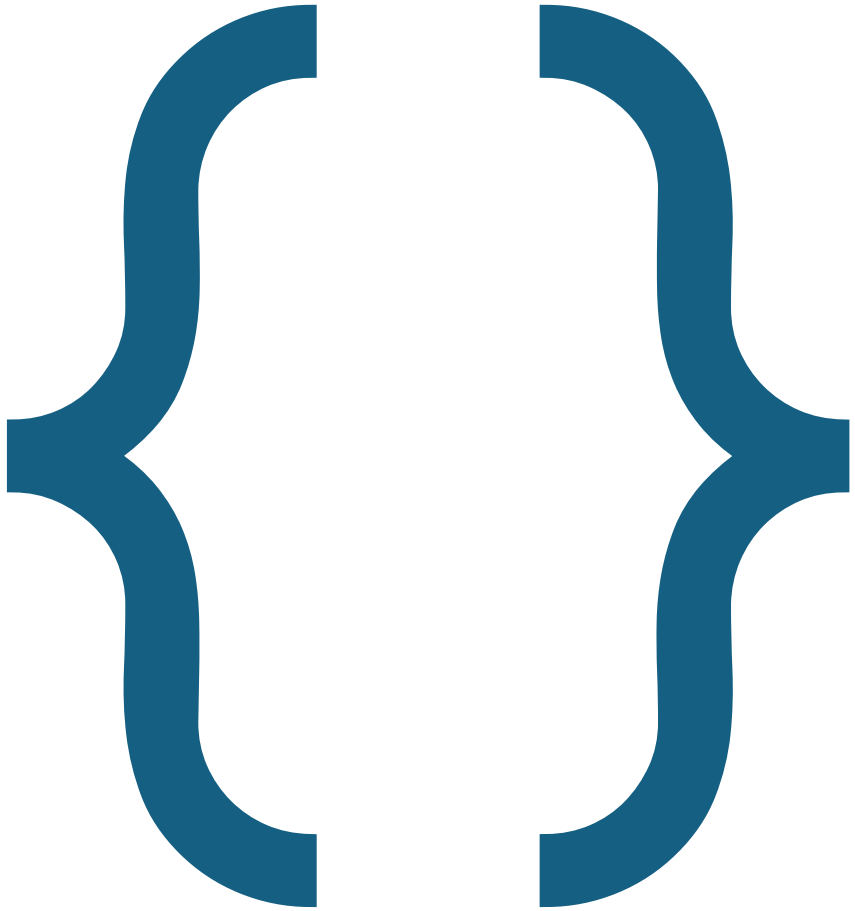




Set Up
Run Tests
Clean Up
Start Containers
Destroy Containers

```
private readonly PostgreSqlContainer _container = new PostgreSqlBuilder().Build();
```

```
await _container.StartAsync();
```

```
await _container.DisposeAsync();
```



Coding demo

- Testing packages
  - Autofixture
  - FluentAssertions
  - Testcontainers
  - Respawn

Honorable mentions

- Resource reuse
- Podman compatibility

Recap

- Traditional options for integration testing
- Testcontainers
- Coding demo
- Respawn

Thank you!

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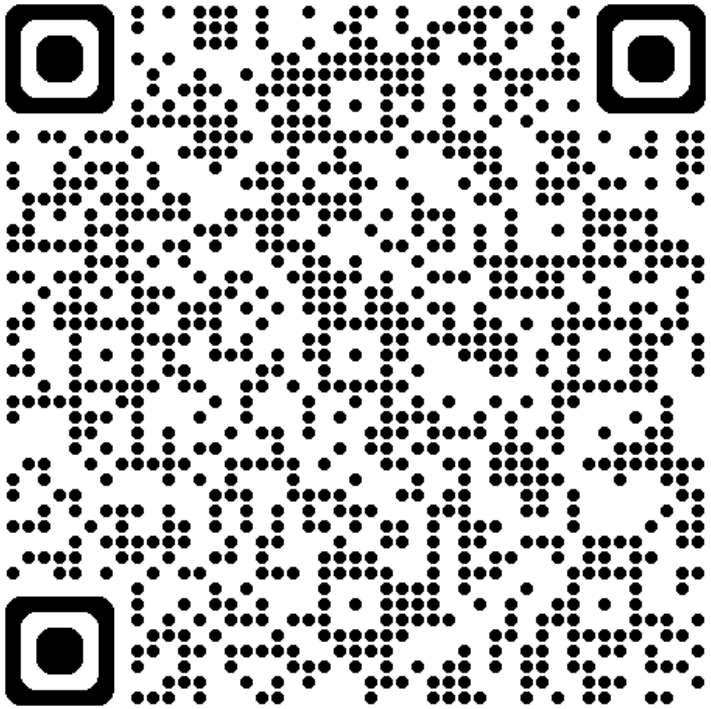

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