Testing apps at scale

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Agenda

- The importance of testing your apps
- What makes testing complicated?
- How do we do it at Shopify?

```
st {handle} = useParams();
nst {data} = useShopQuery({query: QUERY, variables: {handle}});

nst collection = data.collectionByHandle;

turn (
<Layout>
  <h1 className="text-2xl font-bold">{collection.title}</h1>

  <ul className="grid lg:grid-cols-3 gap-6 mt-4">
    {collection.products.edges.map((edge) => (
      <li key={edge.node.id}>
        <ProductCard product={edge.node} />
      </li>
    ))}
  </ul>
```

Why is testing important? Really.

High-quality

Reliability

Maintainability

Continuous Delivery & Integration

“you aren't really doing it unless you have self-testing code”

Confidence
to make changes to the system

Cross-platform Compatibility ensure that the app behaves consistently across platforms

Component-based architecture ensure that components function correctly in isolation and when integrated with other components

Account Frequent updates ensure that app functionality remains intact when updating to newer versions of X

JavaScript runtime

catch issues related to JS's dynamic nature

Performance

identify bottlenecks and optimize your apps

UI

Helps verify components are rendered how they are supposed to

So…where is the problem?

Testing needs to account for cross-platform differences to ensure a consistent user experience on all platforms

Native Modules making it hard by requiring separate tests for each platform

Asynchronous code

Variety of devices and configurations

Testing UI components is tricky

Third-party libraries and their co-dependency

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But before… Some testing tips

X

Keep your tests focused

X

Test behavior, not implementation

X

Test for accessibility

X

Keep tests organized

X

Always test edge cases

X

Use test-specific data

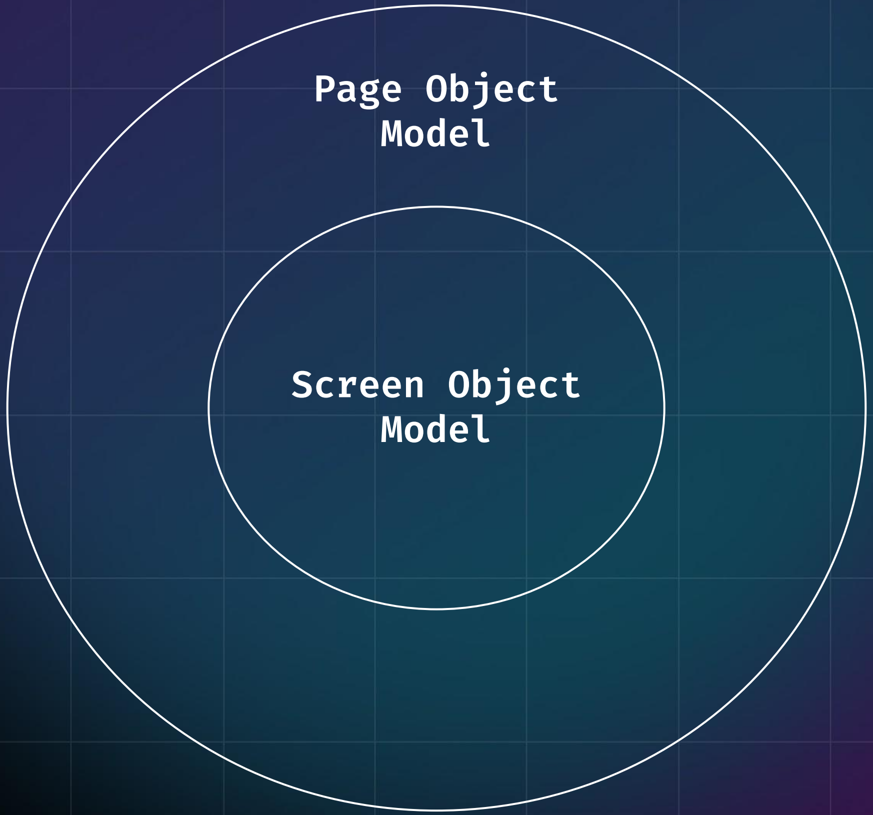
How do we do it?

How do we do it?

X

~18993 Screenshot, unit and functional tests for iOS, Android and React native apps.

We adopted e2e testing as a way of testing across the various units that make up our applications in the way that most closely resembles user-based scenarios


Page Object Model
Screen Object Model

Divide the application into modules and screens as needed and abstract object recognition and actions on those objects from the test level.

✅ Functional Testing

❌ Hierarchy Based Testing

Testing Tooling

- BrowserStack
- Snack
- Appium

🎥 [Appium]

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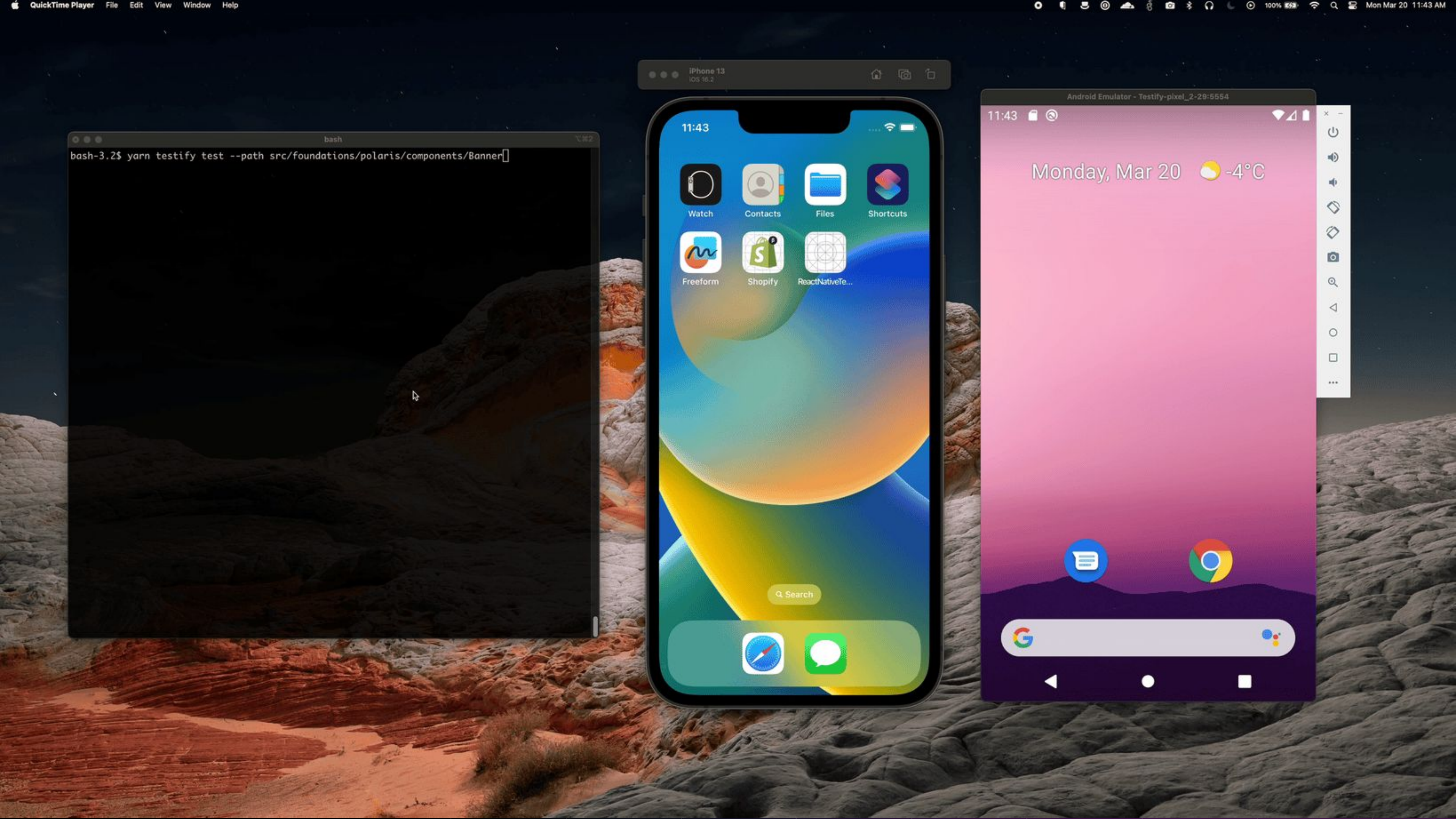
Testing Tooling

react-native-testify



```
bash-3.2$ yarn testify test --path src/foundations/polaris/components/Banner
```

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Top-Hatting

Lightweight
web server

↓

Github

$$\begin{tikzcd}\text{Pipeline Artifacts} \arrow[d] \\ \text{Google Cloud Buckets}\end{tikzcd}$$

iOS and Android application builds

Links to GCS artifacts so PR reviewers can install the builds with a single click

🎥 [Tophat]

Manual QA

Internal users

testing our apps in

low end Android &

iOS physical devices

Making testing better so development gets better to make commerce better 🚀

shopify

Thank you