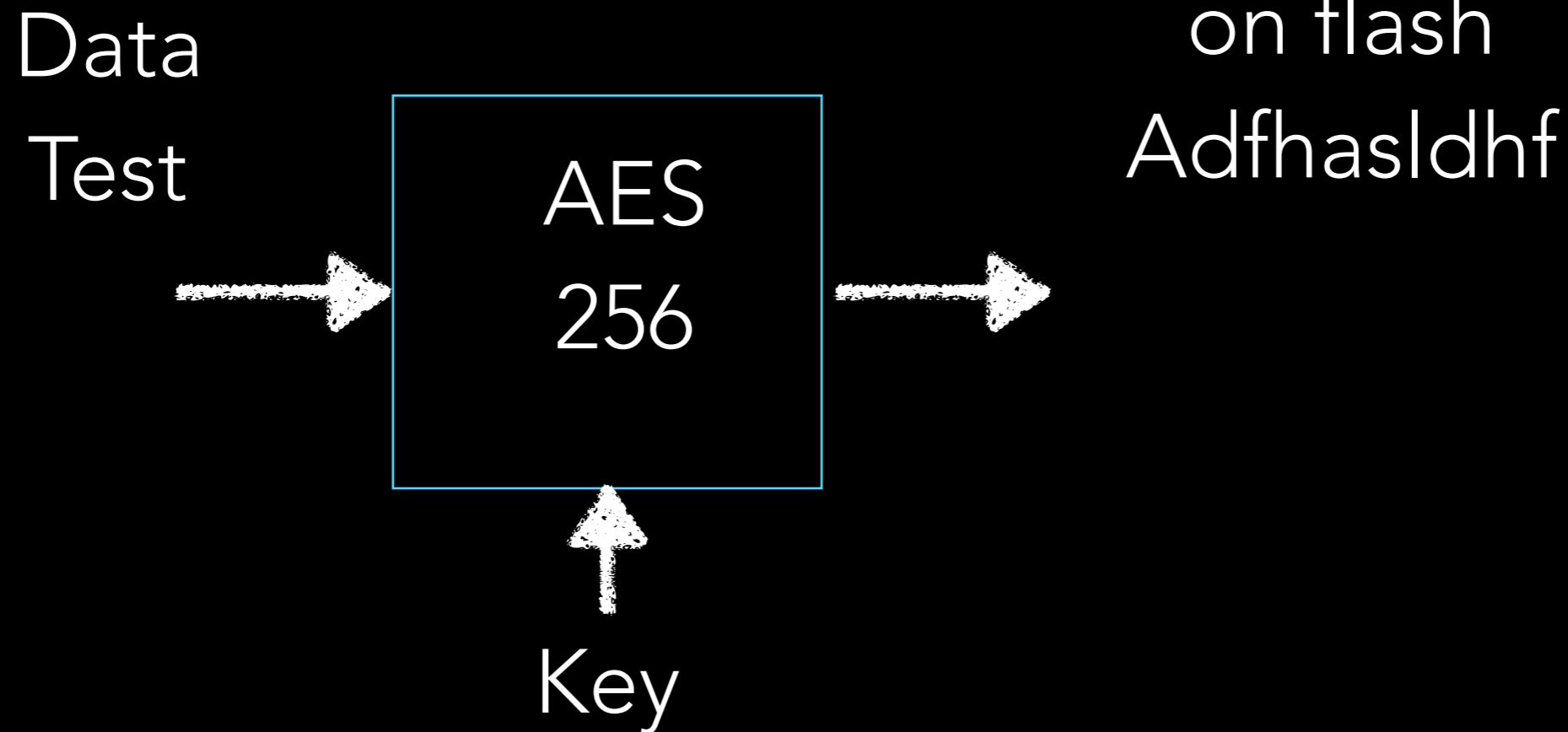


DANIEL GRAHAM PHD

# SECURE STORAGE

# WHY DO WE NEED SECURE STORAGE

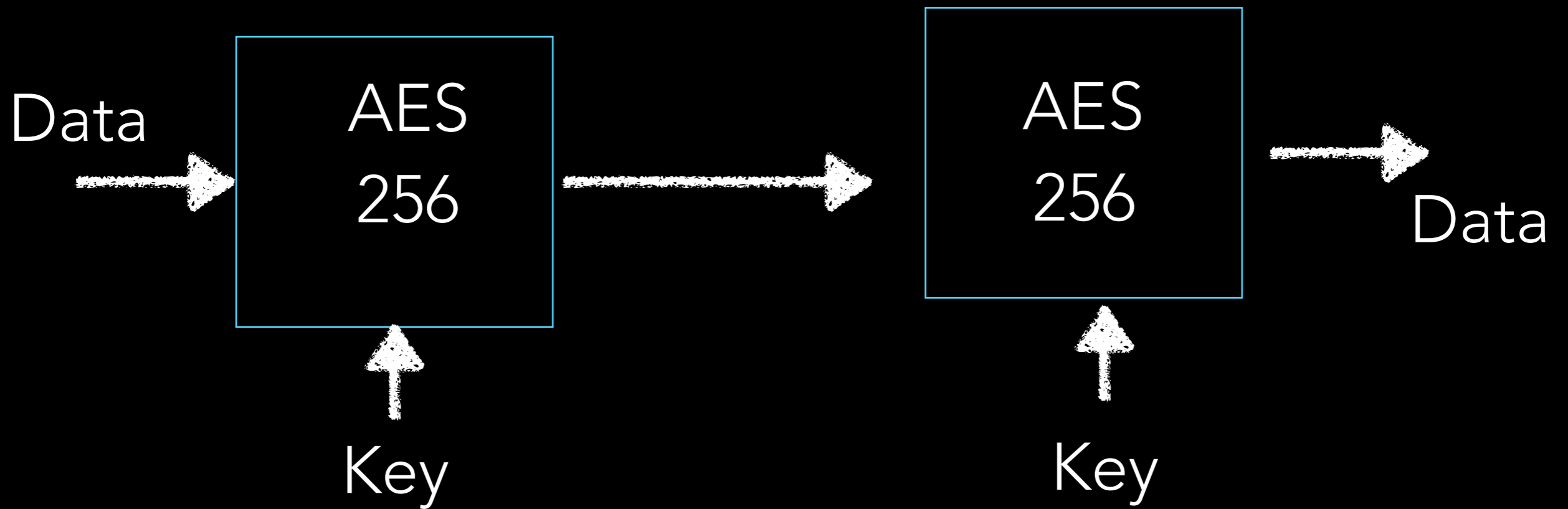
- We can encrypt the data



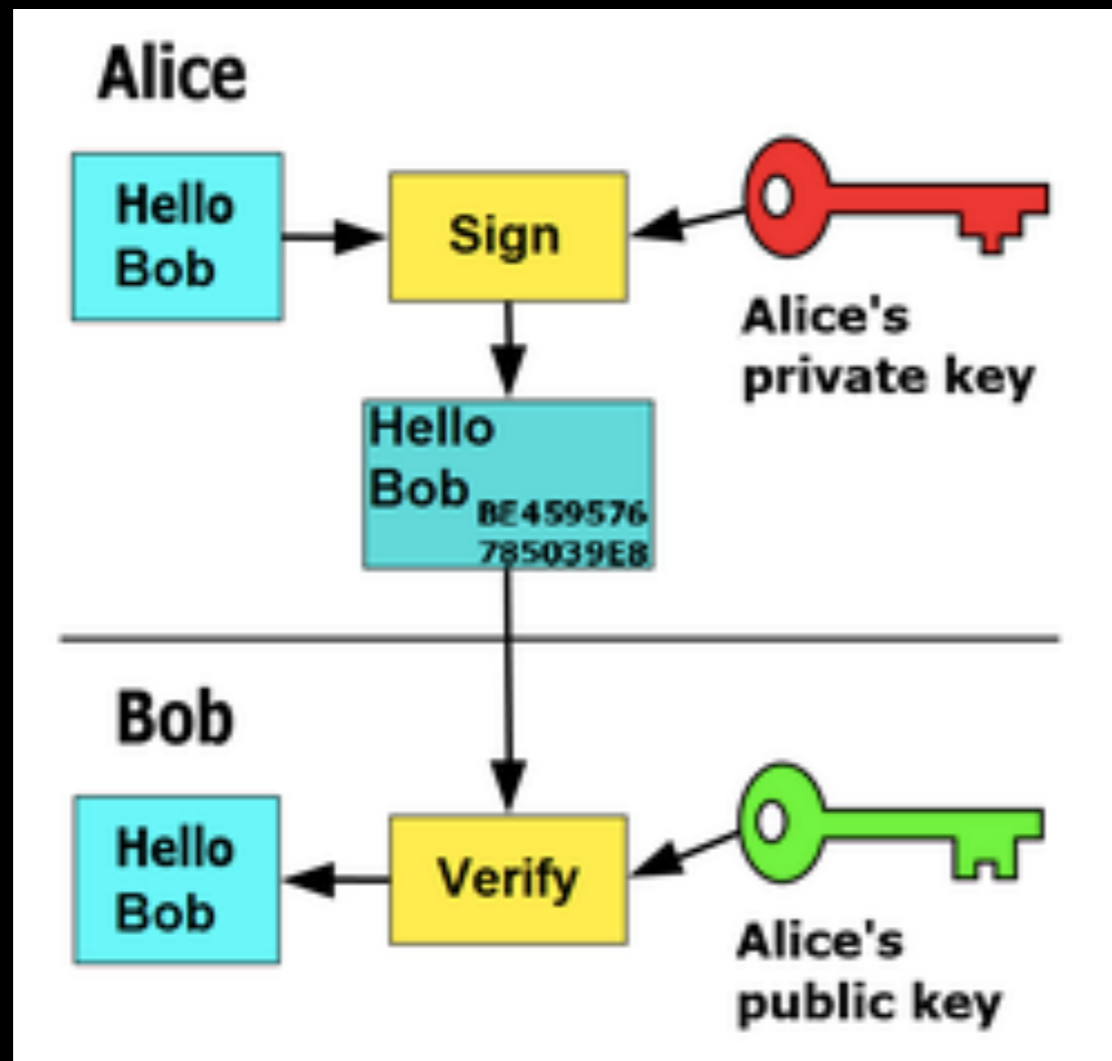
- But where do we store the key

# HOW IS THE KEYSTORE PROTECTED

Data store on flash

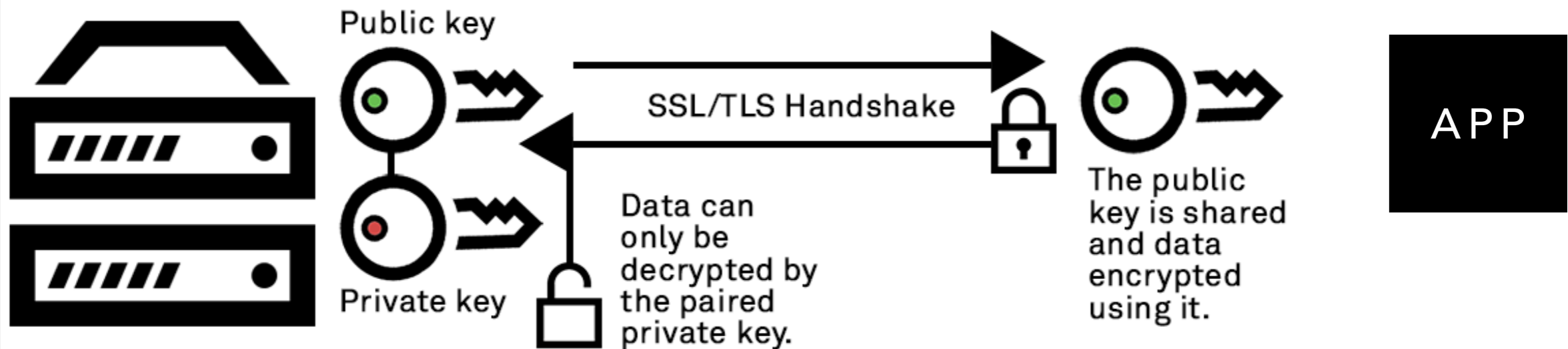


# PUBLIC PRIVATE KEY



# KEYSTORE

## Public-Private Key Encryption



Still need to store the private key somewhere

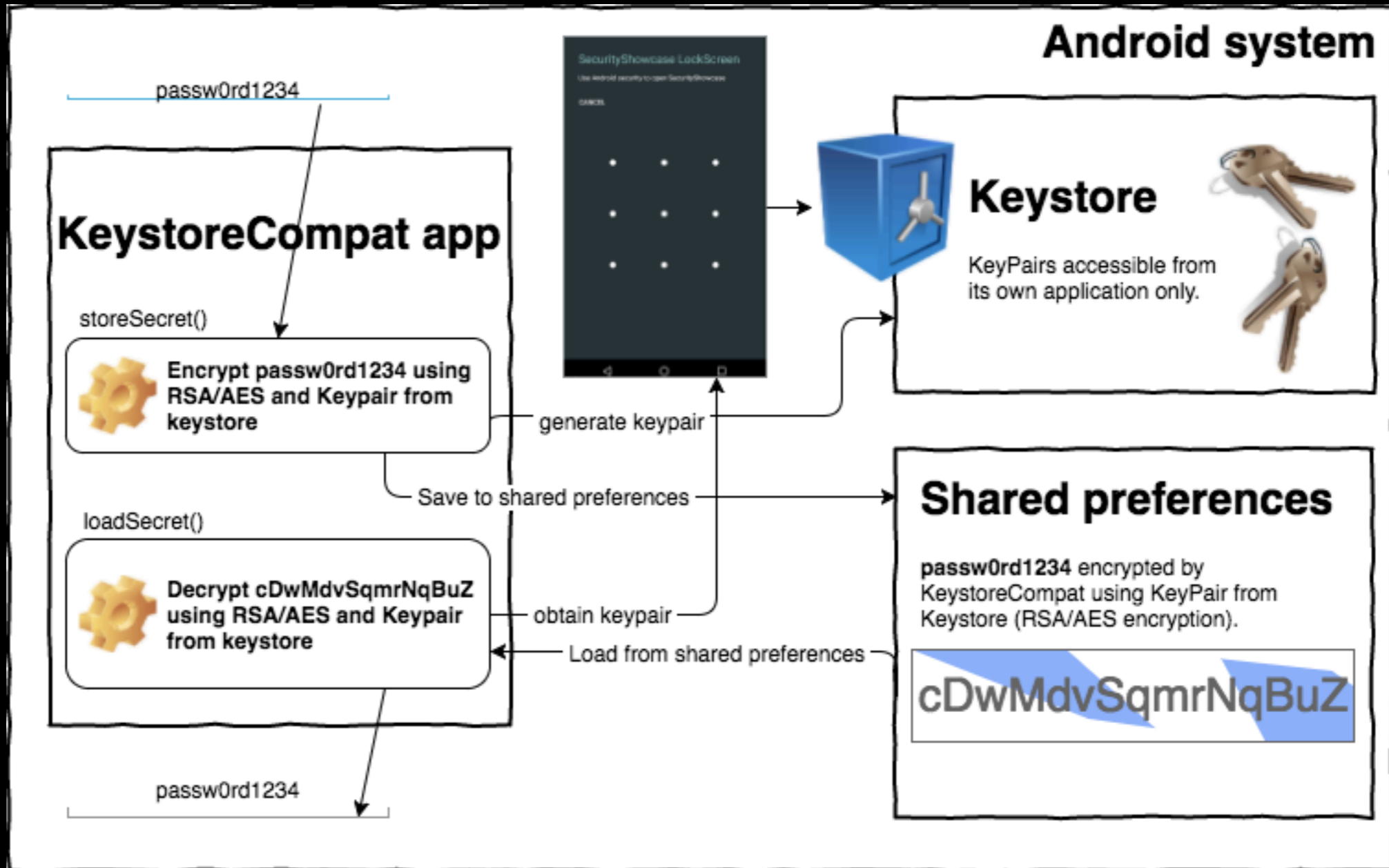
# ANDROID KEYSTORE

- The Android Keystore system lets you store cryptographic keys in a container to make it more difficult to extract from the device

# HOW ARE KEY SECURE STORED

- Key material never enters the application process. When an application performs cryptographic operations using an Android Keystore key, behind the scenes plaintext, ciphertext, and messages to be signed or verified are fed to a system process which carries out the cryptographic operations.
-

# KEYSTORE FLOW





# HOW IS THE KEYSTORE KEY SECURE

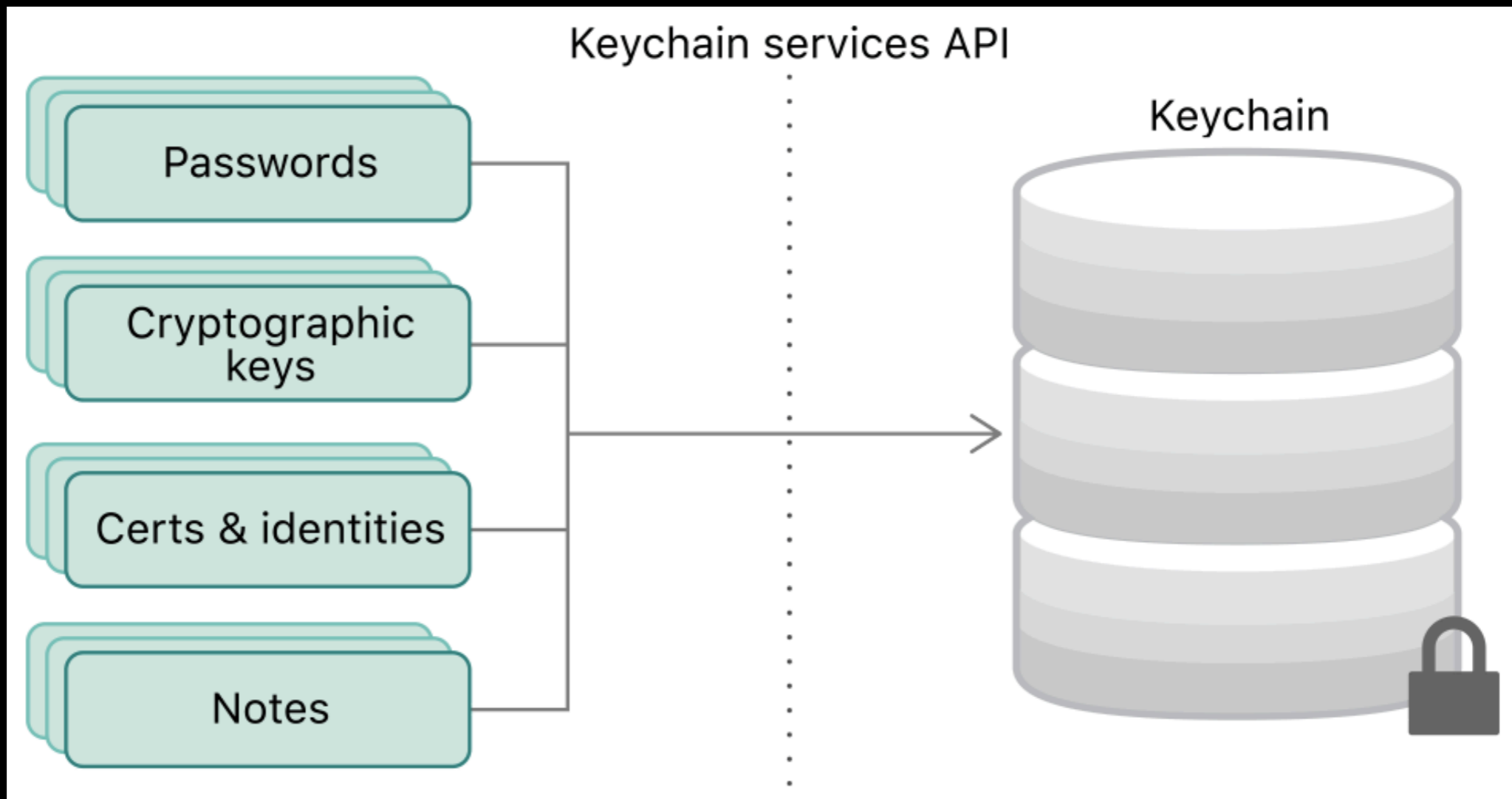
- Key material may be bound to the secure hardware (e.g., Trusted Execution Environment (TEE), Secure Element (SE)) of the Android device



# EXPO SUPPORT SECURE ON BOTH PLATFORMS

<https://docs.expo.io/versions/latest/sdk/securestore/>

iOS: Values are stored using the keychain services



# SECURE STORAGE SNACK

- <https://snack.expo.io/@professorxii/securestorage>

# FIREBASE EXPO INTEGRATION

```
npm install --save firebase
```

## Welcome to Firebase!

### Add Firebase to your web app

✕

Copy and paste the snippet below at the bottom of your HTML, before other `script` tags.

```
<script src="https://www.gstatic.com/firebasejs/5.2.0/firebase.js"></script>
<script>
  // Initialize Firebase
  var config = {
    apiKey: "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX",
    authDomain: "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX",
    databaseURL: "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX",
    projectId: "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX",
    storageBucket: "XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX",
    messagingSenderId: "XXXXXXXXXXXXXXXXXXXXXXXXXXXX"
  };
  firebase.initializeApp(config);
</script>
```

Copy

Check these resources to learn more about Firebase for web apps:

- [Get Started with Firebase for Web Apps](#) ↗
- [Firebase Web SDK API Reference](#) ↗
- [Firebase Web Samples](#) ↗

# FIREBASE

Example Code in git repo

- <https://medium.com/mindorks/firebase-realtime-database-with-react-native-5f357c6ee13b>