LeanCode

Firebase suite
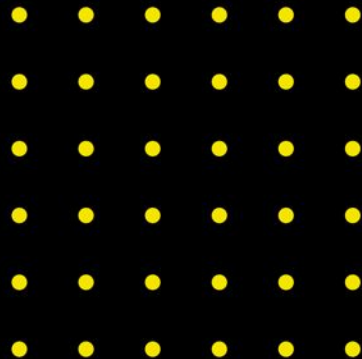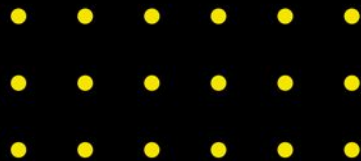
Build

Accelerate app development with fully managed backend infrastructure

View all build products

⬢ Cloud Firestore

👥 Authentication

Release & Monitor

Release with confidence and monitor performance and stability

View all release & monitor products

⚙ Crashlytics

📊 Google Analytics

Engage

Boost user engagement with rich analytics, A/B testing, and messaging campaigns

View all engage products

⤨ Remote Config

☁ Cloud Messaging

Build

LeanCode

Authentication

LeanCode

Authentication

- Email & password / Email & link
- Google / Apple / Facebook / Twitter / Github
- Phone number & SMS
- Anonymous user
- Custom auth provider

```
try {
  UserCredential userCredential = await FirebaseAuth.instance.signInWithEmailAndPassword(
    email: "barry.allen@example.com",
    password: "SuperSecretPassword!"
  );
} on FirebaseAuthException catch (e) {
  if (e.code == 'user-not-found') {
    print('No user found for that email.');
  } else if (e.code == 'wrong-password') {
    print('Wrong password provided for that user.');
  }
}
```

LeanCode

Cloud Firestore

LeanCode

Cloud Firestore

- NoSQL document database
- Flexible & scalable - you just use it (but also pay)
- Ordering & limiting
- Compound queries & indexing
- Security connected with Firebase Auth

LeanCode

```dart
@override
Widget build(BuildContext context) {
  // Create a CollectionReference called users that references the firestore collection
  CollectionReference users = FirebaseFirestore.instance.collection('users');

  Future<void> addUser() {
    // Call the user's CollectionReference to add a new user
    return users
        .add({
          'full_name': fullName, // John Doe
          'company': company, // Stokes and Sons
          'age': age // 42
        })
        .then((value) => print("User Added"))
        .catchError((error) => print("Failed to add user: $error"));
  }

  return TextButton(
    onPressed: addUser,
    child: Text(
      "Add User",
    ),
  );
```

Realtime Database

LeanCode

Realtime Database

- Original Firebase DB
- Cloud Firestore emerged from this
- Focused on low-latency synchronization
- Simple queries only

LeanCode

Storage

LeanCode

Storage

- File storage for user-generated content
- Robust operations (connectivity awareness)
- Integrated with Firebase Auth
- Scalability

LeanCode

```dart
import 'package:path_provider/path_provider.dart';

Future<void> downloadFileExample() async {
  Directory appDocDir = await getApplicationDocumentsDirectory();
  File downloadToFile = File('${appDocDir.path}/download-logo.png');

  try {
    await firebase_storage.FirebaseStorage.instance
        .ref('uploads/logo.png')
        .writeToFile(downloadToFile);
  } on firebase_core.FirebaseException catch (e) {
    // e.g, e.code == 'canceled'
  }
}
```
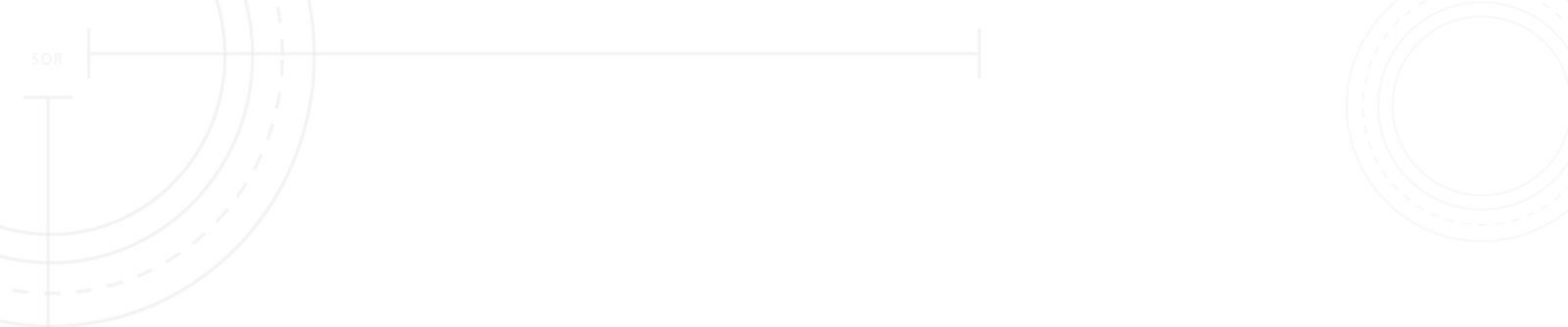
LeanCode

Machine Learning

Machine Learning

- Production-ready models for popular use cases (recognize text, label images, recognize landmarks)
- Hosting custom TensorFlow Lite models
- Training custom models in the cloud (using your uploaded data)

LeanCode

Hosting

LeanCode

Hosting

- SSL for free
- Static HTML (Flutter Web) or redirect to Cloud Function
- Easy upload (through Firebase CLI)
- Cache / CDN included

LeanCode

```
$ firebase deploy --only hosting
```

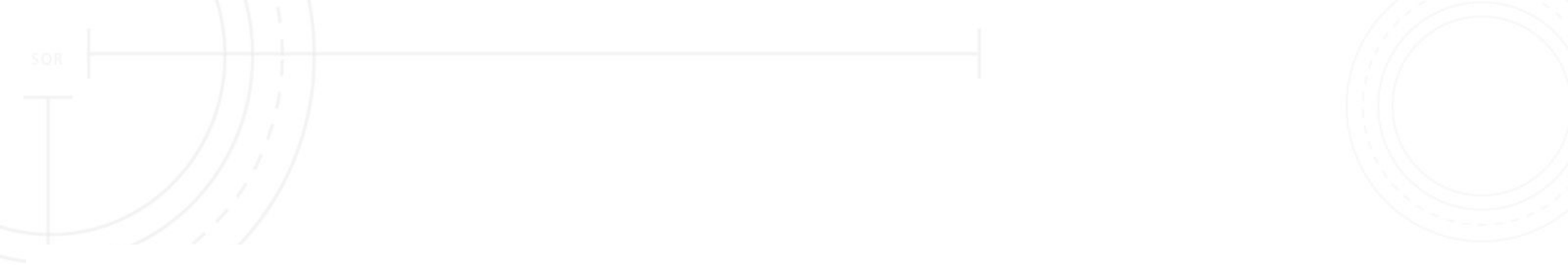LeanCode

Cloud Functions

LeanCode

Cloud Functions

- Integrated with Firebase (Auth / Storage / Firestore triggers)
- Serverless = zero maintenance
- Look for Google Cloud Functions vs Cloud Functions for Firebase because they are **NOT** the same

We build digital products.

LeanCode

```javascript
exports.addMessage = functions.https.onRequest(async (req, res) => {
  // Grab the text parameter.
  const original = req.query.text;
  // Push the new message into Firestore using the Firebase Admin SDK.
  const writeResult = await admin.firestore().collection('messages').add({original: original});
  // Send back a message that we've successfully written the message
  res.json({result: `Message with ID: ${writeResult.id} added.`});
});
```

```javascript
// Always change the value of "/hello" to "world!"
exports.hello = functions.database.ref('/hello').onWrite(event => {
  // set() returns a promise. We keep the function alive by returning it.
  return event.data.ref.set('world!').then(() => {
    console.log('Write succeeded!');
  });
});
```

LeanCode

AppCheck

LeanCode

1. Your app interacts with the provider of your choice to obtain an attestation of the app or device's authenticity (or both, depending on the provider).

2. The attestation is sent to the App Check server, which verifies the validity of the attestation using parameters registered with the app, and returns to your app an App Check token with an expiration time. This token might retain some information about the attestation material it verified.

3. The App Check client SDK caches the token in your app, ready to be sent along with any requests your app makes to protected services.

LeanCode

AppCheck

DeviceCheck and AppAttest on iOS

SafetyNet on Android

reCAPTCHA on Web

LeanCode

Extensions

LeanCode

Categories ∧

- ☐ ✉ Marketing
- ☐ 💬 Messaging
- ☐ 💳 Payments
- ☐ 🔍 Search
- ☐ 🚚 Shipping
- ☐ 👥 Social
- ☐ 🔧 Utilities

Trending ∧

- ☐ 💡 Spotlight
- ☐ 🔥 Popular

Firebase products ∧

- ☐ 👥 Authentication
- ☐ ☁ Cloud Firestore
- ☐ 🗄 Cloud Storage
- ☐ 🗄 Realtime Database

Search with Algolia
Made by **Algolia** ✔

Enables full text search of your Cloud Firestore data with Algolia.

🔍 Search

Install   View details

Search with Elastic App Search
Made by **Elastic** ✔

Syncs documents from a Firestore collection to Elastic App Search to enable full-text search.

🔍 Search

Install   View details

Delete User Data
Made by **Firebase** ✔

Deletes data keyed on a userId from Cloud Firestore, Realtime Database, or Cloud Storage when a user deletes the...

🔧 Utilities

Install   View details

Stream Collections to BigQuery
Made by **Firebase** ✔

Sends realtime, incremental updates from a specified Cloud Firestore collection to BigQuery.

🔧 Utilities

Install   View details

Distributed Counter
Made by **Firebase** ✔

Records event counters at scale to accommodate high-velocity writes to Cloud Firestore.

🔧 Utilities

Install   View details
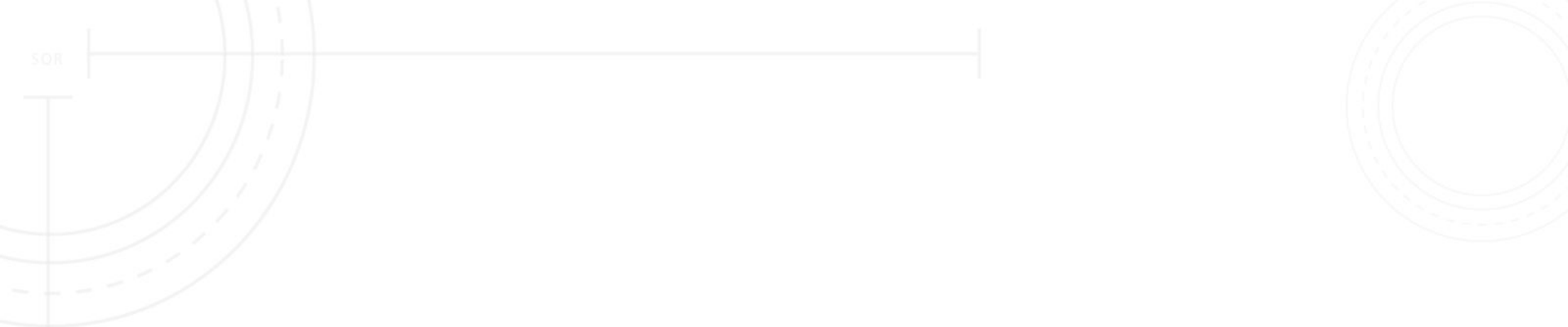
Trigger Email
Made by **Firebase** ✔

Composes and sends an email based on the contents of a document written to a specified Cloud Firestore...

💬 Messaging

Install   View details

We build digital products.

Crashlytics

LeanCode

Crashlytics

- Crash reporting from Flutter
- Crash reporting from native code (iOS/Android) and Android NDK
- Deobfuscation handling
- Metrics synced with Analytics

LeanCode

```
void main() async {
  WidgetsFlutterBinding.ensureInitialized();

  await Firebase.initializeApp();

  // Pass all uncaught errors from the framework to Crashlytics.
  FlutterError.onError = FirebaseCrashlytics.instance.recordFlutterError;

  runApp(MyApp());
}
```

We build digital products.

LeanCode

Performance Monitoring (ß)

LeanCode

Performance Monitoring

- Startup times
- Rendering per screen
- HTTP requests
- Foreground / background activity
- Performance metrics

LeanCode

Test Lab

Test Lab

- Test on real devices and emulators
- Both Android and iOS
- Integrations with CLI / IDEs / CI systems
- *integration_test* package works with Test Lab

LeanCode

App Distribution (ß)

App Distribution

- Distribute artifacts
- Tester groups but only per-project
- No auto-provisioning
- No auto-update alerts
- Worse than AppCenter :P

LeanCode

Engage

LeanCode

Analytics

LeanCode

Analytics

- Quantity analytics
- Free up to 500 events
- Events and user props
- Audience segmentation

LeanCode

```dart
await widget.analytics.logEvent(
  name: 'test_event',
  parameters: <String, dynamic>{
    'string': 'string',
    'int': 42,
    'long': 12345678910,
    'double': 42.0,
    'bool': true,
  },
);
```

LeanCode

Remote Config

Remote Config

- Config server-side parameters for users
- Auto-synchronization every 24 hours
- Connected to Analytics audiences

LeanCode

```dart
Future<RemoteConfig> setupRemoteConfig() async {
  await Firebase.initializeApp();
  final RemoteConfig remoteConfig = RemoteConfig.instance;
  await remoteConfig.setConfigSettings(RemoteConfigSettings(
    fetchTimeout: const Duration(seconds: 10),
    minimumFetchInterval: const Duration(hours: 1),
  ));
  await remoteConfig.setDefaults(<String, dynamic>{
    'welcome': 'default welcome',
    'hello': 'default hello',
  });
  RemoteConfigValue(null, ValueSource.valueStatic);
  return remoteConfig;
}
```

Predictions

Predictions

- ML connected to Analytics data predicts specific events
- Defaults to churn and spend predictions

LeanCode

A/B Testing

We build digital products.

LeanCode

A/B Testing

- Experiments with Remote Config
- Connected to Predictions therefore also Analytics
- Combines with Notifications to notify about changes
- Allows "safe rollout" mechanisms

LeanCode

Cloud Messaging (FCM)

Cloud Messaging

- Send push notifications to Android / iOS / Web
- Use specific devices or pub/sub model
- Send acknowledgements from clients

LeanCode

```dart
FirebaseMessaging.onMessage.listen((RemoteMessage message) {
  print('Got a message whilst in the foreground!');
  print('Message data: ${message.data}');

  if (message.notification != null) {
    print('Message also contained a notification: ${message.notification}');
  }
});
```

In-App Messaging (ß)

LeanCode

In-App Messaging

- Send engagement messages without instant arrival
- Use segmentation from Analytics / Predictions
- Implement custom alerts in your code

LeanCode

Dynamic Links

LeanCode

Dynamic Links

- Deep links with after-install behavior
- Can be created through Firebase console or the app
- Connected to Analytics

LeanCode

```dart
void initDynamicLinks() async {
  FirebaseDynamicLinks.instance.onLink(
    onSuccess: (PendingDynamicLinkData? dynamicLink) async {
      final Uri? deepLink = dynamicLink?.link;

      if (deepLink != null) {
        Navigator.pushNamed(context, deepLink.path);
      }
    },
    onError: (OnLinkErrorException e) async {
      print('onLinkError');
      print(e.message);
    }
  );

  final PendingDynamicLinkData? data = await FirebaseDynamicLinks.instance.getInitialLink();
  final Uri? deepLink = data?.link;

  if (deepLink != null) {
    Navigator.pushNamed(context, deepLink.path);
  }
}
```

AdMob -> Google Mobile Ads

LeanCode

AdMob -> Google Mobile Ads

- Just ads :)
- Can be connected to Firebase Analytics
- Flutter support

LeanCode

```
InterstitialAd.load(
  adUnitId: '<ad unit id>',
  request: AdRequest(),
  adLoadCallback: InterstitialAdLoadCallback(
    onAdLoaded: (InterstitialAd ad) {
      // Keep a reference to the ad so you can show it later.
      this._interstitialAd = ad;
    },
    onAdFailedToLoad: (LoadAdError error) {
      print('InterstitialAd failed to load: $error');
    },
));
```

LeanCode

Emulator

Firebase Emulator Suite

Android Emulator

IOS Simulator

Web App

Storage Emulator

Auth Emulator

Firestore Emulator

Realtime Database Emulator

Functions Emulator

Hosting Emulator

Pub/Sub Emulator

We build digital products.

LeanCode