



Esri International Developer Summit

Palm Springs, CA

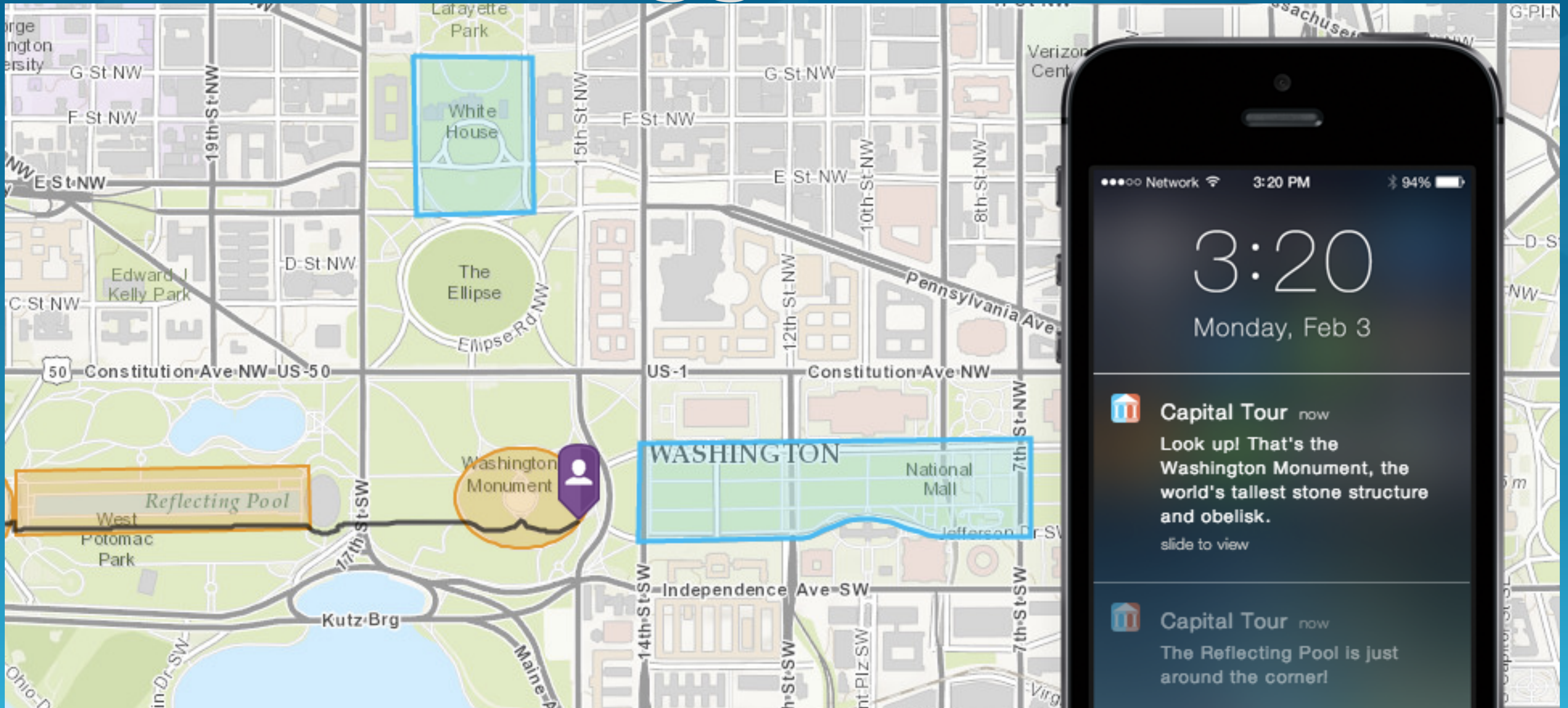
Esri's Geotripper Service

iOS and Android Tips & Tricks

AMBER CASE

Director, Esri R&D Center Portland

Geotrigger Service



developers.arcgis.com/geotrigger-service

Geotrigger SDK Components

- Manager / Service
 - Wraps native location services on each platform
 - Provides a set of tracking profiles for low, medium, and high power consumption
 - Push Notification Handling
- API Client
 - Provides access to the Geotrigger Service API, allowing you to manage devices, triggers, and tags



Geotrigger SDK for iOS

- Get the SDK from Github or CocoaPods
- `pod 'GeotriggerSDK'`
- Make sure your app has 'Location Updates' and 'Background Fetch' background modes enabled
- Call one of the `setupWithClientId:` methods



Start the Geotrigger Manager

```
[AGSGTGeotriggerManager setupWithClientId:kClientId
                           isProduction:NO
                           tags:@[@"test"]
                           completion:^(NSError *error) {
    if (error == nil) {
        // Turn on location tracking in adaptive mode
        [AGSGTGeotriggerManager sharedManager].trackingProfile =
            kAGSGTTrackingProfileAdaptive;
    } else {
        NSLog(@"Error setting up GeotriggerManager: %@", error);
    }
}];
```



Geotrigger SDK for Android

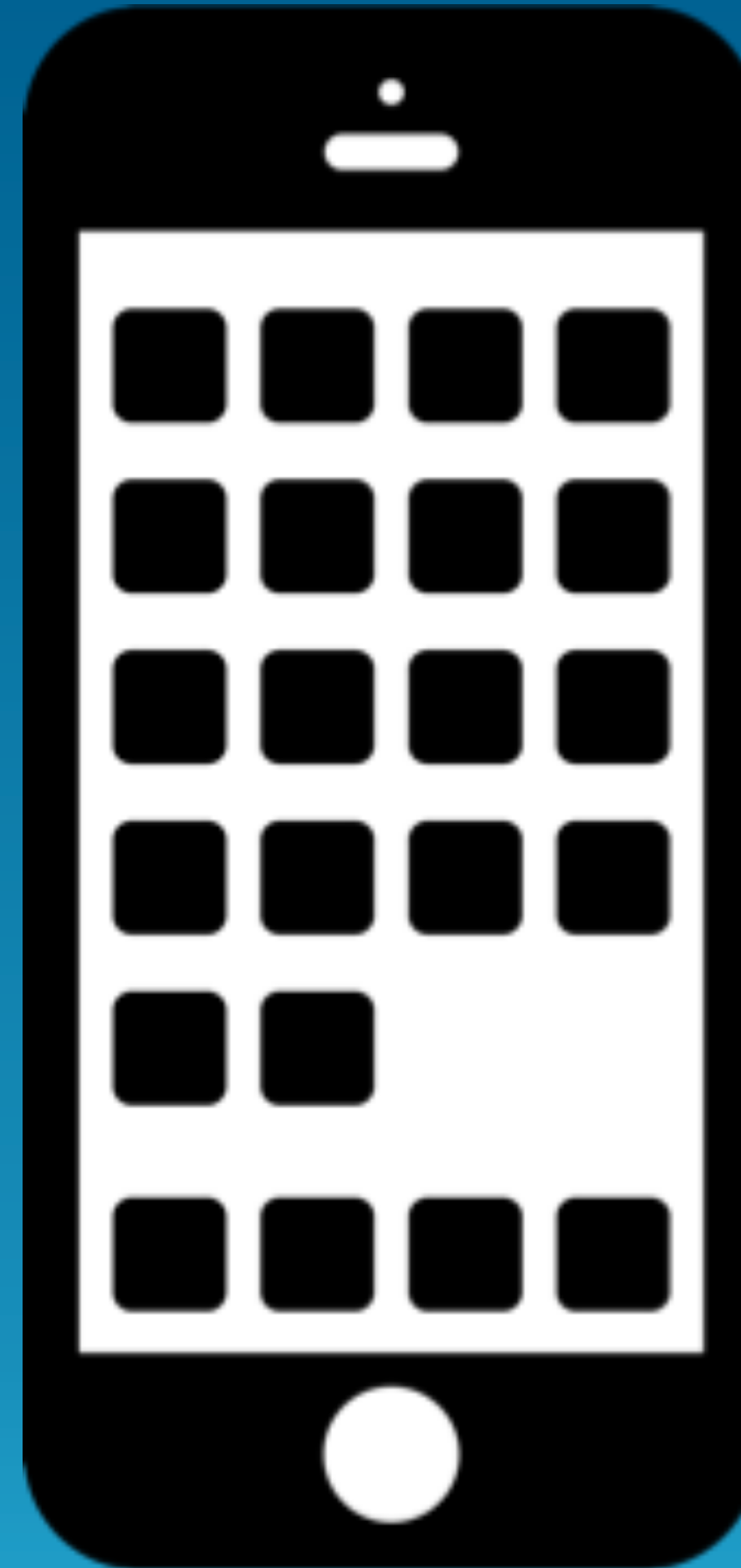
- Get the Sample App and SDK from GitHub:
 - github.com/esri/geotrigger-sdk-android
- Make sure to change the package name in the sample or add the required permissions to your existing `AndroidManifest.xml`
- Use the `GeotriggerHelper` to start the Geotrigger Service



Start the Geotrigger Service

```
GeotriggerHelper.startGeotriggerService(  
    context,  
    AGO_CLIENT_ID,  
    GCM_SENDER_ID,  
    TAGS,  
    GeotriggerService.TRACKING_PROFILE_ADAPTIVE);
```

Rough Mode

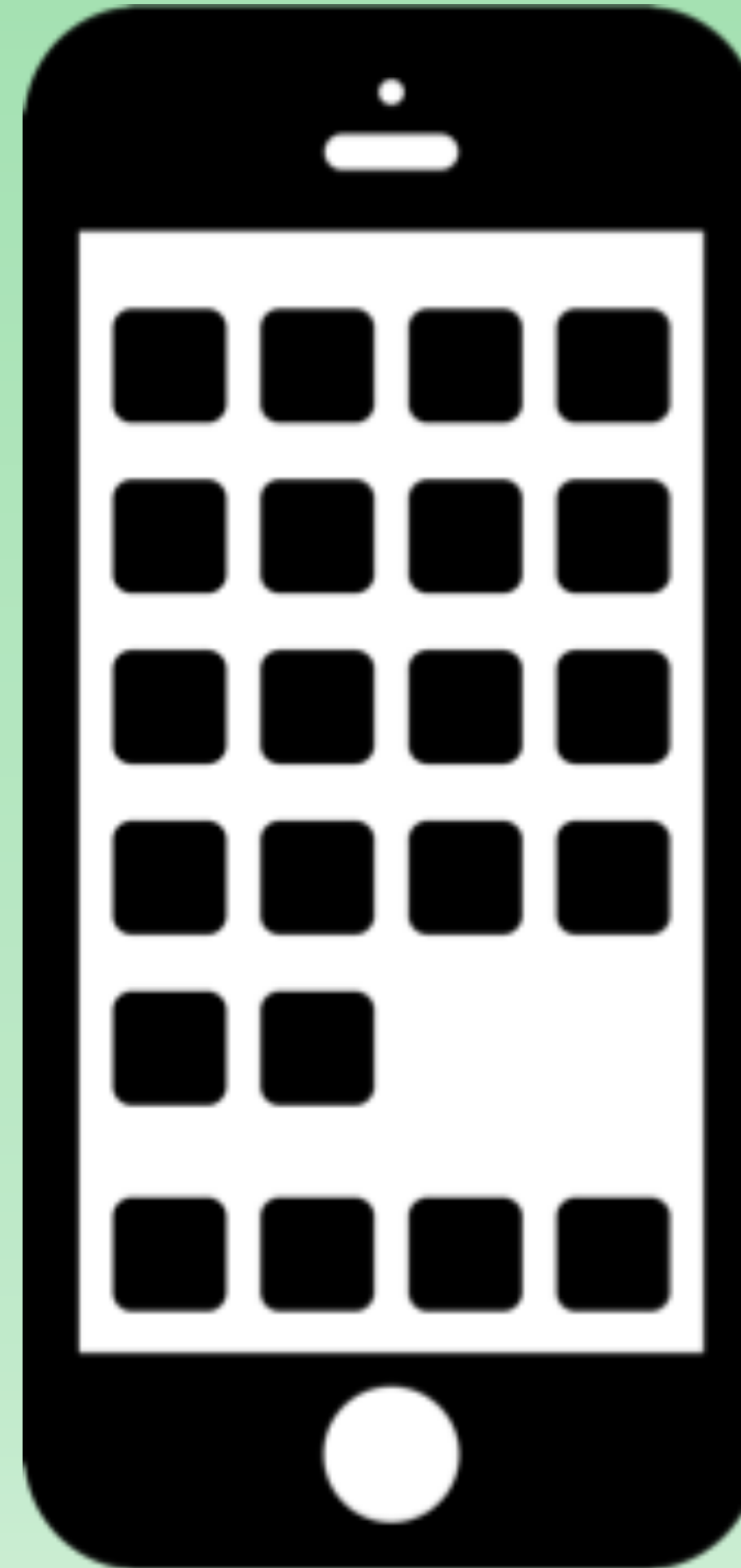


Delayed
Messaging



Least Battery
Drain

Fine Mode

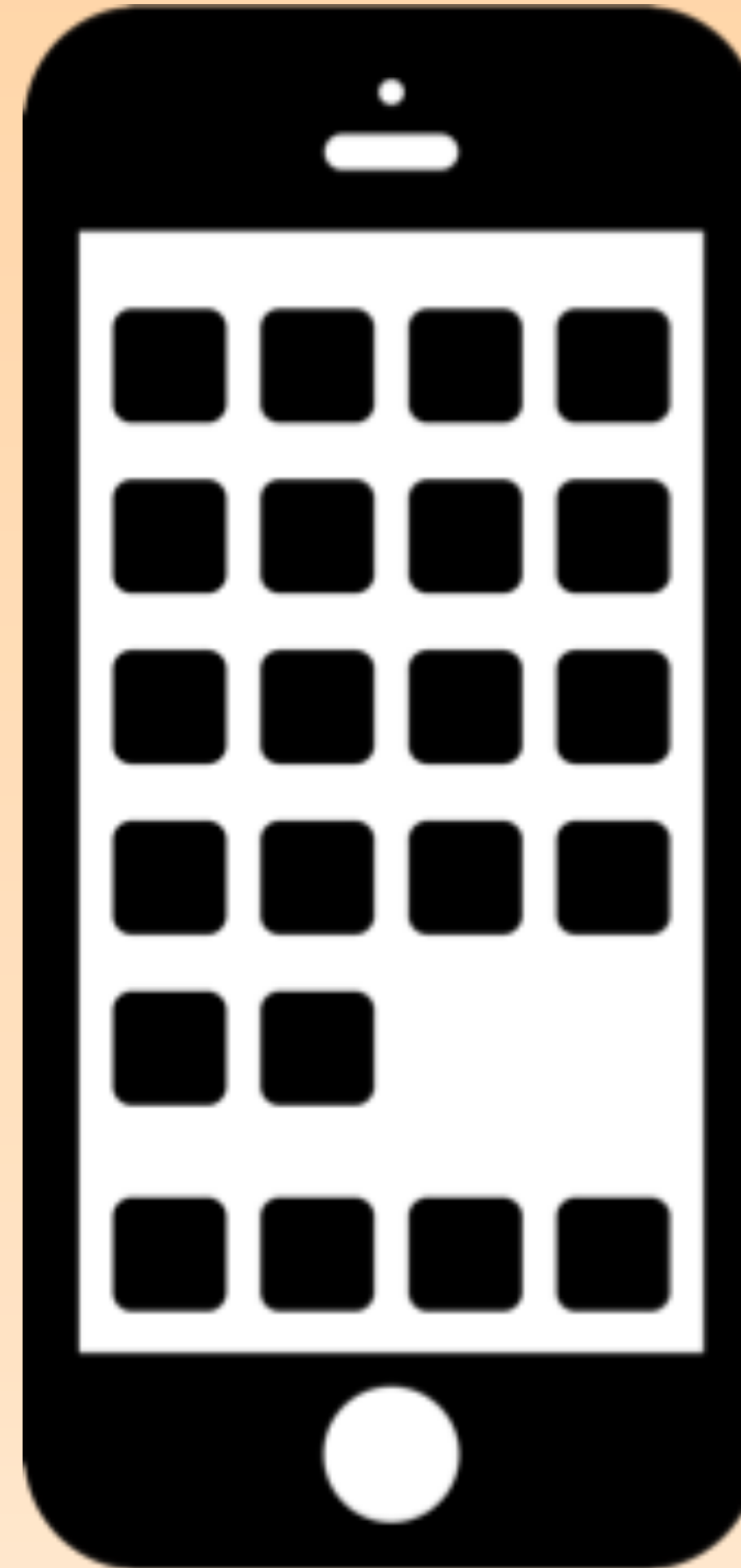


**Fastest
Messaging**



**Most Battery
Drain**

Adaptive Mode



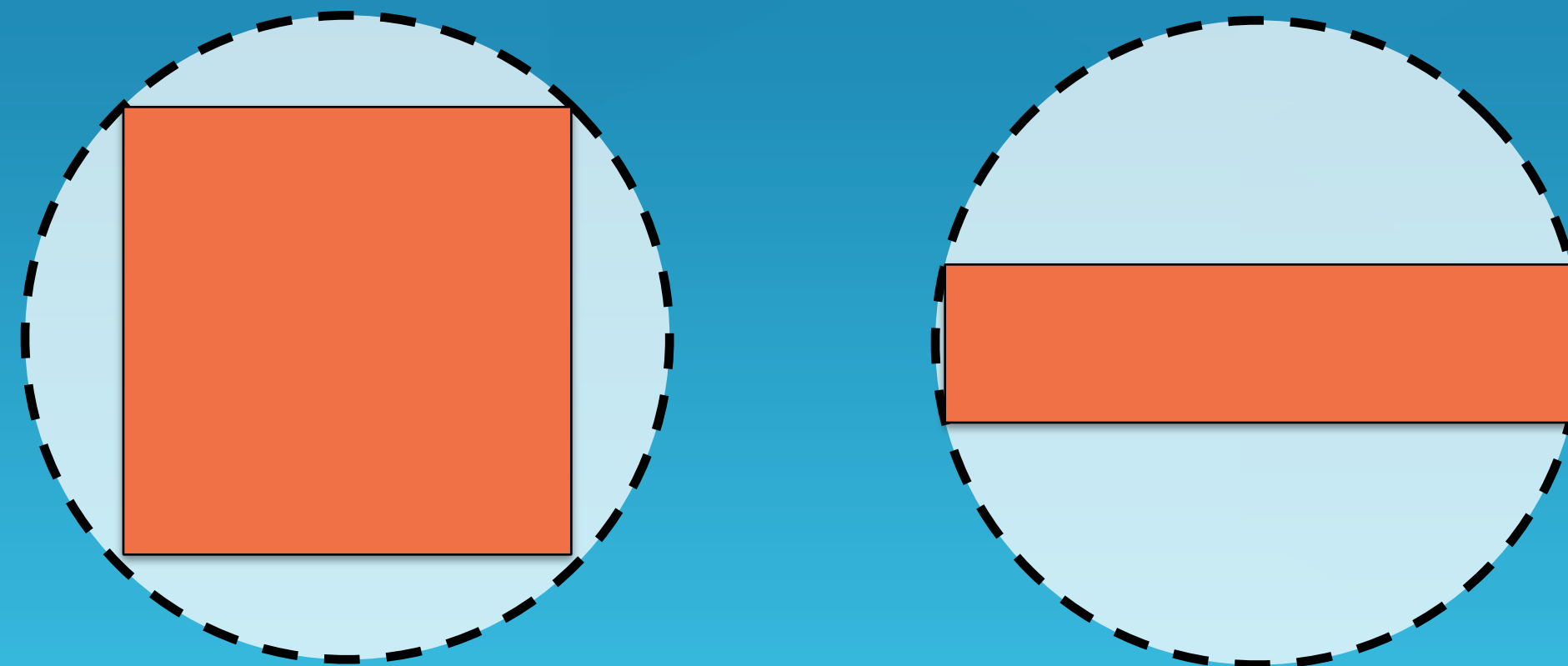
**Fast
Messaging**



**Minimal
Drain**

Trigger Size & Shape

- 100m radius is recommended in Adaptive mode
- iOS & Android native geofences are point and radius
- Polygons and Multi-polygons will be approximated by simple circles.



Handling Events

- The Geotrigger Manager / Service can notify your app when one of the following happens:
 - Location updates are received from the OS
 - Locations are uploaded to the Geotrigger API
 - Tracking profile is changed



Geotrigger Broadcast Receiver

- Instantiate the Broadcast Receiver in onCreate

```
mGeotriggerBroadcastReceiver = new GeotriggerBroadcastReceiver();
```

- Register the receiver in onResume

```
registerReceiver(mGeotriggerBroadcastReceiver,  
                GeotriggerBroadcastReceiver.getDefaultIntentFilter());
```

- Unregister the receiver in onPause

```
unregisterReceiver(mGeotriggerBroadcastReceiver);
```

Respond to location updates

```
[AGSGTGeotriggerManager sharedManager].didReceiveLocationUpdates =  
    ^(NSArray *locations) {  
        NSLog(@"Received location updates: %@", locations);  
    };
```



```
public class GeotriggerActivity extends Activity implements  
    GeotriggerBroadcastReceiver.LocationUpdateListener {  
  
    @Override  
    public void onLocationUpdate(Location loc, boolean isOnDemand) {  
        Log.d(TAG, "Location update received!");  
    }  
}
```



Respond to Tracking Profile Changes

```
[AGSGTGeotriggerManager sharedManager].didChangeTrackingProfile =  
    ^(NSString *old, NSString *new) {  
        NSLog(@"Changed profile from %@ to %@", old, new);  
    };
```



```
public class GeotriggerActivity extends Activity implements  
    GeotriggerBroadcastReceiver.TrackingProfileChangeListener {  
  
    @Override  
    public void onTrackingProfileChange(String previous, String current) {  
        Log.d(TAG, String.format(  
            "Changed profile from %s to %s", previous, current));  
    }  
}
```



Making API Requests

- Use cases include:
 - Applying tags to a Device
 - Creating Triggers
 - Getting a list of existing Triggers
- Wait for the ready event before making requests



Geotrigger Broadcast Receiver

```
public class GeotriggerActivity extends Activity implements
    GeotriggerBroadcastReceiver.ReadyListener {

    @Override
    public void onReady() {
        Log.d(TAG, "GeotriggerService Ready!");

        // Make API requests here (or track state that you'll check elsewhere)
    }
}
```



Adding a Tag to a Device

```
[[AGSGTApiClient sharedClient] postPath:@"device/update"  
    parameters:@{ @"addTags": @[@"pinball-machines"] }  
    success:^(NSDictionary *resp) {  
        NSLog(@"Device updated: %@", resp);  
    }  
    failure:^(NSError *error) {  
        NSLog(@"Request failed: %@", error);  
    }  
    ]];
```



Adding a Tag to a Device

```
JSONObject params = new JSONObject();
try {
    params.put("addTags", "pinball-machines");
} catch (JSONException e) {
    Log.e(TAG, "Error creating device update parameters.", e);
}

GeotriggerApiClient.runRequest(context, "device/update", params,
    new GeotriggerApiListener() {
        public void onSuccess(JSONObject data) {
            Log.d(TAG, "Device updated: " + data.toString());
        }

        public void onFailure(Throwable error) {
            Log.d(TAG, "Request failed.", error);
        }
    });
```



Creating a Trigger

```
AGSGTTriggerBuilder *builder = [AGSGTTriggerBuilder new];
builder.triggerId = @"indiana-jones-the-pinball-adventure";
builder.tags = @[@"pinball-machines"];
builder.direction = @"enter";
[builder setGeoWithLatitude:latitude
                    longitude:longitude
                    distance:distance];
builder.notificationText =
    @"You are near a pinball machine! Indiana Jones: The Pinball Adventure";
builder.notificationUrl = @"http://www.ipdb.org/machine.cgi?gid=1267";
NSDictionary *params = [builder build];

[[AGSGTApiClient sharedClient] postPath:@"trigger/create"
                    parameters:params
                    success:nil
                    failure:nil];
```



Creating a Trigger

```
JSONObject params = new TriggerBuilder()
    .setTriggerId("indiana-jones-the-pinball-adventure")
    .setTags("pinball-machines")
    .setGeo(latitude, longitude, distance)
    .setDirection(TriggerBuilder.DIRECTION_ENTER)
    .setNotificationText("You are near a pinball machine! " +
        "Indiana Jones: The Pinball Adventure")
    .setNotificationUrl("http://www.ipdb.org/machine.cgi?gid=1267")
    .build();

GeotriggerApiClient.runRequest(context, "trigger/create", params,
    new GeotriggerApiListener() {
        public void onSuccess(JSONObject data) { Log.d(TAG, data.toString()); }

        public void onFailure(Throwable error) { Log.e(TAG, "Error!", e); }
    });
```

Updating Released Apps

- Updates to our SDK will be significant:
 - Battery improvements
 - Bug fixes
 - New features / Events that can handled

Learn More!

Drop by the ArcGIS for Developers Island to ask questions about the Geotrigger Service.

Don't forget to rate this talk!

www.esri.com/events/devsummit/session-rater



Understanding our world.