Frontend

Backend

BUILDING A BACKEND FOR YOUR APPS
WITH VISUAL STUDIO APP CENTER

ABOUT ME

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Sr. Mobile Apps Developer @ Polaris Industries; Ride Command

Xamarin.Forms enthusiast & DevOps hobbyist

5-year Xamarin Certified Mobile Developer

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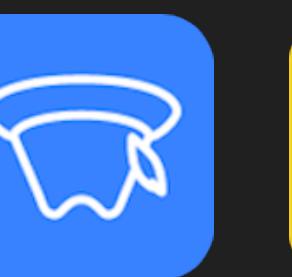
Twitter: @tomsoderling
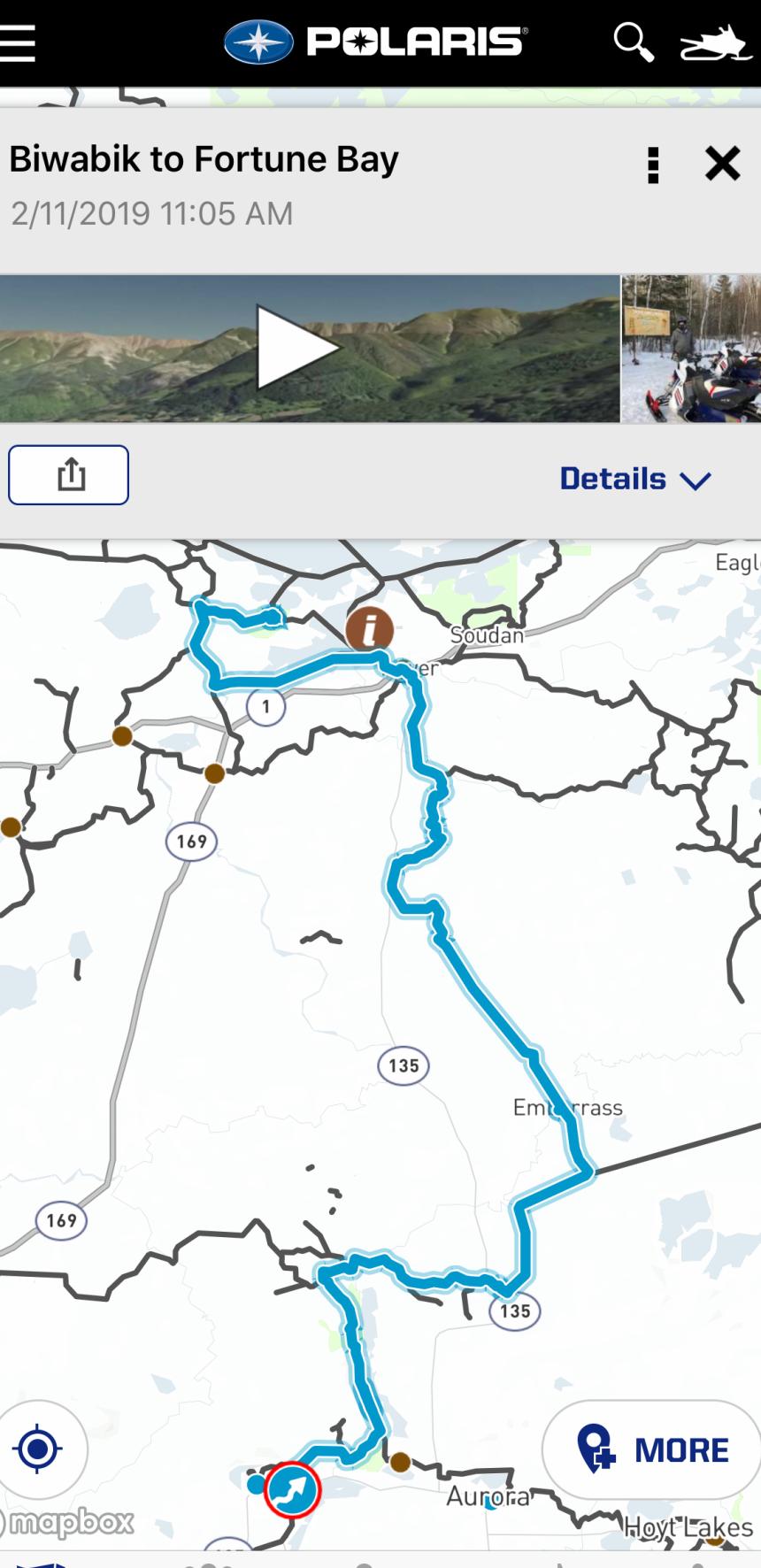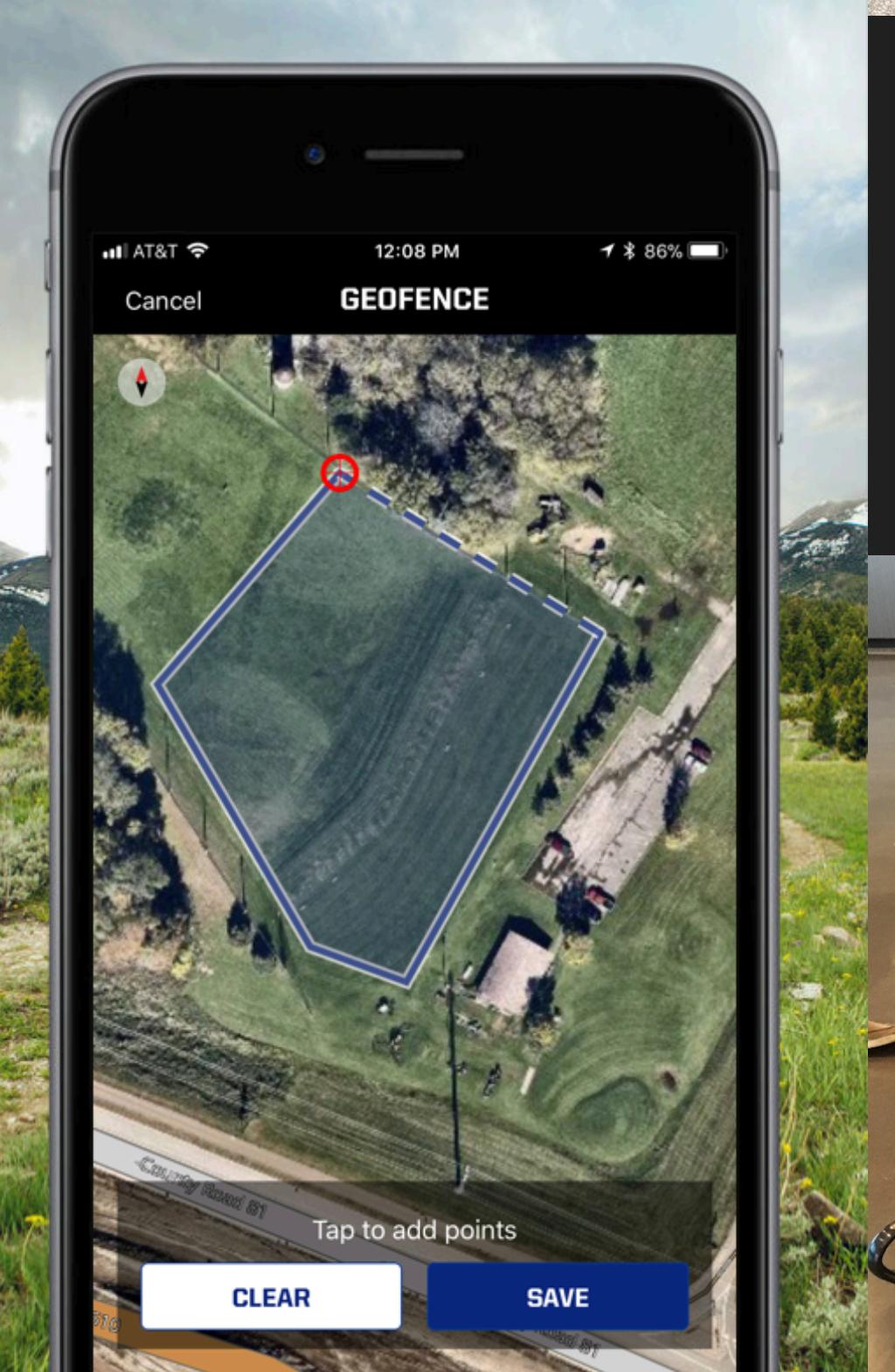
How Deep Is It?

Pickster

Spaniel

THE PLAN

- Introduction: What and Why

- App Center Data

- App Center Auth

- Next Steps & Resources
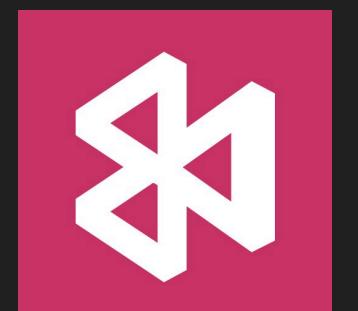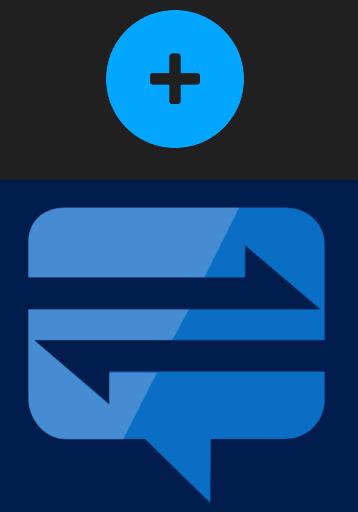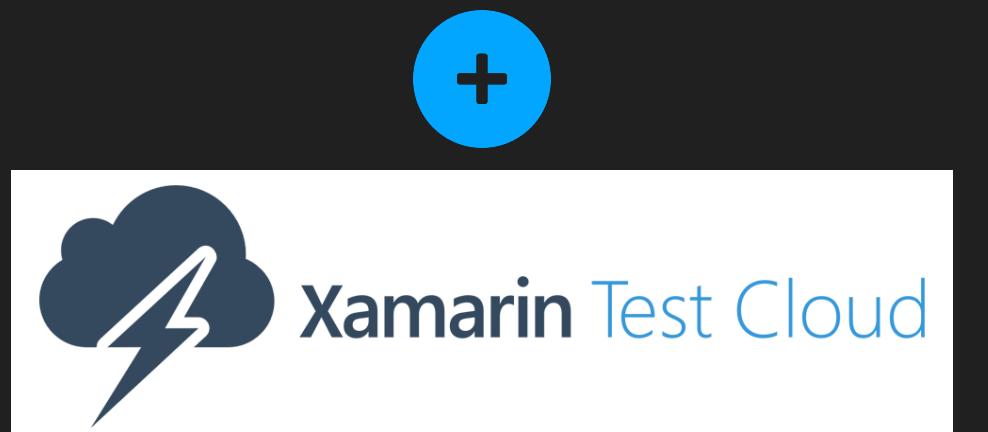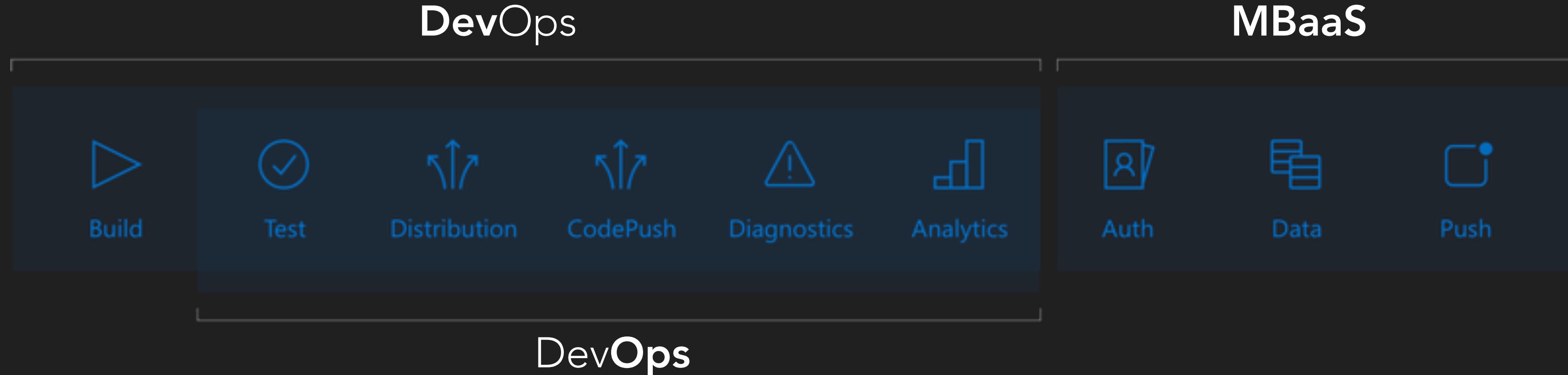
Please ask any questions that come up!

THE PLAN

- **Introduction: What and Why**
- App Center Data
- App Center Auth
- Next Steps & Resources

INTRODUCTION: WHAT

- What is Visual Studio App Center?

- App Center helps you build, test, deploy and monitor your iOS, Android, Windows, and macOS apps – All in one place.

- Brings together multiple services commonly used by mobile developers into a DevOps cloud solution

- First went into public preview at Connect(); 2016

DevOps

MBaaS

Build Test Distribution CodePush Diagnostics Analytics

Auth Data Push

DevOps

Visual Studio Team Services

Xamarin Test Cloud

HockeyApp

Xamarin Insights

INTRODUCTION: WHY

- Why use Visual Studio App Center?

App Center Mission Statement:
"Make app development 10x easier"

INTRODUCTION: WHY

- Why use Visual Studio App Center?
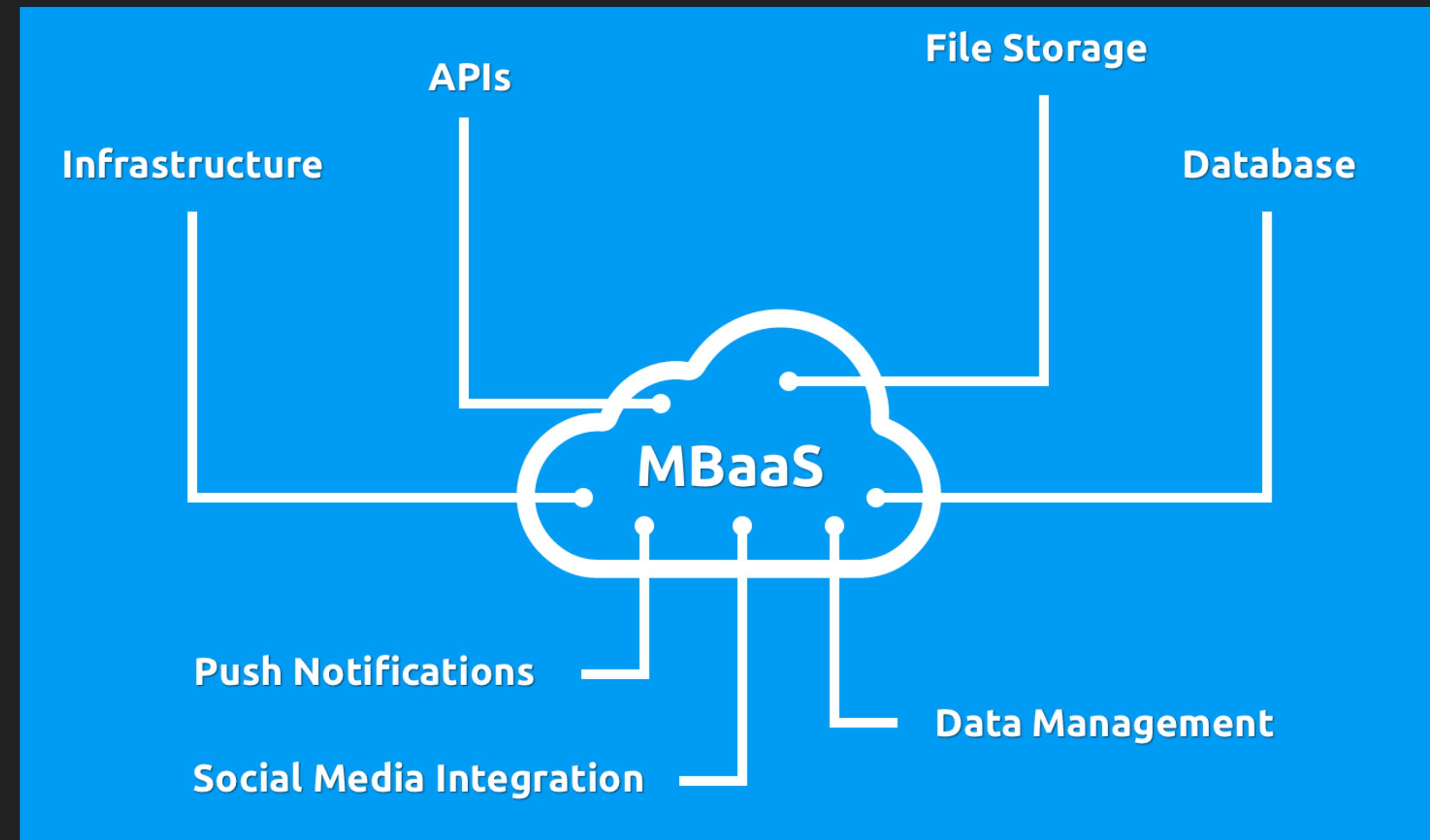
App Center Mission Statement:
"Make app development 10x easier"

Use Visual Studio App Center to release more frequently, with higher quality, and **have more fun** by spending time on coding features instead of managing overhead

INTRODUCTION: WHY

- Why use App Center Mobile Backend as a Service (MBaaS)?

 - Skip a bunch of work you'd have to do yourself / don't want to do

THE PLAN
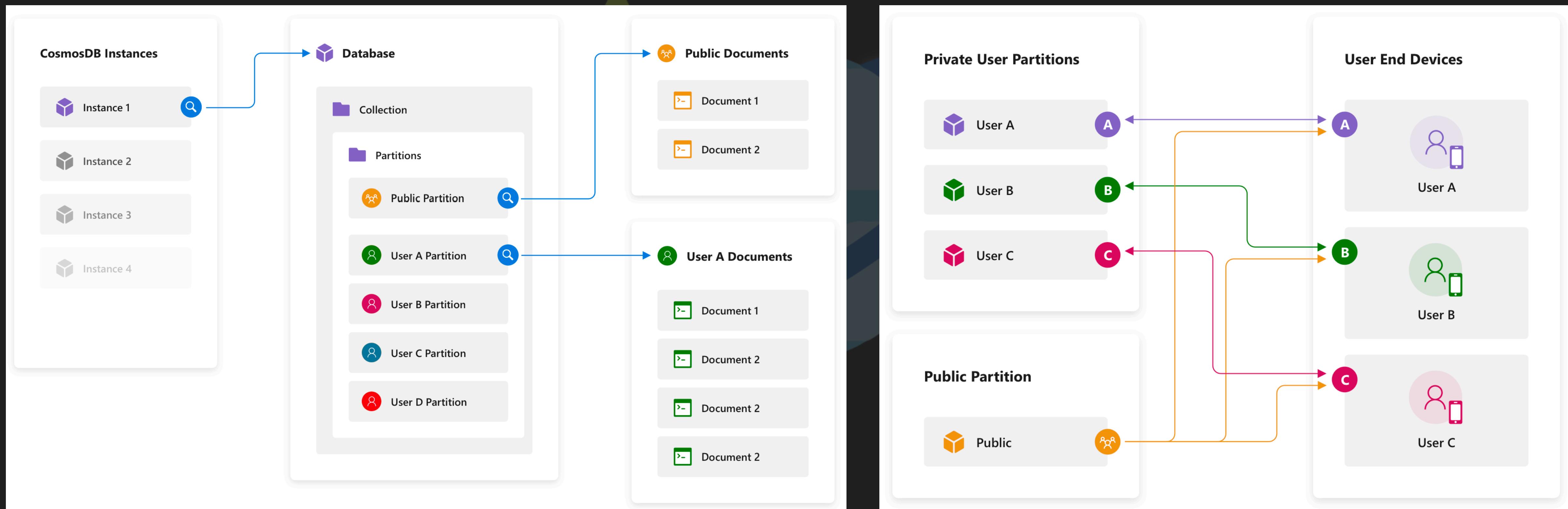
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APP CENTER DATA

- In Preview

- Built on Cosmos DB

  - Azure hosted, globally distributed, NoSQL database

  - Low latency, high availability, and high scalability for all of your data

  - Next evolution of DocumentDB

- Interactions

  - CRUD operations via magical AppCenter.Data SDK for iOS, Android, Xamarin

  - Support for offline reads and writes! (last write wins)

  - Automatic configuration

APP CENTER DATA

- Data Architecture

APP CENTER DATA

- ## App Center Setup

Configure new database   ✕

1 Subscription   **2** Instance   **3** Throughput   **4** Review

Your linked Azure subscription

A subscription is already linked to your app, and it will be used to create a new Cosmos DB instance.

🔷 **Azure subscription**
    Pay-As-You-Go

Configure existing database   Next ›

Configure new database   ✕

1 Subscription   **2** Instance   **3** Throughput   **4** Review

Configure your Cosmos DB instance

Instance name:

| myawesomeapp | .documents.azure.com | ✓ |

Database location:

| US - Central | ⌄ |

                                              ‹ Back   **Next**

Configure new database   ✕

1 Subscription   **2** Instance   **3** Throughput   **4** Review

Provision throughput for your database

Select an option based on your app's needs.

| **I'm just getting started**
Get me started with the minimum throughput and I will scale up later as my app usage grows. | **I have an existing app**
I know my expected usage and will provision throughput as per my requirements. |

Provisioning minimum throughput to get you started

If you need more, increase it later at any time.

⏱ **Throughput** ⊘
    400 RU/s

<u>Learn more</u> about Azure Cosmos DB pricing.

   ‹ Back   **Next** ›

APP CENTER DATA

- Pricing
  - You pay for the throughput reserved and the storage that you consume
  - Lowest throughput tier is 400 RU/s (Request Unit per second)
    - $0.77/day, $24/mo
  - Request Unit is the currency for throughput
    - 1 RU = the cost to read a 1 KB item
    - All other database operations are assigned an RU cost
  - SSD Storage: $0.25 GB/mo
  - There will be a **free** Data tier (announced at Xamarin Developer Summit)

APP CENTER DATA
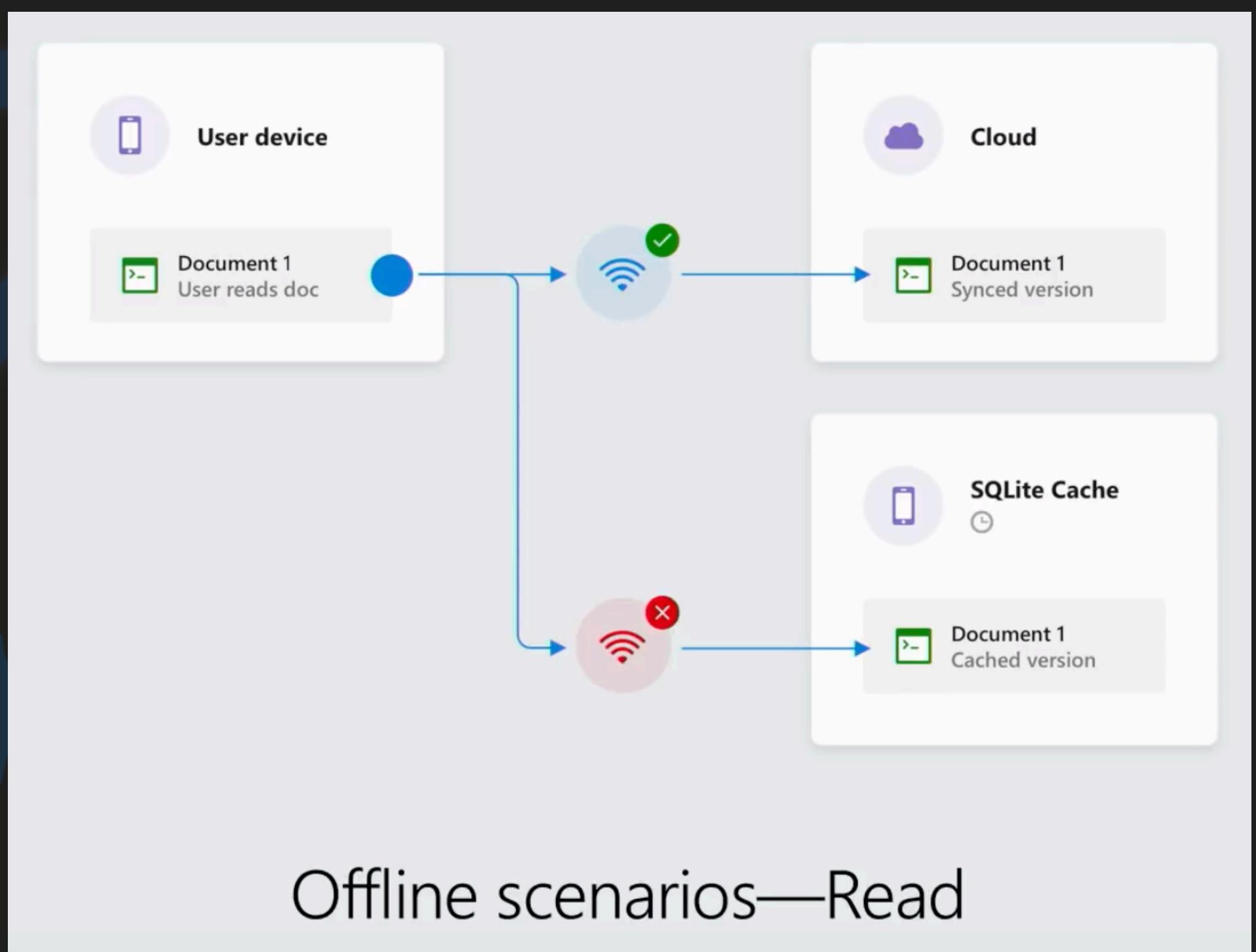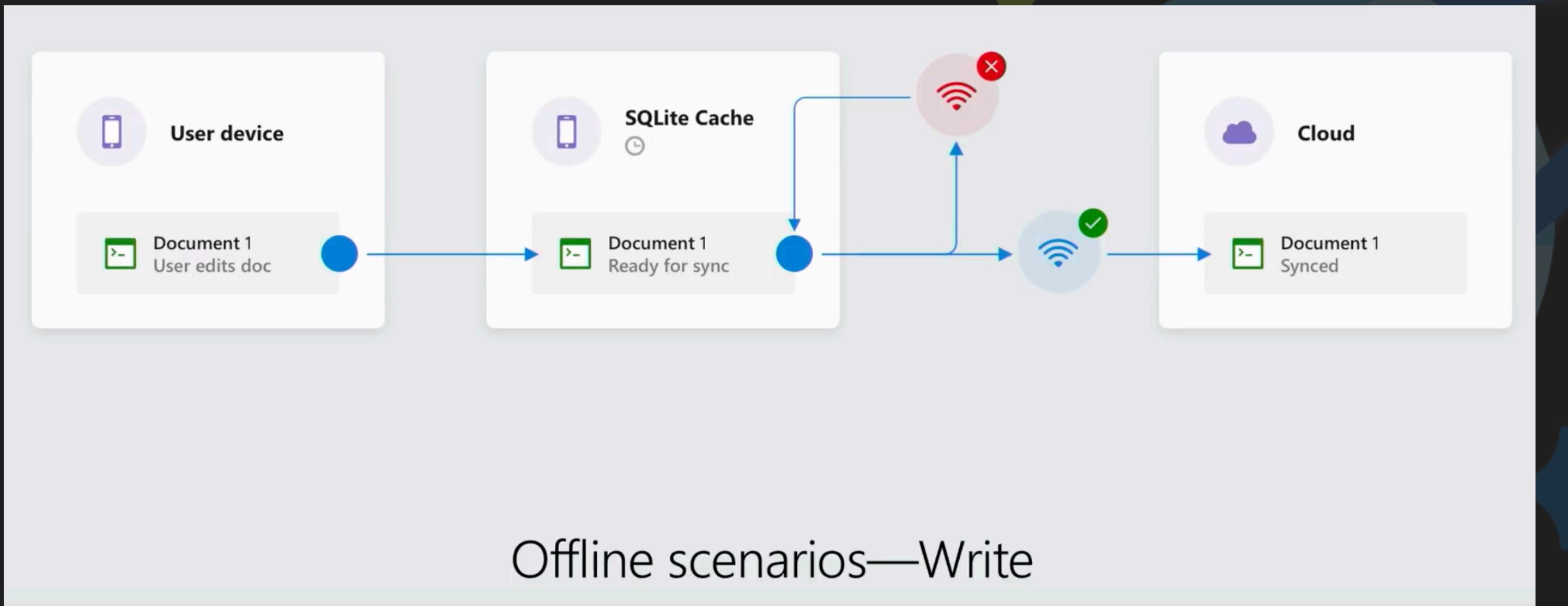
- **Demo**
  - App Center Portal
    - Metrics
    - Data explorer
  - Code
    - App setup
    - List AppDocuments
    - Read AppDocument by ID
    - Creating a new doc in the AppDocuments partition

APP CENTER DATA

- Offline write & read

Offline scenarios—Write

Offline scenarios—Read

THE PLAN

- Introduction: What and Why
- App Center Data
- **App Center Auth**
- Next Steps & Resources

APP CENTER AUTH

- In Preview

- Azure Active Directory (AD) B2C (Business to Consumer)

  - Enterprise-grade, highly available, and secure global service

- App Center Auth SDK wraps the Microsoft Authentication Library (MSAL)

  - Allows your application to access identities in Azure AD B2C

- Azure AD B2C implements a form of the OpenID Connect and OAuth 2.0 protocols

  - 3rd party identity providers: Facebook, Google, Twitter, LinkedIn, +more

APP CENTER AUTH

- Anatomy of App Center Auth

- A directory can have many subscriptions associated with it, but only **one** tenant

- B2C tenant can live in **any** directory. Link the tenant to an Azure subscription

Azure AD B2C Tenant

Application
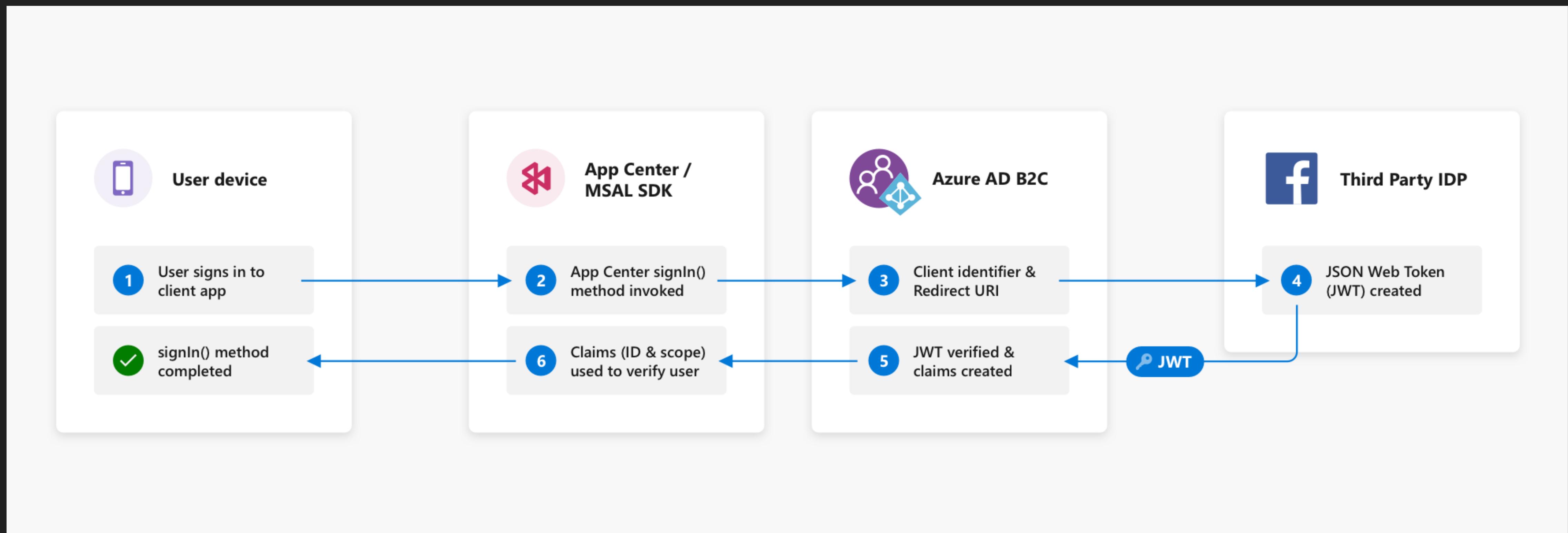
Scope

User Flow or Custom Policy
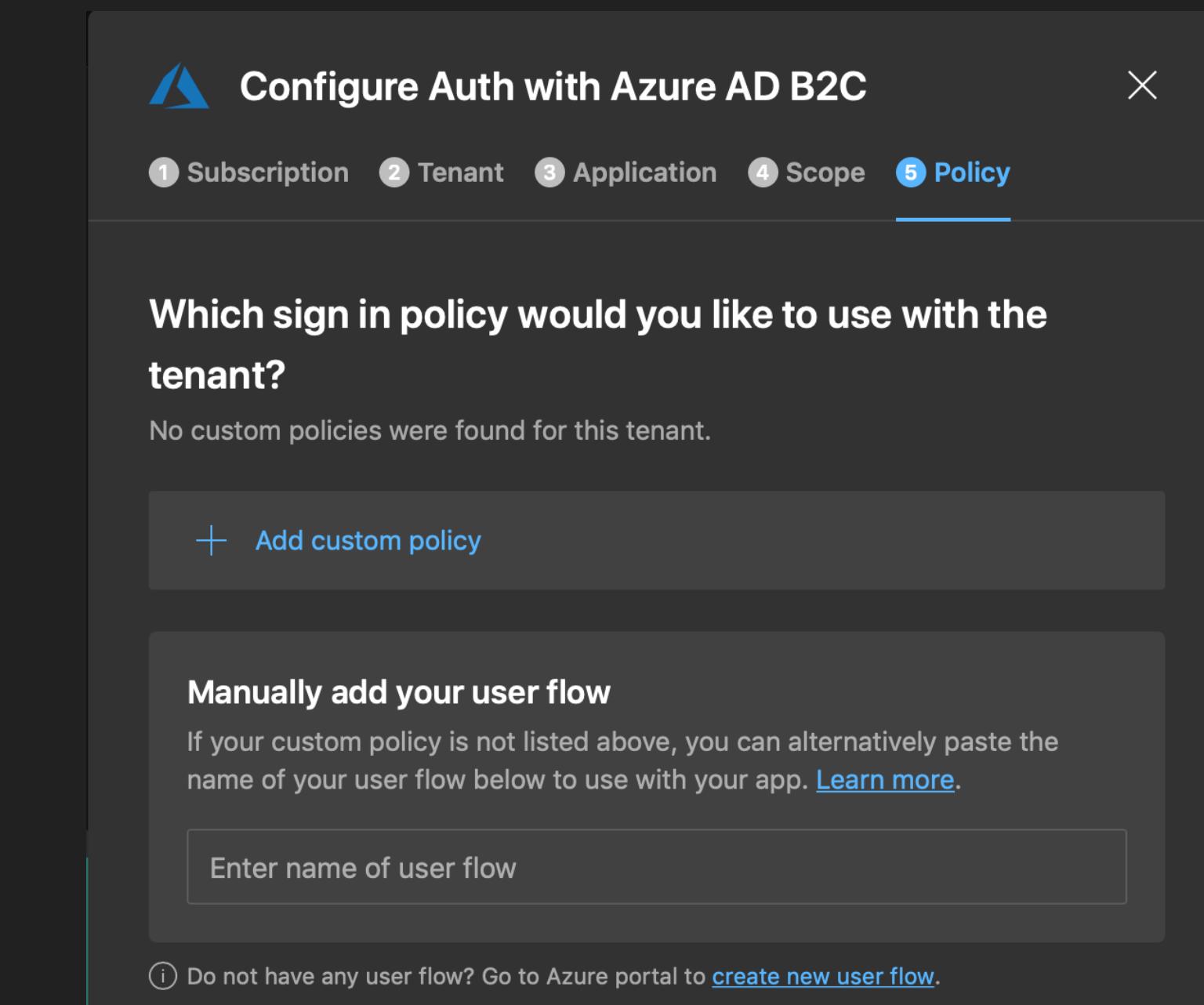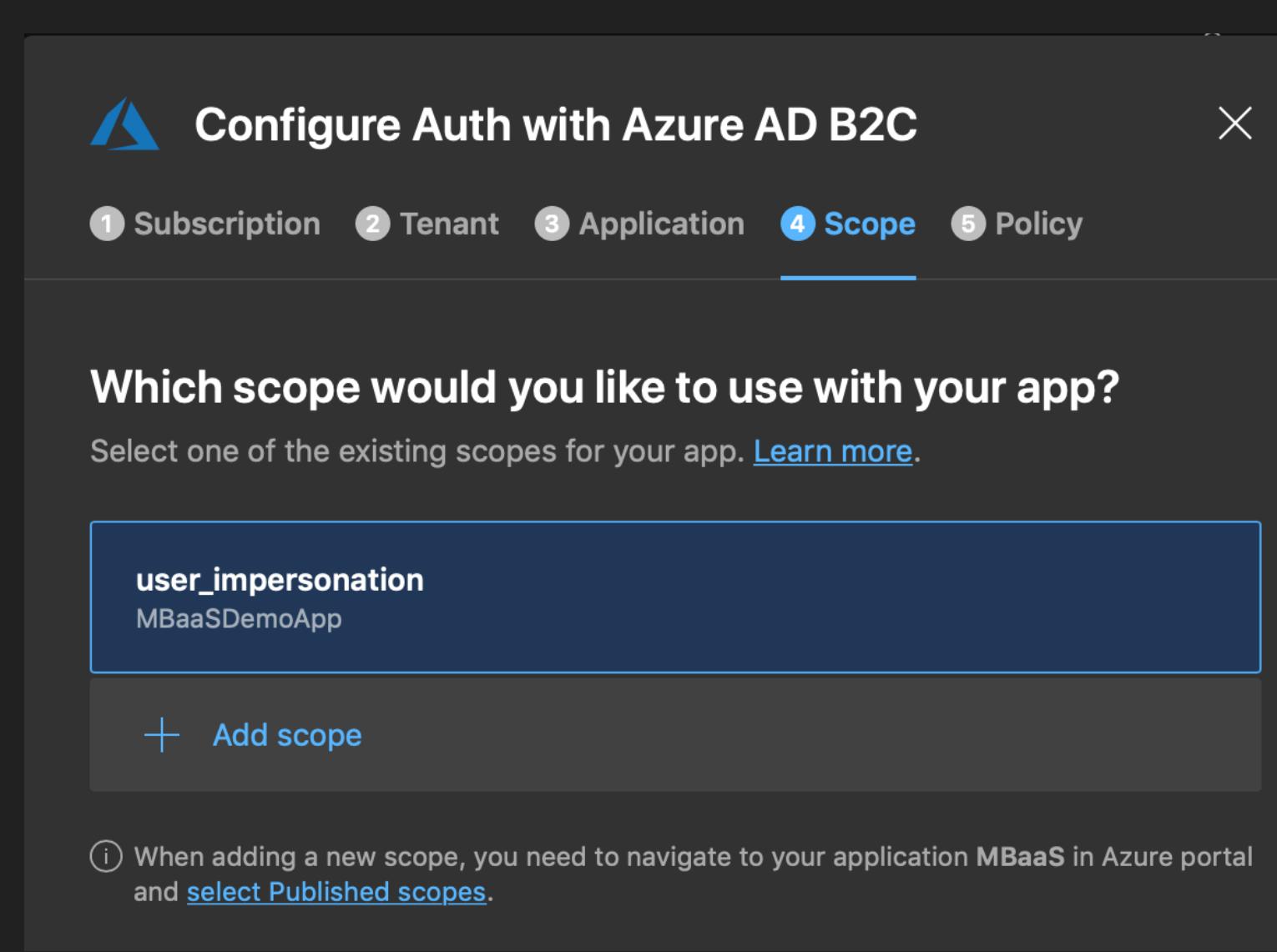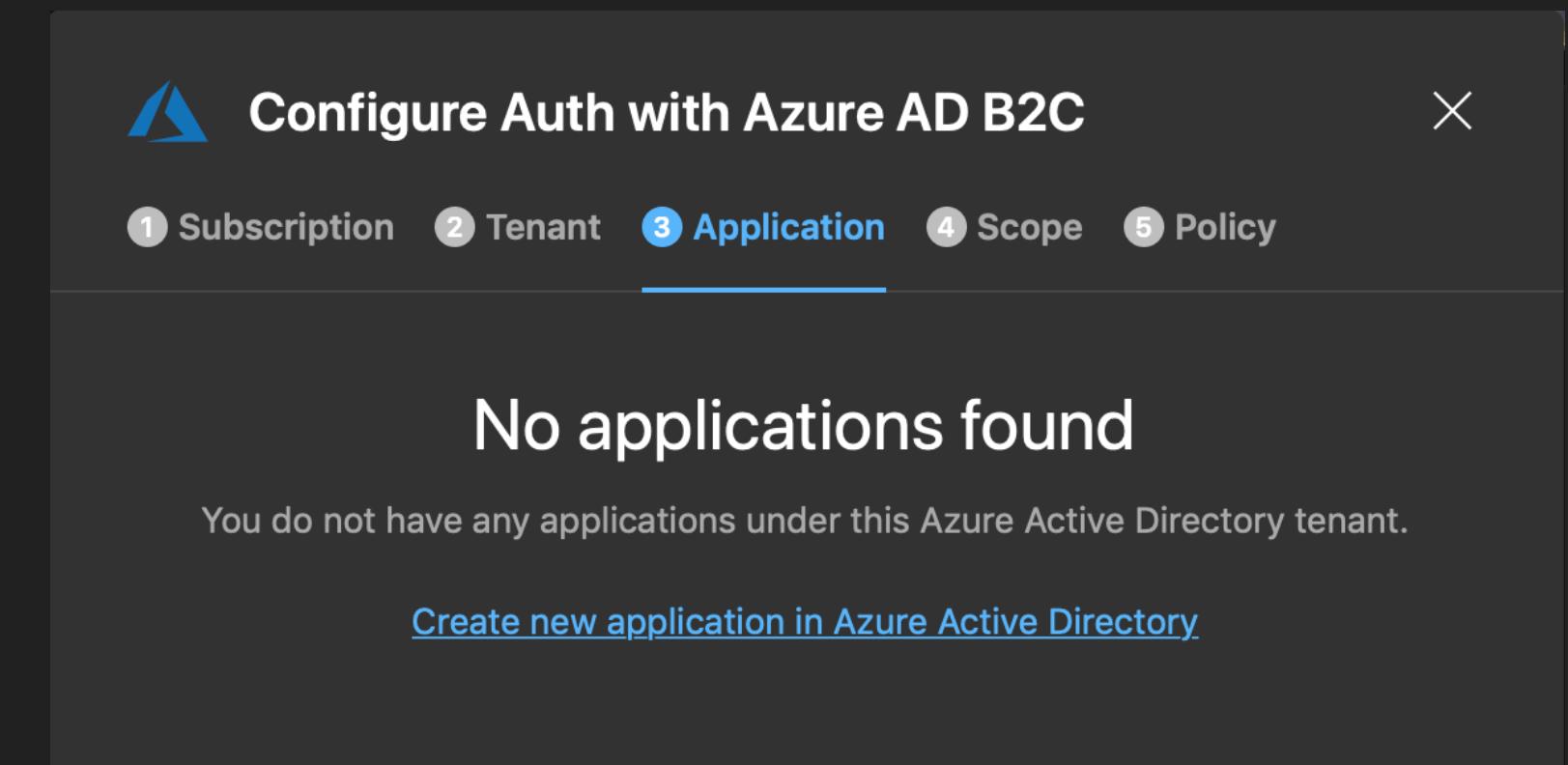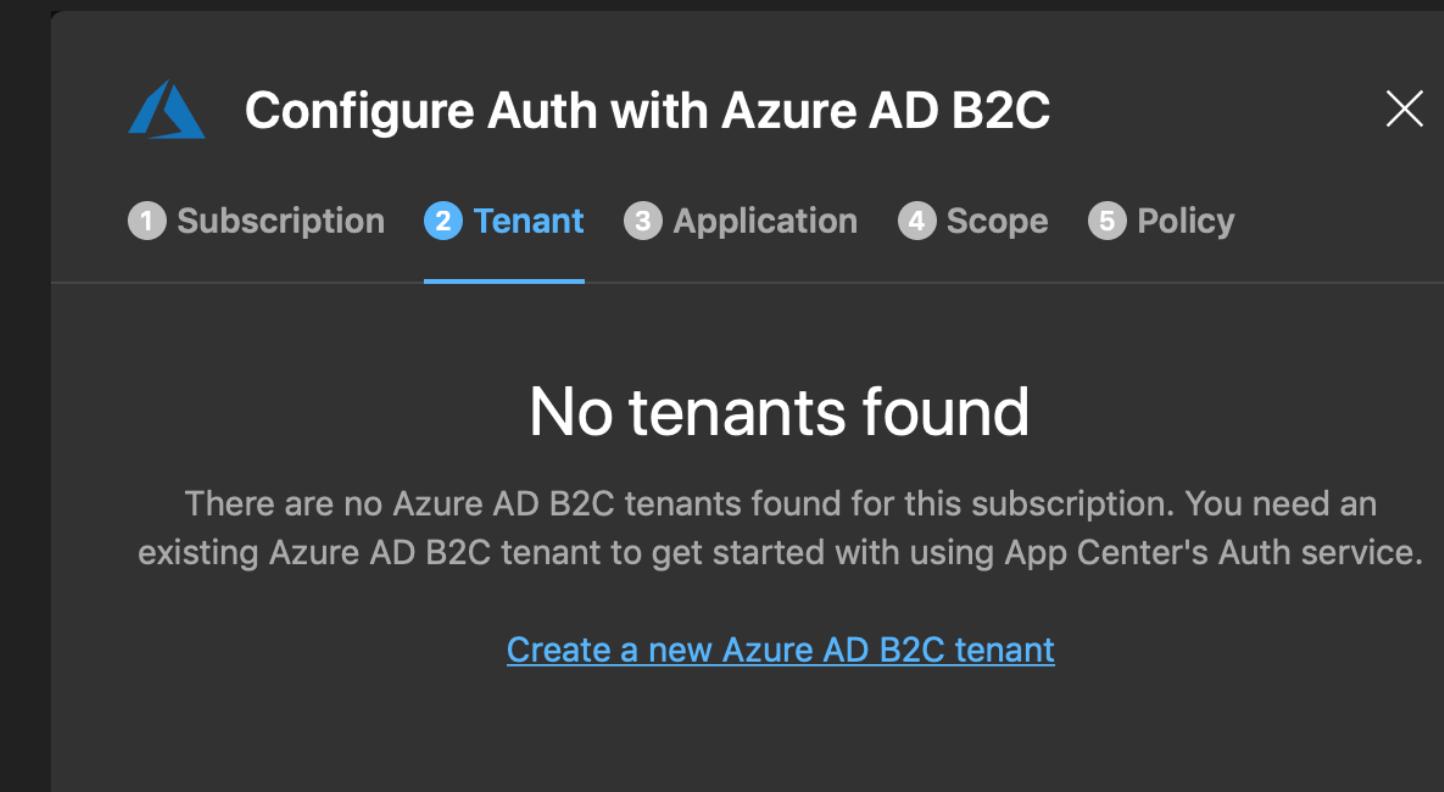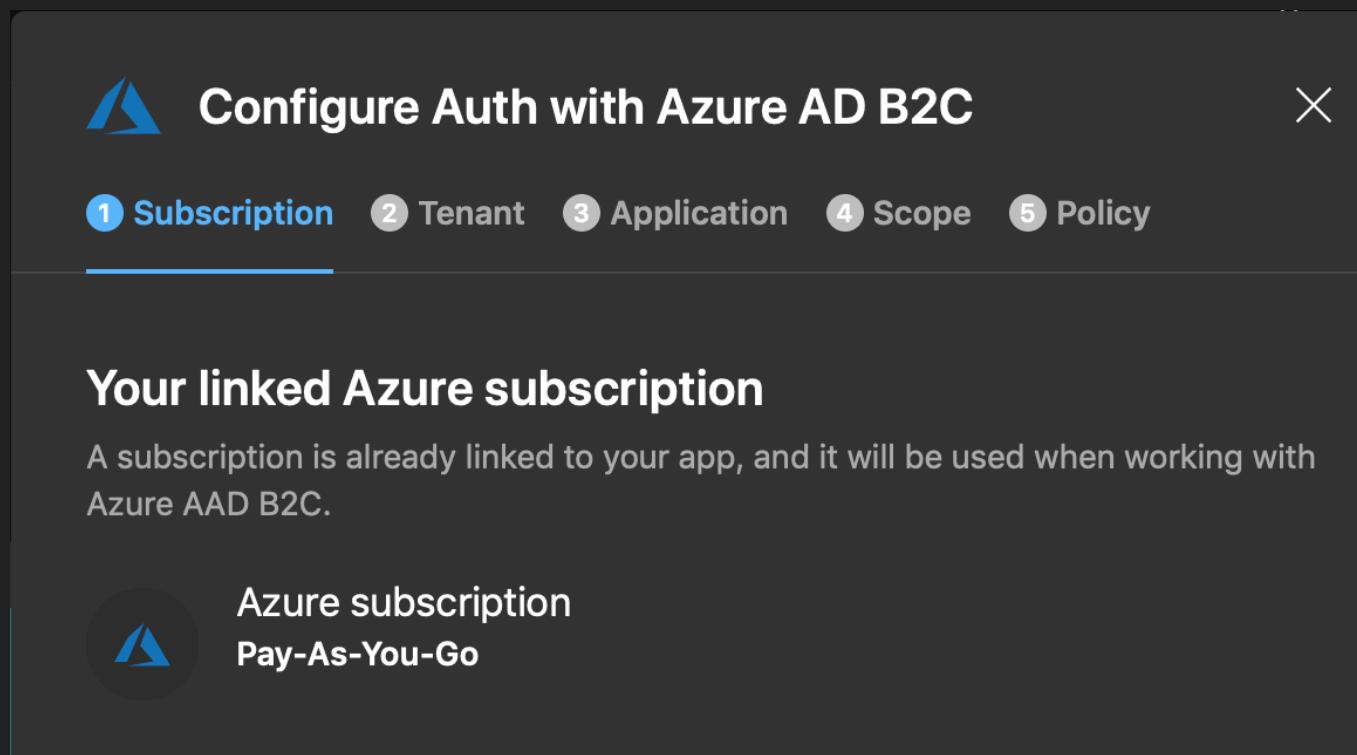
APP CENTER AUTH

- How it works

  - Token exchange service

APP CENTER AUTH

- App Center Setup

APP CENTER AUTH

- Pricing

- App Center Auth is a free service, but you pay for B2C authentications

  - The first 50,000 authentications/mo are free

  - An authentication = a token issued for sign-in request or token refresh

- Storage of authenticated users in the Azure AD B2C tenant is free

- Multi-Factor Authentication: flat fee of $0.03 per auth

APP CENTER AUTH

- **Demo**

  - Setup in Azure portal

  - Code

    - App setup

    - Sign up

    - Sign in/out

    - Identify

    - Crashes & Errors

- New Data Abilities

  - CRUD

  - Offline write/read
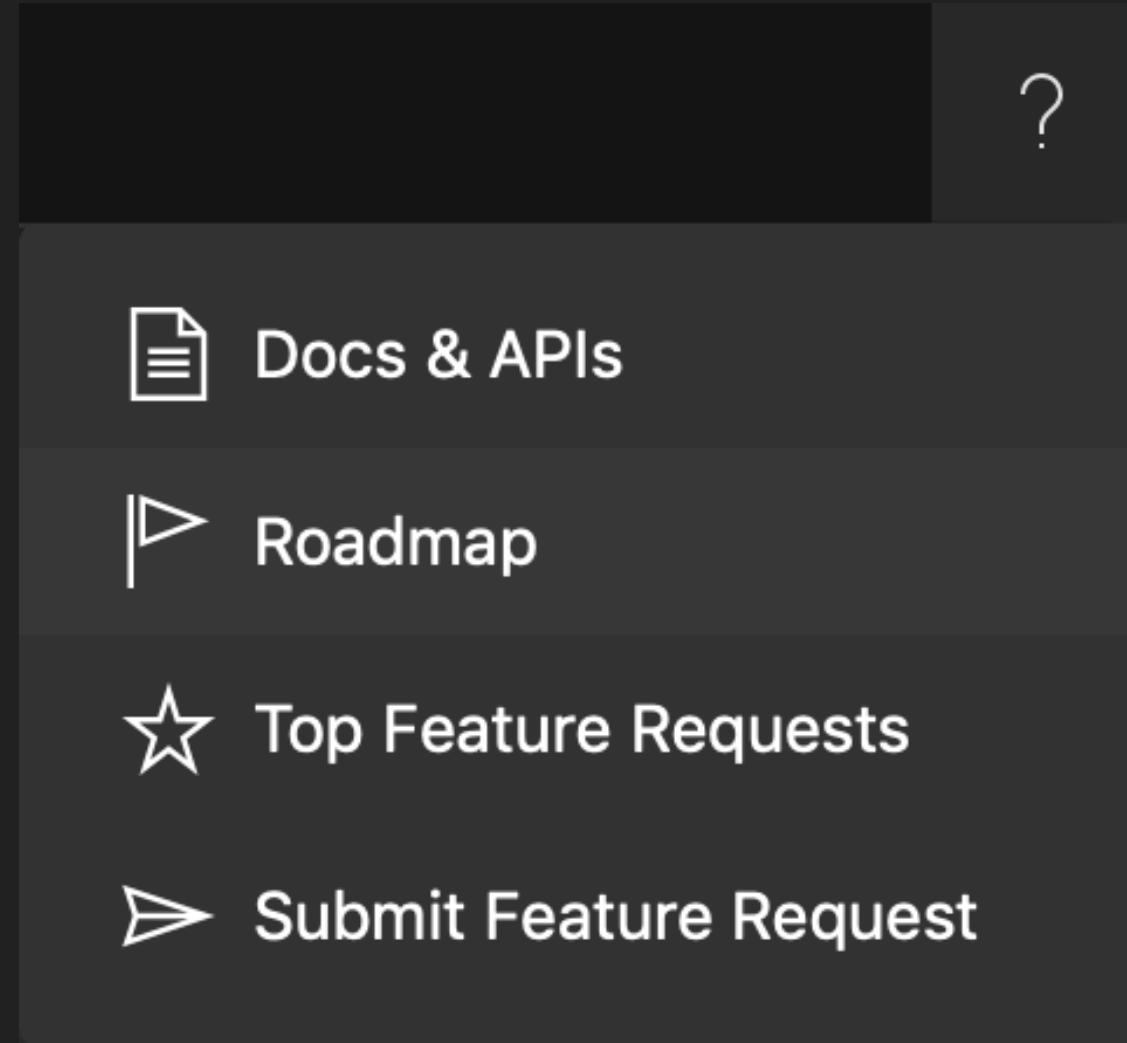
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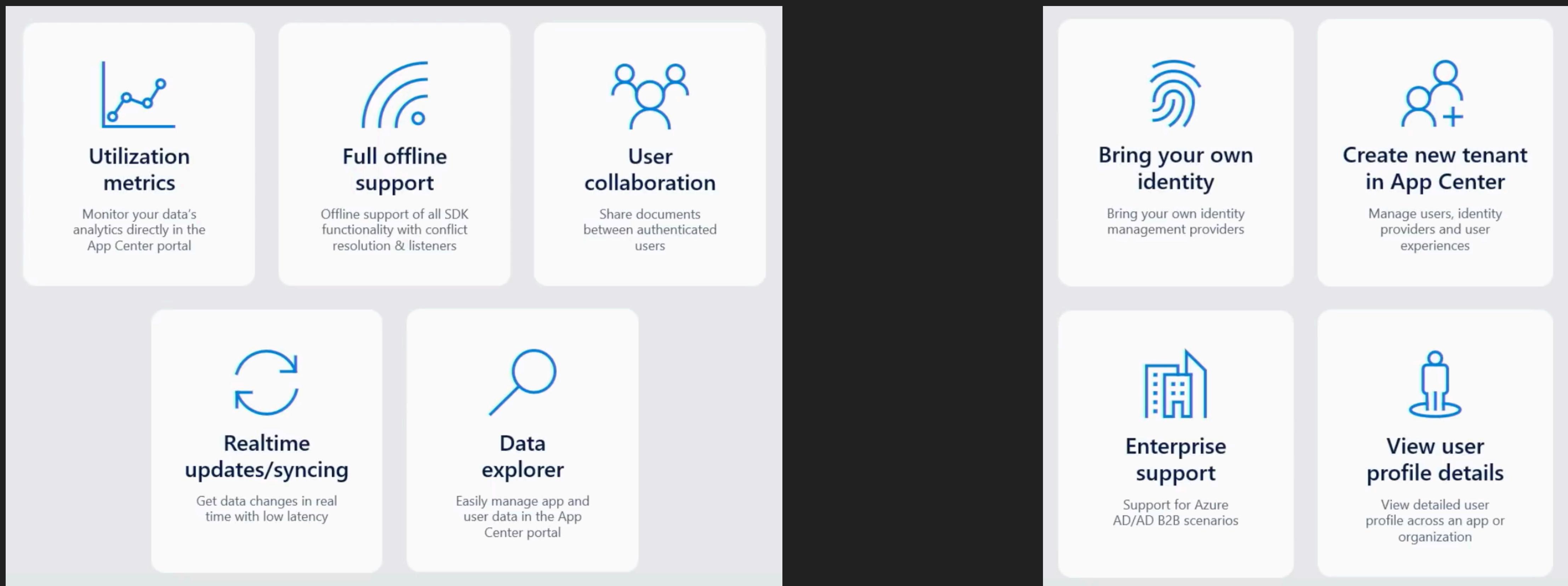
NEXT STEPS

- Open Roadmap

  - Monthly iteration plan

NEXT STEPS
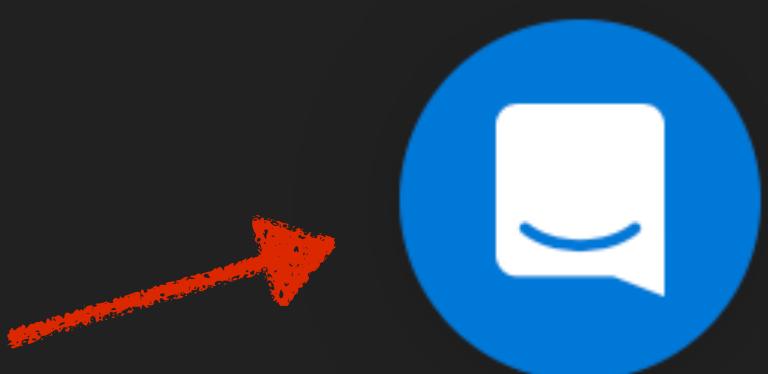
- Open Roadmap

  - Data

  - Auth

NEXT STEPS

- Shortcomings

  - Auth setup not nearly as smooth as it could be - like Data is

  - iOS 13 support for AppCenter.Auth SDK is **only** in preview. Must use 2.4.0-preview NuGet packages for AppCenter & Auth

    - Android: can't sign in when using them

  - Android: offline create/upsert throws exception but seems to work

  - iOS doesn't seem to handle refreshing the token - expires after interval

NEXT STEPS

- Open Roadmap

  - Monthly iteration plan

- Shortcomings

- Documentation

- Support? Use this button

- Zumo (Azure Mobile Apps) team is part of App Center team now

  - Continued support, but no future feature development

- Sign in with Apple

- App Center Push Notifications

RESOURCES

- App code and slides https://github.com/TomSoderling/AppCenterMBaaSDemo
- App Center Docs https://docs.microsoft.com/en-us/appcenter/data & /auth
- MS Build session on App Center MBaaS https://www.youtube.com/watch?v=k3G0XoY8XII
- App Center and the Future of Azure Mobile Apps, by Patrick N https://www.youtube.com/watch?v=USQmInspKf0
- App Center public roadmap https://github.com/Microsoft/appcenter/wiki/Roadmap
- Roadmap detail https://devblogs.microsoft.com/appcenter/introducing-visual-studio-app-center-data-looking-ahead
- App Center feature requests/issues https://github.com/microsoft/appcenter/issues
- Sign in with Google Account directions https://docs.microsoft.com/en-us/azure/active-directory-b2c/active-directory-b2c-setup-goog-app
- Sign in with Apple, B2C directions https://github.com/azure-ad-b2c/samples/tree/master/policies/sign-in-with-apple
- JSON to C# classes https://www.jsonutils.com