Cloud Tech Presentation – Amazon Cognito

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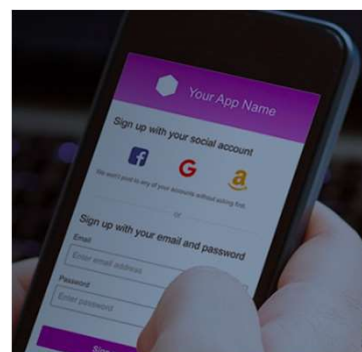
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W 1

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What is Authentication? (and WHY do we care?)

The only way to answer the question **"Who you are?** [WJL1] to the application

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WJL1   Who are you?

Wes J. Lloyd, 12/3/2019

How to Achieve Authentication

- Cookie-Based authentication
- Token-Based authentication
- Third party access (OAuth, API-token)
- OpenId
- SAML

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Questions to Consider…

- How to implement
  - One Time Password (OTP)
  - Two Factor Authentication (2FA)
  - Email verification
  - SMS verification -etc…?
- How many resources are required?
  - Developers/Testers
  - Cost
  - Infrastructure…

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Introducing...
Amazon Cognito

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Introduction & Motivation

- Amazon Cognito [WJL3] provides simple and secure user sign-up, sign-in, and access control
- Users can sign in directly with a username and password or through a third party such as Facebook, Amazon, Google or Apple.

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WJL3   Where does Amazon Cognito fit in?

Is this a SaaS, PaaS, or IaaS offerring?
Wes J. Lloyd, 12/3/2019

Key features

A directory for all your apps and users

Built-in customizable UI to sign in users

Advanced security features to protect your users

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Why Amazon Cognito

Authenticate via 3rd party Identity Providers

Your User Pool in Amazon Cognito

Guest Access

Sign in with Facebook

Or

Username

Password

Sign In

Or

Start as a guest

Amazon Cognito Identity provides temporary credentials to securely access your resources

S3

API Gateway

DynamoDB

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History

> **2014** Amazon Cognito general availability
> **2015** Integration with Lambda
> **2016** Add Security Assertion Markup Language (SAML) support
> **2016** Amazon Cognito User Pools

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Amazon Cognito in Action

Cognito at Asurion

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Cognito at Asurion

How Cognito is used?
- To manage the user directory for their new device protection app
- Collect device-related data and make recommendations that are aimed at optimizing usage

Why choose Cognito?
- Cognito supports a wide variety of identity models
- Ability to have their own fully managed directory WJL4 sers authenticate through third-party social identity providers WJL5 out having to deal with the heavy lifting involved in scaling and security an identity system WJL6

Source: https://aws.amazon.com/blogs/aws/category/amazon-cognito/

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Advantages

- **OpenIdConnect**
  - An open standard for identity validation
- **Push Synchronize**
  - synchronize data across multiple devices
- **Cognito sync**
  - offline access
- **Federated Identity**
  - With third-party application, identity WJL7 sing temporary AWS credentials.
- **Platform-free UI**

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WJL4   This could be split into separate bullets.

        "Abililty (for users) to have their own fully managed directory" could be one bullet
        Wes J. Lloyd, 12/3/2019

WJL5   what is a social identity provider?
        Is this Facebook, Twitter?
        Wes J. Lloyd, 12/3/2019

WJL6   grammar is unclear:
        "and security an identity system"
        Wes J. Lloyd, 12/3/2019

WJL7   identify?
        Wes J. Lloyd, 12/3/2019

Advantages

> **Fully managed user directory in Cognito**

WJL8

1 Easy User Management

Add sign-up and sign-in easily to your mobile and web apps

2 Managed User Directory

Launch a simple, secure, low-cost, and fully managed service to create and maintain a user directory that scales to 100s of millions of users

3 Enhanced Security Features

Verify phone numbers and email addresses and offer multi-factor authentication

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Disadvantages

- **Learning Curve**
  - Many online forums complained a lot
- **Regional limited**
  - Some services are not available in China due to the policy issue. WJL9
- **Expensive**
  - Cheaper alternative for large-scale application: Google Firebase Authentication

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Slide 13

WJL8   could animate this slide to show "1, 2, 3"
Wes J. Lloyd, 12/3/2019

Slide 14

WJL9   what policy issue?
Wes J. Lloyd, 12/3/2019

Cost

Number of Monthly Active Users	Price (Monthly Billing)
50000	$0
500000	$2,115
10000000	$36,165

- Notification message cost is not included.
- Advanced security feature WJL10 charge with different rate.
  - Protect your application users from unauthorized access to their accounts using compromised credentials.
  - Cognito prompts users to change password if it detects users have entered credentials that have been compromised elsewhere

Source: https://aws.amazon.com/cognito/pricing/

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DEMO

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W **16**

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WJL10   is this more than one feature?

Wes J. Lloyd, 12/3/2019

Demo Plan

NOTE:

The remainder of the slides won't be shown during the presentation. They are just for reference for professor to see how we plan out the demo.

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Demo on User Pool

Goal: Utilize Cognito User Pool for user login to Android app with username and password
Plan:
> Create a new User Pool, go through some main features on UI and save
> Key features to show when creating a new user pool
  – How do you want end user to sign in with? (ie: Email, password, phone number, DOB -etc)
  – How to enable Multi-Factor Authentication?
  – How will a user be able to recover their account?
  – Account Verification with Email or Phone number
  – Ability to customize workflow with triggers (ie: trigger Lambda functions)
> Show code template on how to integrate Cognito with the mobile app or website
  – Brief intro to **AWS Amplify CLI** - CLI toolchains to integrate AWS cloud services to the app
  – Source for code template: https://aws-amplify.github.io/docs/android/authentication
> Assume the code implementation from previous part is done, finish off with the demo of the sign-in screen of Android app that we built.

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Demo on Identity Pool (if time permitted)

Goal: Utilize Cognito Identity Pool for user login to Android app with Facebook account
Plan:
> Register app in Facebook Developer to get App ID (just a quick walkthrough assuming you already have a working APK file for your Android app)
> Navigate to pre-created Identity Pool project on AWS and show where to include the App ID above so that we can integrate Facebook login with Cognito
> Demo the Android app login screen with Facebook Login
> Extra:
> – While demo Identity pool, it's worth mentioning that Identity Pools enable you to grant users access to other AWS services (ie: Lambda, S3 -etc)

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