

MICHIGAN STATE
UNIVERSITY

Project Plan

Enhanced Company Portal with Graph

The Capstone Experience



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From Students...
...to Professionals

Functional Specifications

- Device Management
 - Allow users to enroll devices to access company resources. Allow enterprise IT to enforce company compliance policies on users personal devices via the application.
- Company Apps
 - The app helps users search, browse and install apps made available to them by their company. Enterprise IT can selectively push applications to users personal devices to allow them to access company resources outside of the workplace.
- Contact IT
 - The app will enable users to chat with company IT directly within the application to quickly resolve technical issues and increase productivity.
- Leveraging Resources via Microsoft Graph API
 - Current company portal application uses multiple services to access company resources. New app centralizes all resources through the Microsoft Graph API.
- Social Integration
 - Users will be able to access groups of which they are a member, and see work that has recently been edited or altered within the group.

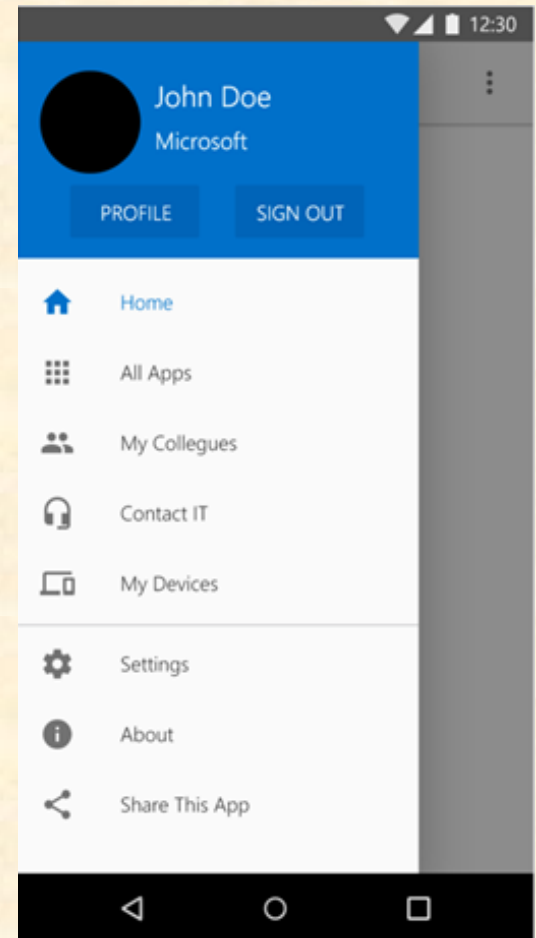
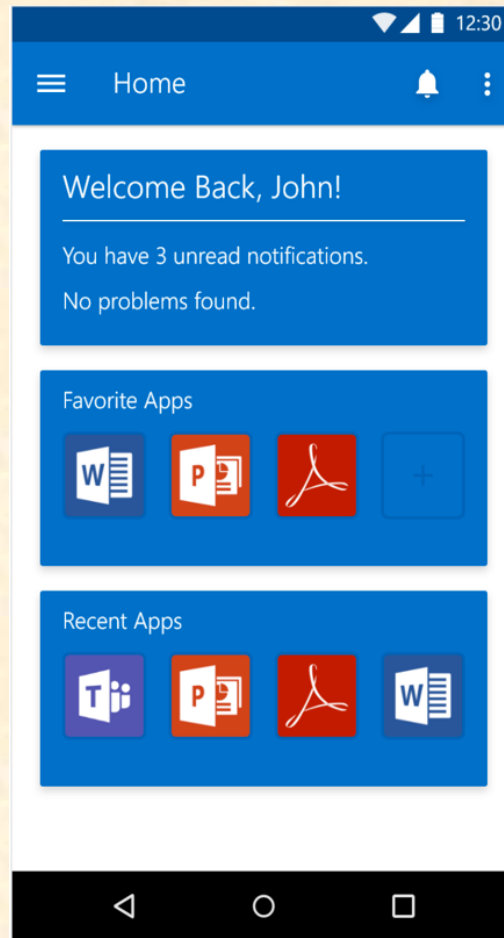
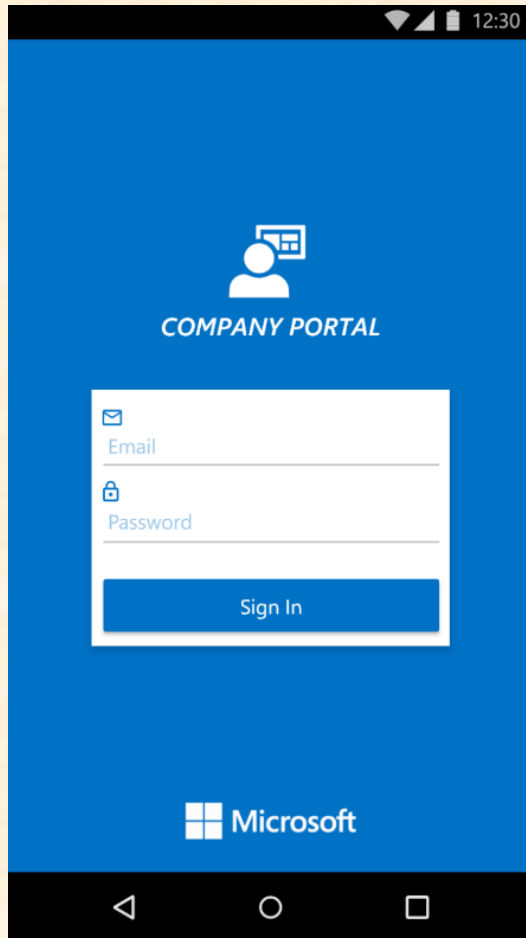


Design Specifications

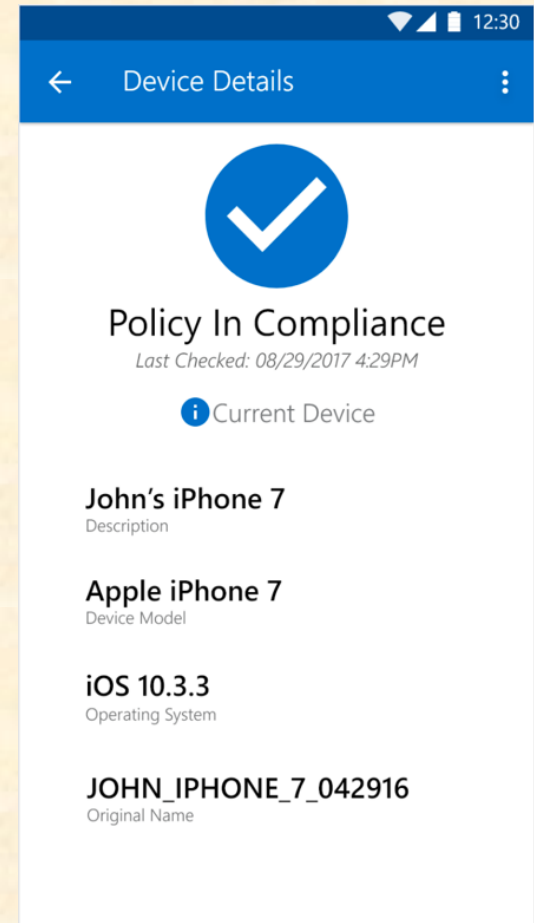
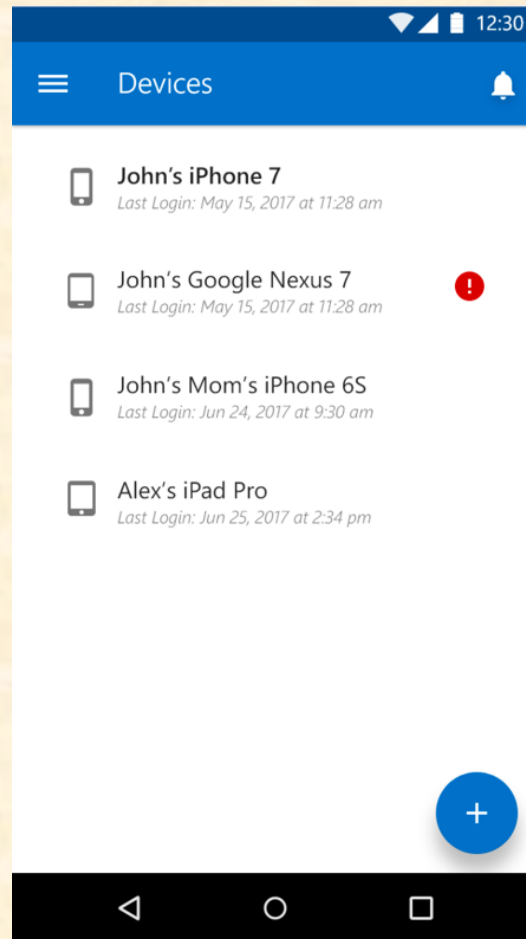
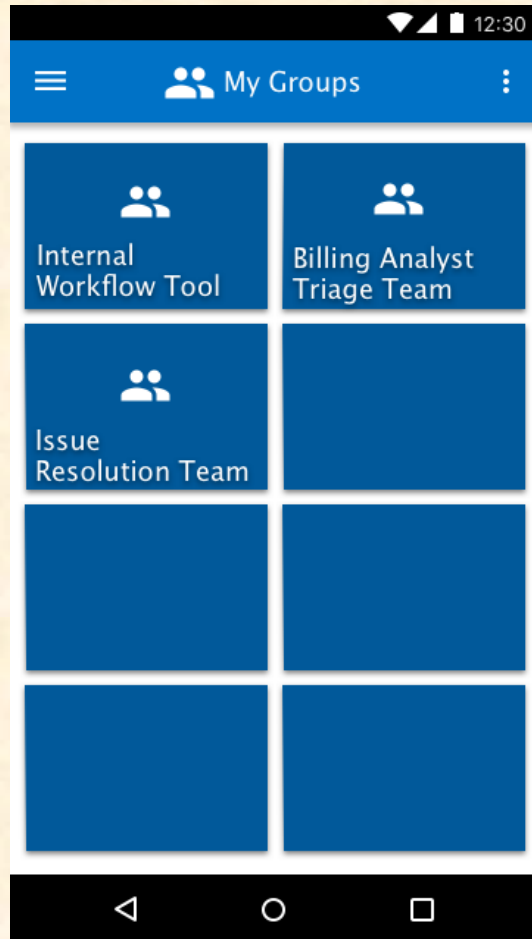
- App Drawer Model (Hamburger Menu)
- Login Page
 - Authenticate user upon first time use
- Home Page
 - App landing page to
- Device Management Page
 - Allow user to:
 - Enroll a new device
 - Manage enrolled devices
- IT Support Page
 - Allow user to open ticket and chat with IT support



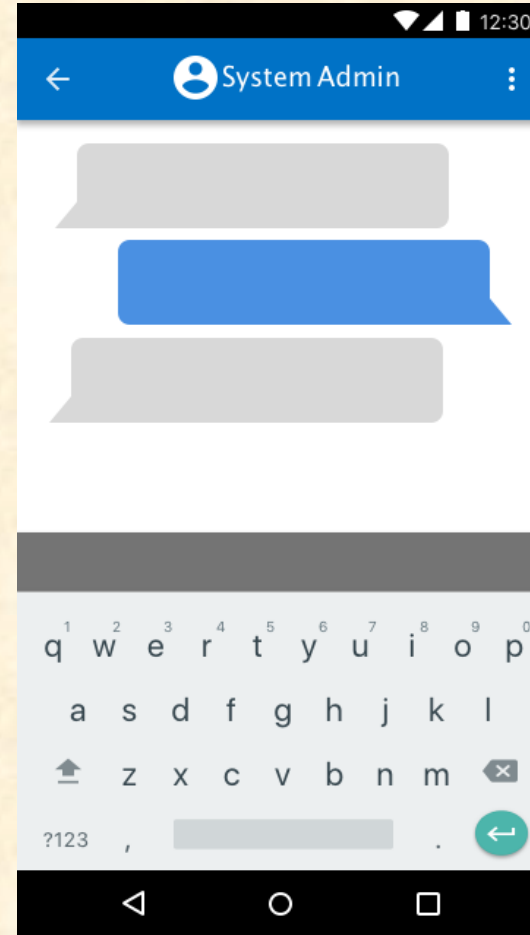
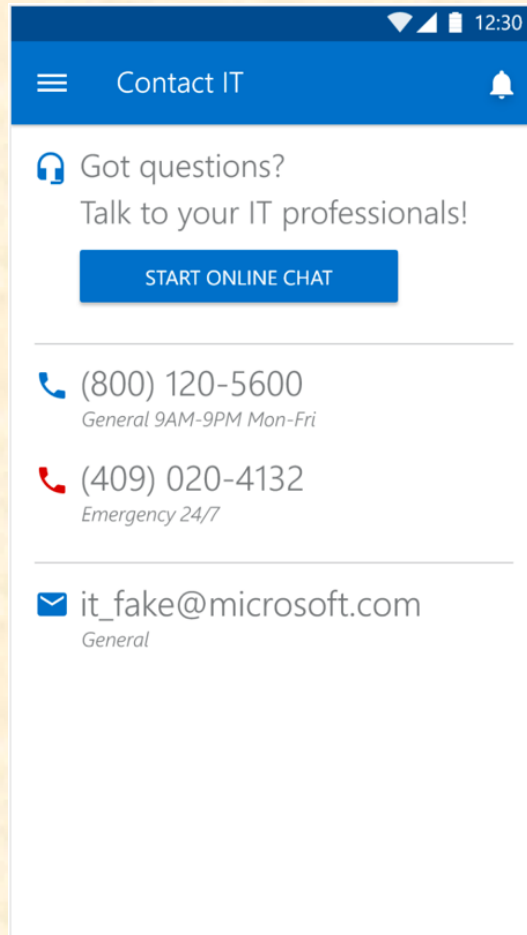
Screen Mockup



Screen Mockup



Screen Mockup



Technical Specifications

Microsoft Azure Active Directory

Microsoft Azure Active Directory (AAD) is used for authentication and authorization of users with different roles in their company, be it admin, IT staff, or regular user

Microsoft Graph API

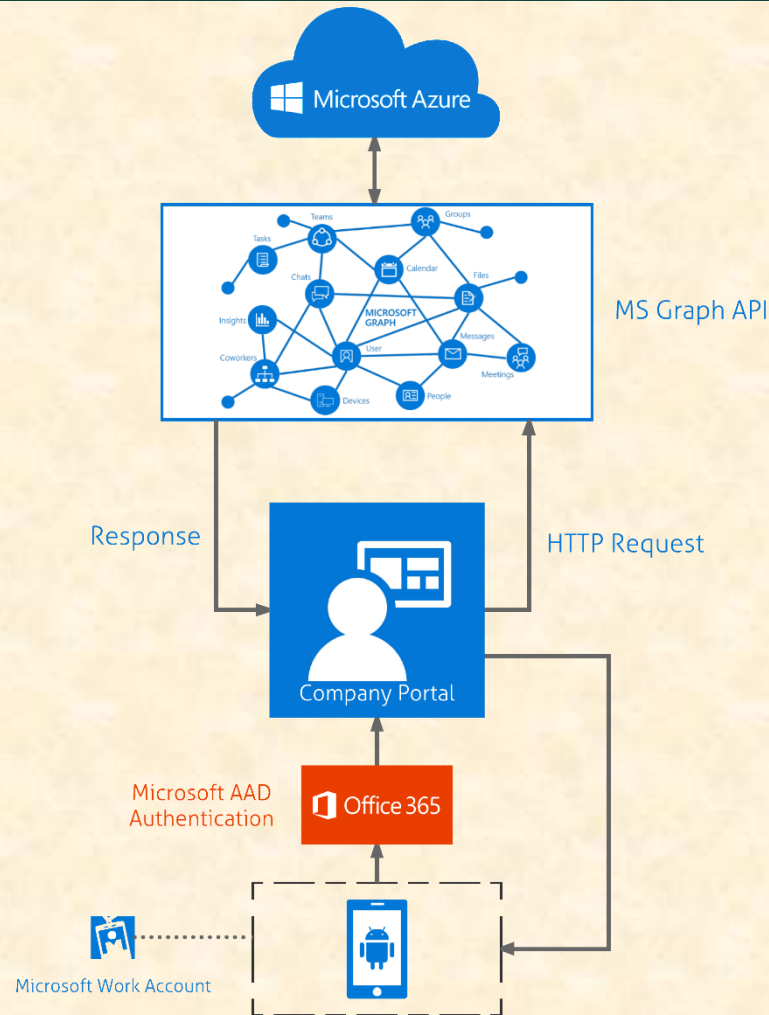
Microsoft Graph is a developers' API platform to connect to the data that drives productivity. Developers can access a wealth of resources, relationship and intelligence on Microsoft cloud through Graph APIs. It is tremendously used in ECPG

Microsoft Teams

A platform that combines workplace chat, meetings, notes, and attachments. It is integrated with Office 365 subscription. A channel for regular users to communicate with IT department.



System Architecture



System Components

- Hardware Platforms
 - Google Nexus 7 (Android API 22 – Minimum API)
 - OnePlus 3 (Android API 25 – Target API)
- Software Platforms / Technologies
 - Android Studio 2.3.3
 - Microsoft Graph API
 - Microsoft Teams API
 - Microsoft Bot Framework
 - Microsoft Azure Active Directory



Testing

Version Control

- Visual Studio Team Service (VSTS)
- A new branch for a new feature

Devices and Emulators

- Utilized physical phones and tablets
- Test on a range of emulators with different phone sizes and OS versions

Unit Test

- Provided by Android Studio
- Test all of the business logic without running the app
- Test cases of:
 - Failed login response
 - Unauthorized response
 - JSON response is de-serialized properly



Risks

Microsoft Graph API

- **Difficulty:** Moderate
- **Description:** Android application will use the Microsoft Graph REST API for all data consumption. The data format will be JSON and responses and requests will need to be designed to handle this. The Graph API contains a vast amount of various API's.
- **Mitigation:** Review Graph API documentation to identify necessary API's. Design data models to be easily serialized and de-serialized into JSON.

Microsoft Teams API

- **Difficulty:** Moderate
- **Description:** The set of APIs to interface with Microsoft Teams are currently in beta meaning they could change at anytime or may never make it into production.
- **Mitigation:** Follow Graph API documentation to identify if the APIs have changed. Work with client to create dialogue with the API developers to help ensure functionality.

Social Integration

- **Difficulty:** Moderate
- **Description:** The team will identify features to incorporate social features within the app. The ability to organize team documents, create team channels, and track recent files.
- **Mitigation:** Review Graph API documentation to identify API's to use.

Identify Account Level

- **Difficulty:** Moderate
- **Description:** IT Admins will have enhanced features to manage all users in their domain. Current Microsoft Graph API provides no endpoint to identify the level the user.
- **Mitigation:** Talk with client, use HTTP status to determine if user has permission.



Questions?

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