

# Mobile Service (+ C# Mobile Service Project)

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Evangelist for Developer

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# Key Scenarios

## Microsoft Azure Mobile Services 적용 시나리오

### 모바일 앱 개발

사용자 인증이나, 푸시 알림, 서버측 데이터 검증과 구조적 저장소 구축에 드는 반복적인 시간과 비용을 줄일 수 있음.

### 빠른 개발

직관적이고 사용하기 쉬운 인터페이스를 제공하며, 보안 구축이 완료된 모바일 서비스를 5분 이내에 구축 가능

### 손쉬운 구조적인 데이터 처리

SQL데이터베이스에 항상 연결될 수 있으며, 단순 데이터 관리가 편리하고, 동적으로 테이블 구조를 생성 가능하며, 데이터 권한 관리나 설정이 단순하다.

# 적용 사례

Bing 서비스



윈도우 선택재  
서비스

1000

1천만개 이상의  
디바이스

3+

매일 3백만개  
이상의 알림

<2

2분 미만의 알림  
전달 속도

소치 동계 올림픽 2014

100s

관심그룹  
(국가, 종목)



지역화된 알림  
서비스

300+

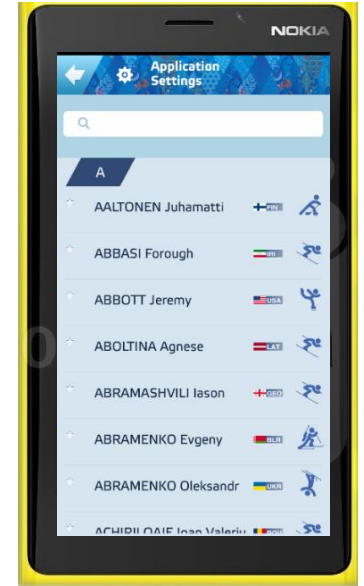
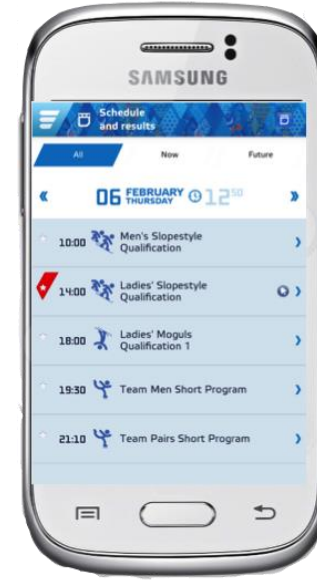
3백만개 이상의  
디바이스  
(iOS, Android, WP)

15+

1억 5천만건 이상의  
알림 서비스

# 소치 올림픽 2014 앱

- ✓ 개별 사용자의 국가와 언어, 시간대(time zone)에 맞춰서 지역화됨
- ✓ 이벤트 유형, 경기 등에 따라 구별되고 개인화된 푸쉬 알림 서비스 제공
- ✓ 페이스북과 트위터 통합 기능을 제공해 소셜 + 현재 결과 콘텐츠 통합 서비스 제공

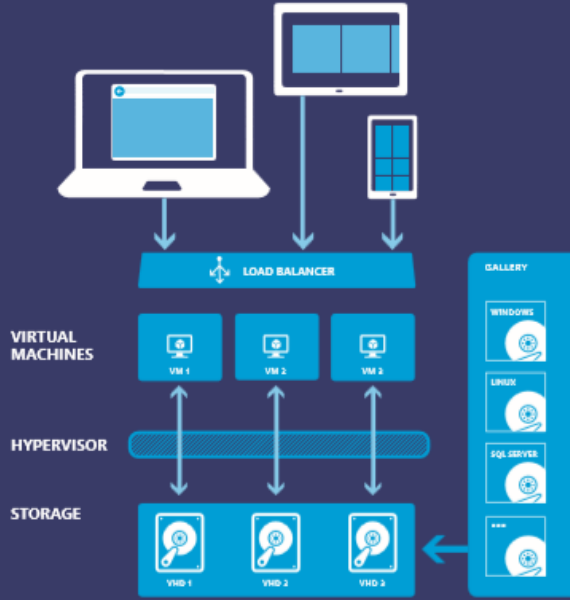






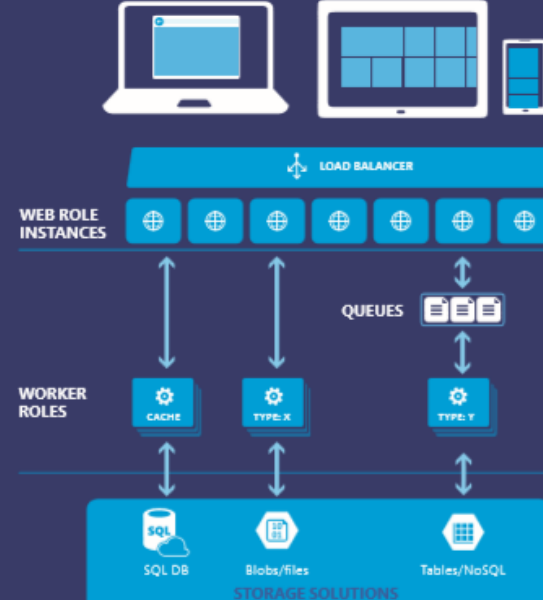
# 1. Virtual Machines

The basic cloud building block that gives you full access to a virtual machine with persistent storage that you completely own and control. You deploy, manage and architect resilience yourself across collections of VMs. These are most similar to VMs on-premise and are the easiest way to move existing workloads to the cloud.



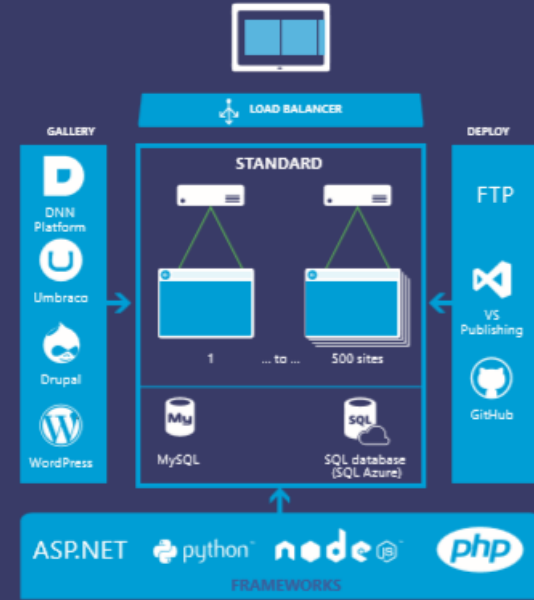
# 2. Cloud Services

Managed general purpose VMs that you have access to and can do quite low level configuration and deployment of additional software in the VM. VMs are stateless and you need to architect for and store state for your applications outside the VM. The Web Role is simply a worker role with IIS already installed/configured.



# 3. Web Sites

For applications that are completely web apps, the underlying VMs are abstracted from you and managed for you. You focus only on your web code and simple or integrated deployment of that code from source control. Choose from the gallery, develop with your framework, and deploy with your source control. Use the data platform of your choice.



# 4. Mobile Services

Devices need to call a web API to store data and execute business logic and mobile services provides this capability without you needing to worry about the underlying web api infrastructure or even worry about much of the API code to store and retrieve data from your mobile application.



DATA SERVICES							NETWORK SERVICES		
<p><b>Storage</b></p> <p>Provides many options to securely manage data. Accessible via REST APIs. Blob storage provides up to 100 terabytes per account.</p>	<p><b>SQL Database</b></p> <p>Simple, reliable server backup to the cloud. Configure, monitor and recover backups to local or Windows Azure storage.</p>	<p><b>Import Export</b></p> <p>Transfer large amounts of file data smoothly into blob storage. Use the management portal or send hard disks to a Windows Azure datacenter.</p>	<p><b>HDInsight</b></p> <p>Based on Apache Hadoop, enables easy provisioning and integration of big data with tools including Microsoft Office and System Center.</p>	<p><b>SQL Data Sync</b></p> <p>Enables regular and on-demand synchronization between instances of SQL Database and instances of either SQL Server and/or SQL Database.</p>	<p><b>Recovery Services</b></p> <p>Easily back up Windows Server using the Hyper-V Recovery Manager. Schedule routing backups and recover files or folders.</p>	<p><b>Backup Agent</b></p> <p>Create a backup schedule for your data using Powershell cmdlets.</p>	<p><b>Cache</b></p> <p>Helps applications scale and be more responsive under load by keeping data closer to application logic.</p>	<p><b>Virtual Network</b></p> <p>Provision and manage VPNs in Windows Azure and securely link to your on-premises IT infrastructure.</p>	<p><b>Traffic Manager</b></p> <p>Load-balances incoming traffic across multiple services running in the same or different datacenters.</p>
APP SERVICES									
<p><b>Notification Hubs</b></p> <p>Deliver millions of cross-platform push notifications within minutes from any application back-end, on-premises or in the cloud.</p>	<p><b>Service Bus</b></p> <p>Messaging channel for connecting your cloud applications to your on-premises applications, services, and systems.</p>	<p><b>Visual Studio Online</b></p> <p>Host code, plan and track projects, and collaborate with team members to deliver better software.</p>	<p><b>Media Services</b></p> <p>Build workloads to create, manage, and distribute on-demand media and live streaming events.</p>	<p><b>BizTalk Services</b></p> <p>Build EDI services and Enterprise Application Integration (EAI) solutions in the cloud.</p>	<p><b>Active Directory</b></p> <p>Identity and access management cloud solution: directory services, identity governance, security, and application access management.</p>	<p><b>Store</b></p> <p>Lets you easily find, access, and manage services and data sets, directly from the management portal.</p>	<p><b>Scheduler</b></p> <p>Lets you create jobs that call services in and outside of Windows Azure and lets you specify when and how often those jobs run.</p>	<p><b>CDN</b></p> <p>Delivers high-bandwidth content by caching blobs and static content of compute instances at physical nodes globally.</p>	<p><b>Multi Factor Authentication</b></p> <p>Works with Active Directory to safeguard access to data and applications yet deliver a simple sign-in process.</p>



# Azure Mobile Services

## SDKs



Windows Store  
iOS  
Android  
Xamarin  
Phonegap  
Sencha



Windows Phone  
iOS  
Android  
HTML 5/JS

REST API

## 데이터 저장소



SQL



Table  
Storage



Blob  
Storage



Mongo  
DB



Hybrid  
Connections

## 사용자 인증



Facebook



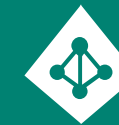
Twitter



Microsoft



Google



Azure Active  
Directory

## 푸시 알림



WNS &  
MPNS



APNS



GCM



Notification  
Hubs



Node.js  
Express

.NET  
Web API



Source  
Control

# Mobile Service의 장점

- 모바일 앱&게임을 위해 빠르게 구축 가능한 백엔드 서비스
- 푸쉬 알림, 소셜 기능이나 SSO, 온오프라인 동기화, 데이터 처리 기능 구현
- 기존 Web API들을 Mobile Service로 바로 서비스 가능
- 거의 모든 Client SDK 제공 iOS, Android, Windows, Windows Phone, Xamarin, PhoneGap, Sencha
- On-premise의 기업 시스템, O365와 통합 가능
- PaaS 기반 서비스로 운영에 대한 비용 부담 없음

# Demo

Mobile Service 소개



# 데이터 처리 & 서버로직

# 구조화된 저장소

SQL Database, Table Storage 등과 연동 가능한 저장소

SQL Database를 아래 방법으로 관리 가능

- Portal, SQL Portal
- SQL Management Studio
- REST API
- CLI Tools

# 서버 로직

- 저장소를 위해 자동으로 생성되고 관리되는 REST API
- 동적 스키마(Dynamic Schema) 기능 제공
- CRUD 작업에 대해 서버 로직을 생성 가능



# REST API를 SQL Type 매핑

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## JSON Value

## T-SQL Type

Numeric values (integer, decimal, floating point)

Float

Boolean

Bit

DateTime

DateTimeOffset(3)

String

Nvarchar(max)

---

# Demo

데이터 처리 및 서버로직 – Script



# Mobile Service의 새로운 기능

tech·days  
Korea 2014  
개발자 컨퍼런스

## **.NET backend**

Heterogeneous data

Hybrid Connections

Offline sync

Xamarin

## **AAD Authentication**

Visual Studio

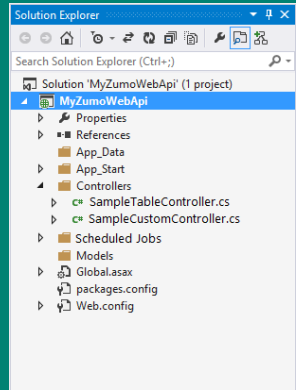
API Management

Notification Hubs

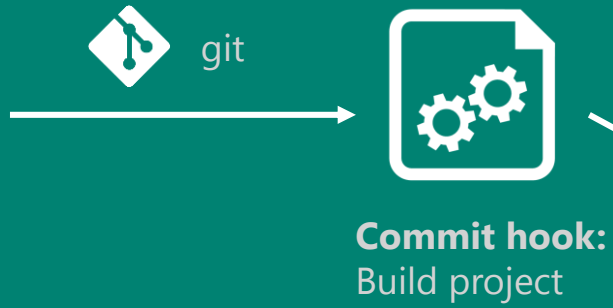
Sencha

# Mobile Services .NET

- 모바일 앱을 빠르게 구현 가능한 백엔드 서비스 - .NET !!!
- 백엔드 로직을 .NET Web API로 처리
- 기능별로 구현 가능한 백엔드 기능
  - 데이터 처리 암호화 및 쿼리, 페이징 등 다양한 구조의 서비스 통합
  - Azure Active Directory
  - 오프라인 앱 기능 지원
- 로컬 디버깅(Visual Studio)
- .NET의 강점을 살린 유연한 데이터 모델

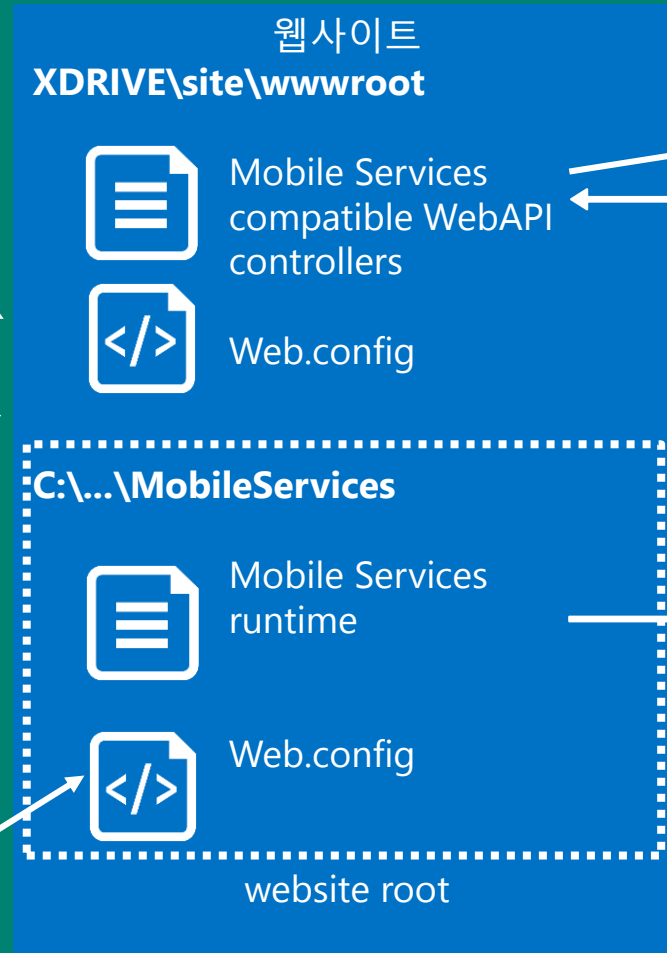


소스



Mobile Services compatible WebAPI controllers

App 설정 부분



사용자 DB:  
EF code-first migrations  
or custom migrations

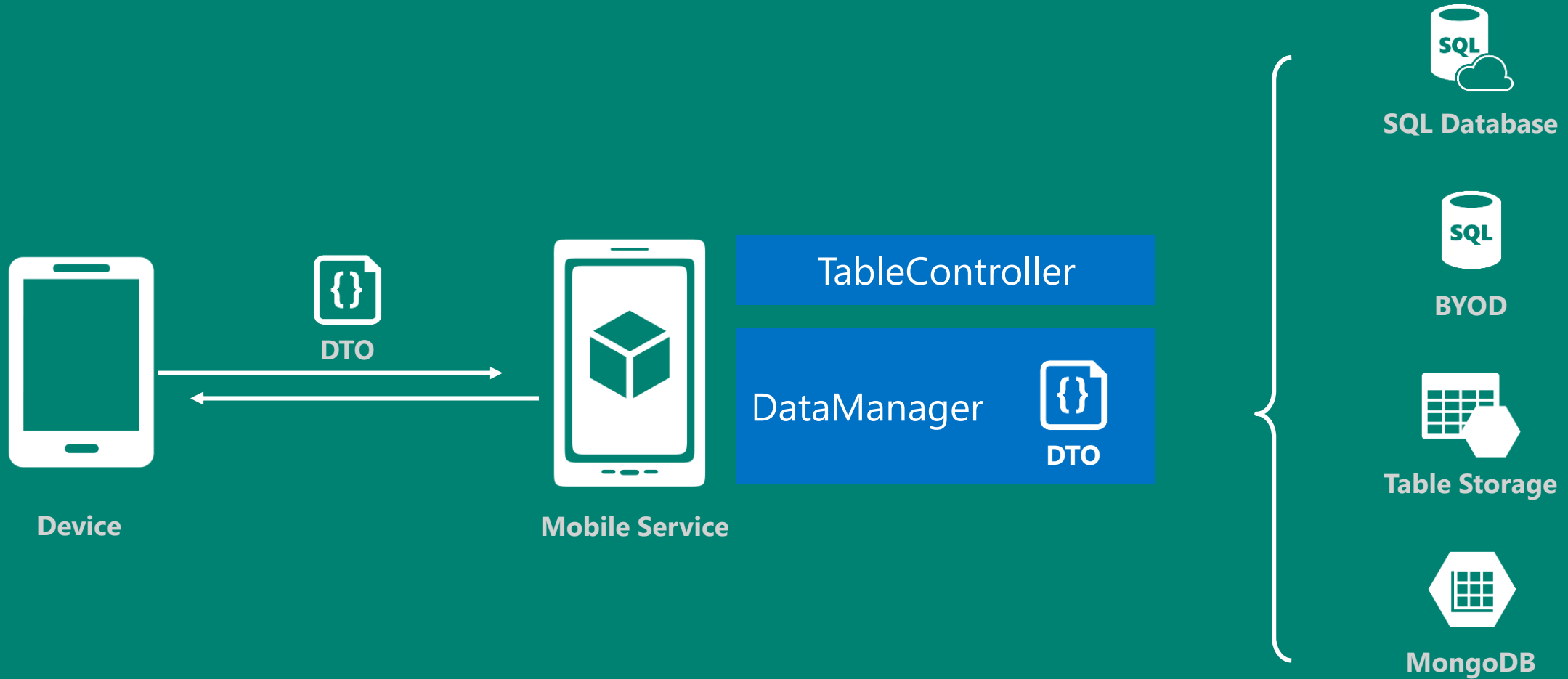
load

# Demo

.NET 백엔드 서비스

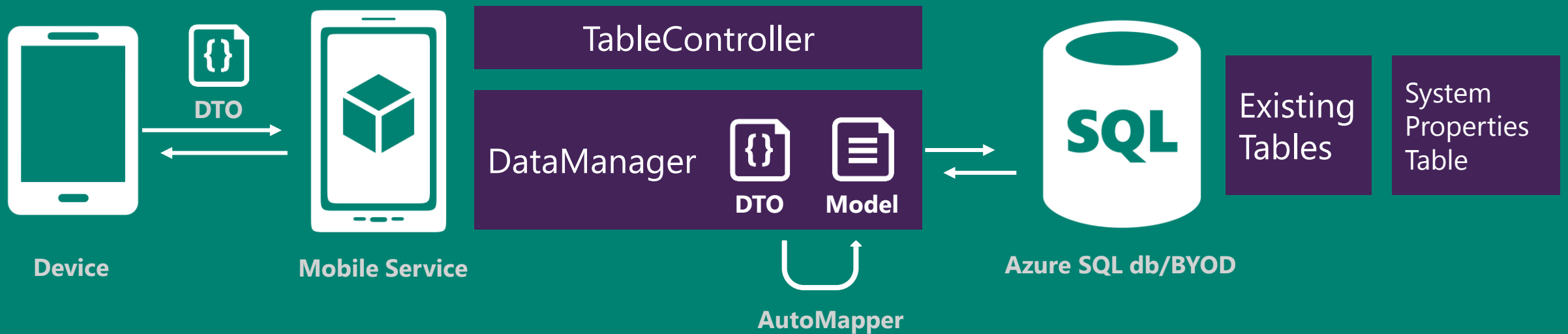
# 새로운 데이터 처리 & 오프라인 동기화

# 새로운 데이터 모델 ("greenfield")

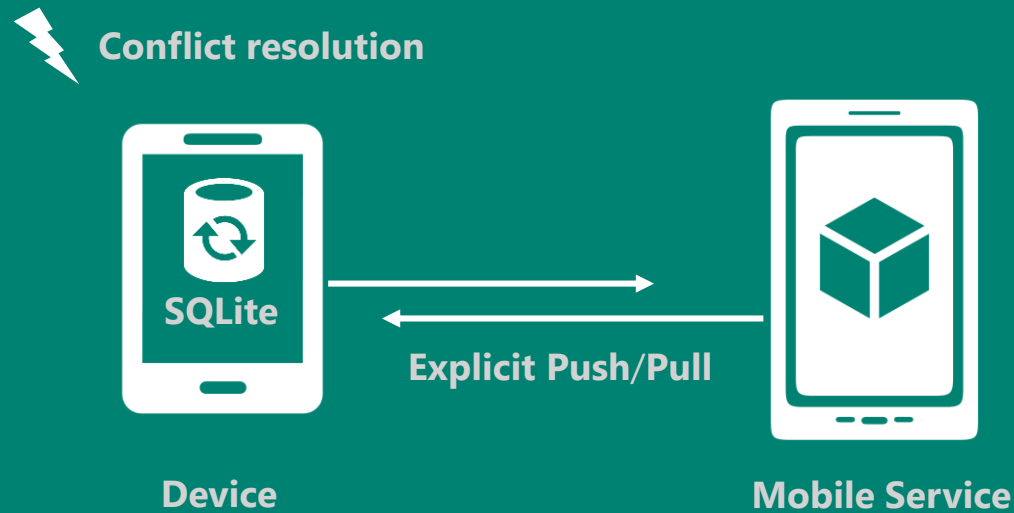




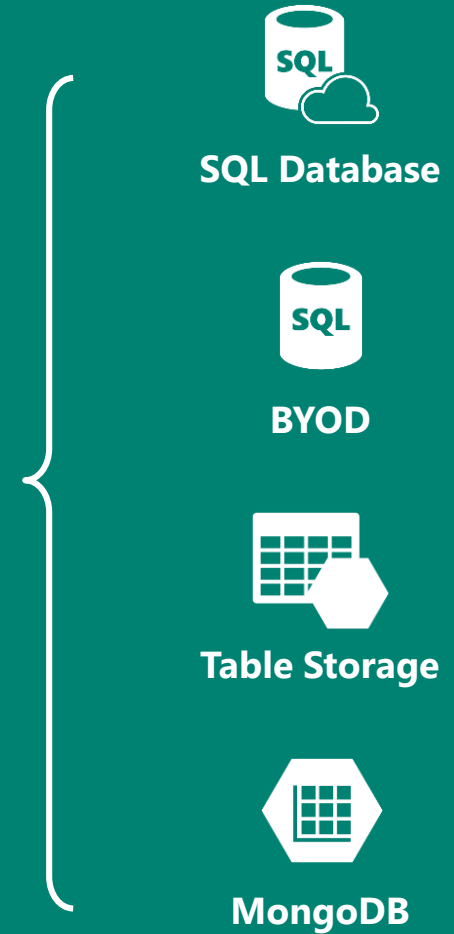
# 기존 데이터 모델 ("brownfield")



# 오프라인 지원



TableController  
(with optimistic  
concurrency)



# 오프라인 지원

- 로컬 데이터 저장소에 테이블 작업을 저장
  - 디바이스의 로컬 데이터에서 모바일 서비스로 변경을 Push
  - 모바일 서비스에서 디바이스의 로컬 데이터 저장소로 변경 내용을 Pull
- SQL-lite 확장
  - 원하는 형태로 사용 가능하도록 로컬 데이터 저장소를 정의 가능

# 인증 처리

# Auth\*

- Microsoft ID, FACEBOOK, 트위터, 구글, Azure AD
- 테이블 단위 권한 설정이 가능하고, 개별 CRUD 수행 시 권한 부여 가능
  - Everyone
  - Anyone with the Application Key
  - Only Authenticated Users
  - Only Scripts and Admins
- 서버측 스크립트로 다양한 추가 제어 가능

## 마이크로소프트 ID : Live Connect Developer Center

Live Connect Developer Center | Sign out

Home **My apps** Docs Interactive SDK Downloads Support Showcase

### Connect your application to Windows Live

My applications

Provide the name of your application that users will see.

Application name\*

Use only letters, digits, and underscores. 129-character limit.

Language\*

Select your application's primary language.

Clicking **I accept** means that you agree to the Live Connect terms of use. Read the [privacy statement](#).

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Live Connect Developer Center | Sign out

Home **My apps** Docs Interactive SDK Downloads Support Showcase

### ToDoListAuth

My applications > ToDoListAuth > API Settings

Settings

Basic Information

**API Settings**

Localization

Client ID:

This is a unique identifier for your application.

Client secret:

For security purposes, don't share your client secret with anyone.

Create a new client secret

Redirect domain:

Live Connect enforces this domain in your OAuth 2.0 redirect URI that exchanges tokens, data, and messages with your application. You only need to enter the domain, for example <http://www.contoso.com>.

Mobile client app:  
 Yes  No

Mobile client applications use a different OAuth 2.0 authentication flow. Only select "Yes" if your app is a mobile app. [Learn More](#)

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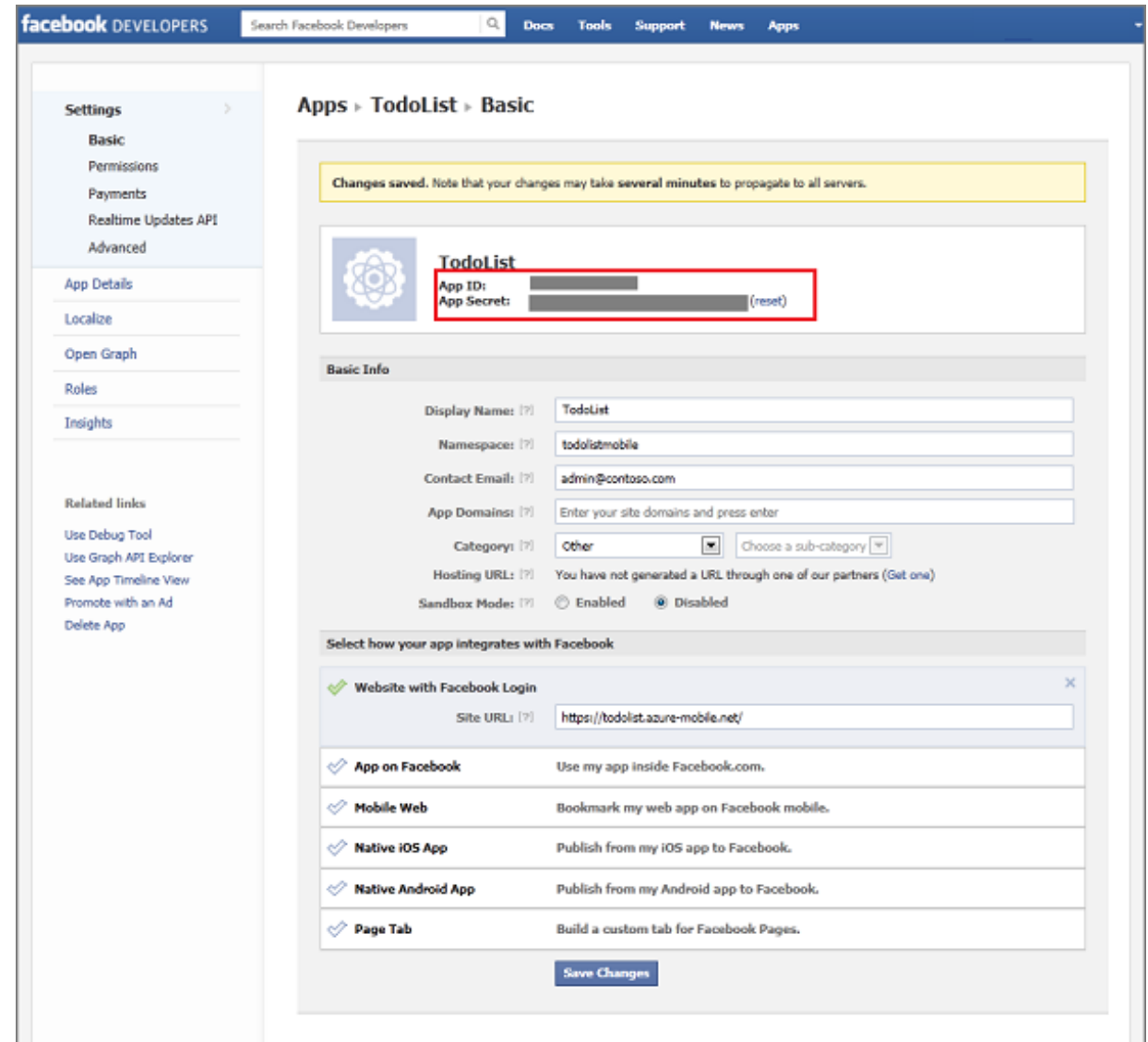


# 인증

## 페이스북 인증: dev center



The screenshot shows the Facebook Developers homepage. At the top, there's a navigation bar with 'facebook DEVELOPERS' and a search bar. Below that, a banner for 'Become a Facebook Developer' features a 'Register Now' button. The main content area is divided into three columns: 'Build for Websites', 'Build for Mobile', and 'Build Apps on Facebook'. Below these are sections for 'Latest Updates', 'HTML5 Resource Center', and 'Showcase'. The footer includes social media sharing buttons and the text '1,088,449 people like this. Be the first of your friends.'



The screenshot shows the 'Apps' page for 'TodoList' in the 'Basic' settings section. The page has a left sidebar with navigation options like 'Settings', 'App Details', and 'Related links'. The main content area shows a 'Changes saved' notification, followed by the app's name 'TodoList' and its 'App ID' and 'App Secret' (both redacted with a red box). Below this is the 'Basic Info' section with fields for 'Display Name', 'Namespace', 'Contact Email', 'App Domains', 'Category', 'Hosting URL', and 'Sandbox Mode'. At the bottom, there's a section for 'Select how your app integrates with Facebook' with checkboxes for 'Website with Facebook Login', 'App on Facebook', 'Mobile Web', 'Native iOS App', 'Native Android App', and 'Page Tab'. A 'Save Changes' button is at the bottom right.

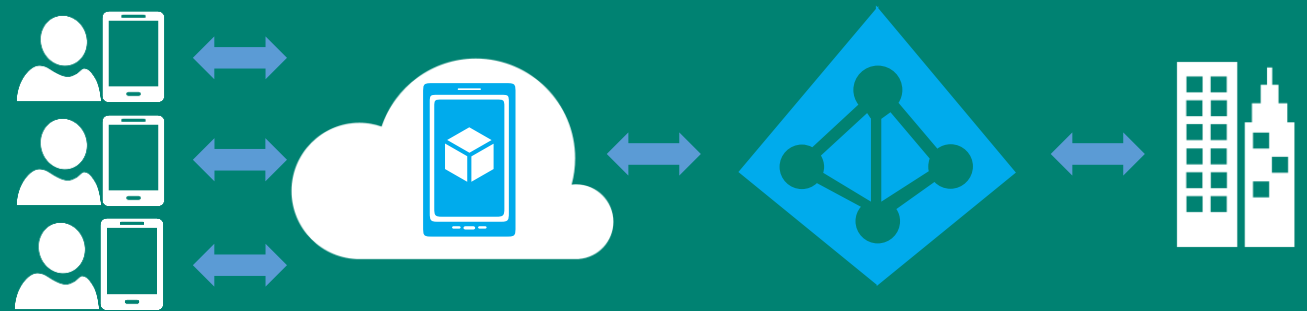
# Demo

인증 - 페이스북 인증

# Azure Active Directory 인증

# Azure Active Directory

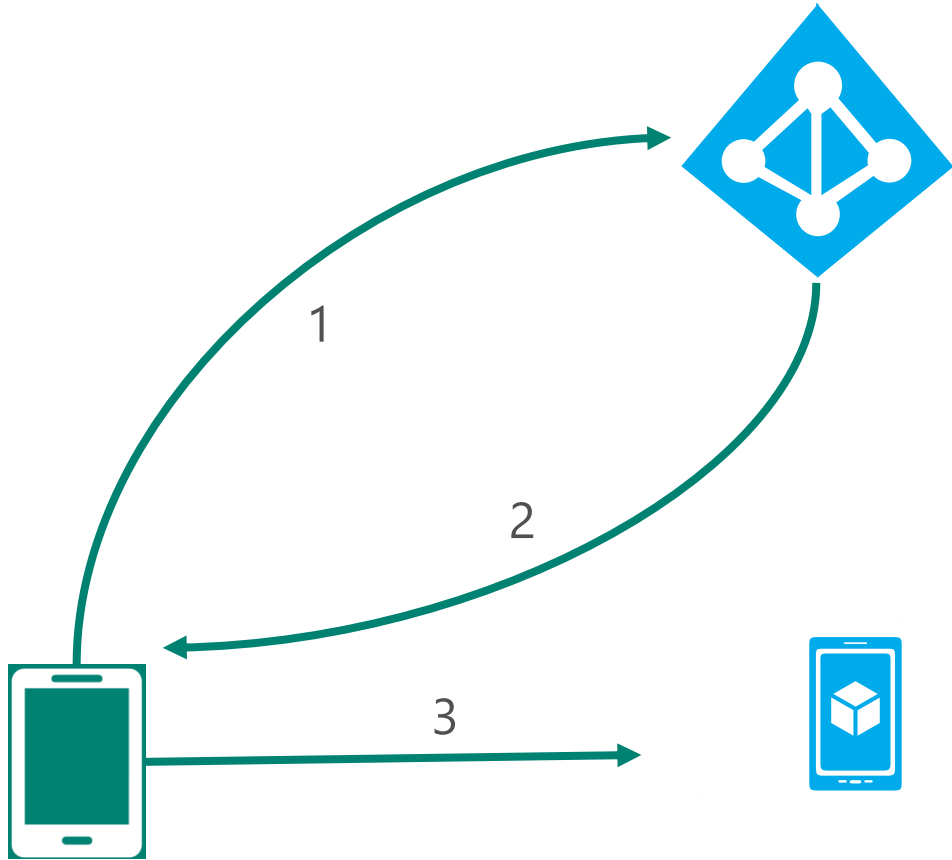
- LOB 서비스를 모바일로 확장
- 기업의 인증 기능들을 모바일로 확장
- 모바일 어플리케이션을 조직의 구조에 맞춰 개발 가능



# Active Directory 인증 라이브러리 – AD Authentication Library (ADAL)

- Azure AD가 보호하는 리소스에 로그인 가능
- 다양한 기업 환경이 리소스에 SSO 제공
- 현재 Windows Store 앱, iOS, Android에서 사용 가능

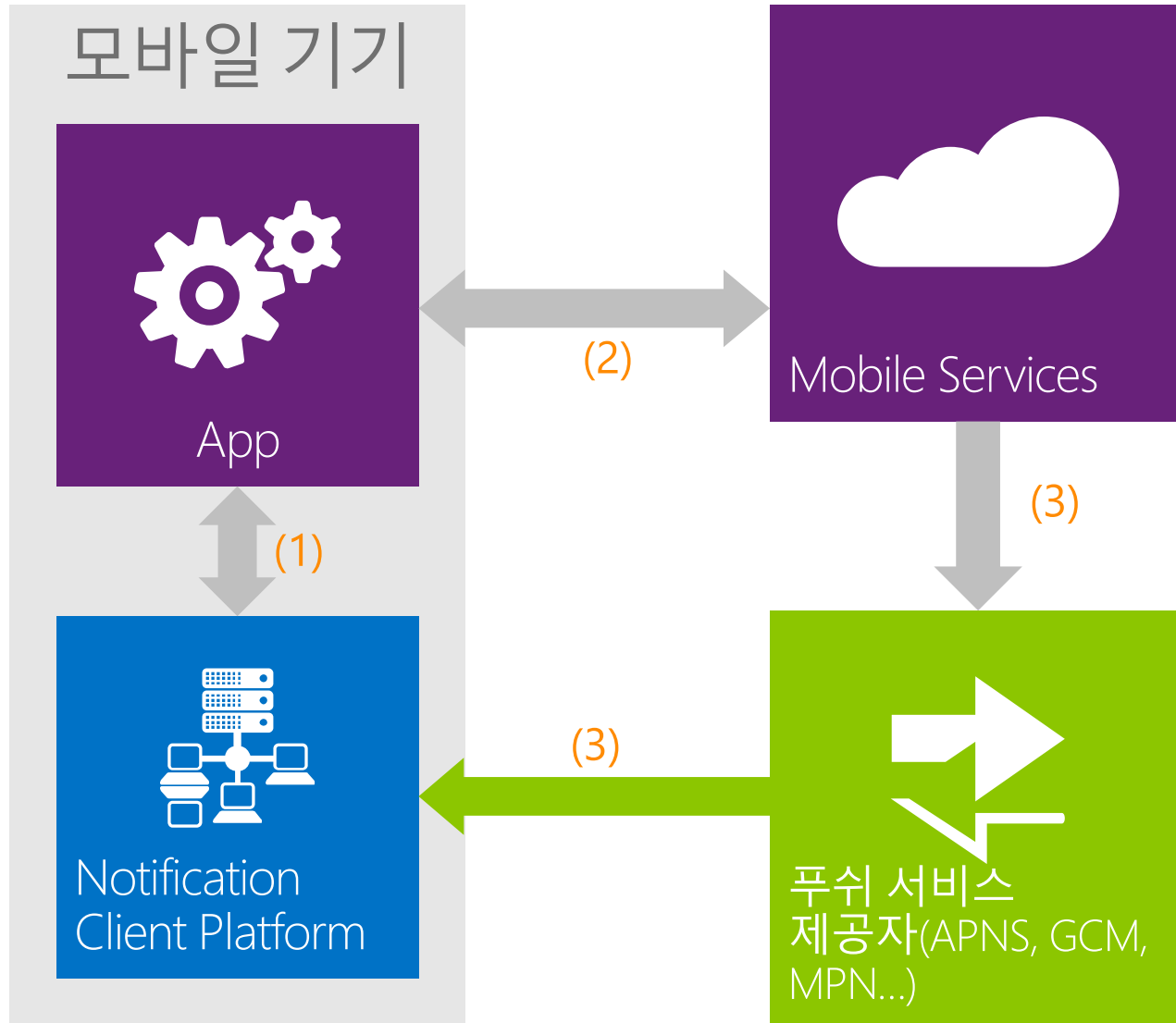
# 기본적인 ADAL + Mobile Services 흐름



- 1) 클라이언트앱이 ADAL로 로그인을 시작하고 사용자가 입력한 정보를 AAD로 보낸다.
- 2) AAD 가 모바일 서비스를 위한 Access Token과 Refresh Token을 ADAL에 보낸다.
- 3) 클라이언트에서 세션 유지를 위해 Access Token을 모바일 서비스로 보낸다.

# Push 알림

# Push Notification 동작 이해



1. Channel URI 요청
2. Cloud Service 등록
3. 인증 & 푸시 알림



# Demo

iOS에서 Push 알림 구현

# Azure Mobile Services

## SDKs



Windows Store  
iOS  
Android  
Xamarin  
Phonegap  
Sencha



Windows Phone  
iOS  
Android  
HTML 5/JS

REST API

## 데이터 저장소



SQL



Table  
Storage



Blob  
Storage



Mongo  
DB



Hybrid  
Connections

## 사용자 인증



Facebook



Twitter



Microsoft



Google



Azure Active  
Directory

## 푸시 알림



WNS &  
MPNS



APNS



GCM



Notification  
Hubs



Node.js  
Express

.NET  
Web API



Source  
Control

# Mobile Service (+ C# Mobile Service Project)

김대우, Microsoft Korea, Technical  
Evangelist for Developer

강동욱, Bapul, Sr. Developer, 코딩하는  
디자이너 Founder



