

Srihari Kulkarni
Architect, MobileFirst Client SDKs



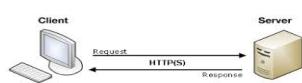
Mobile Services on Cloud



Trends

80s-90s

Client-Server Apps



1994-current

Web



2004-current

Web 2.0



2008-current

Mobile Apps v1



2014-current

Mobile Apps v2



2015-future

Digital Apps

Packaged Software
for IT enablement

eCommerce

Engaging &
productive webMobile
CommerceMobile
Work

Single desktop

Access from home
or workBrowser from
anywhereIndividual apps on a
mobile deviceMultiple apps on
multiple mobile
devicesDigital Work and
LifeMultiple apps on mobile,
desktop, car, home and
wearable devices

Converging trends

Client-server

Web apps

Web 2.0

Mobile v1

Mobile v2 →
Digital Apps

1990

1995

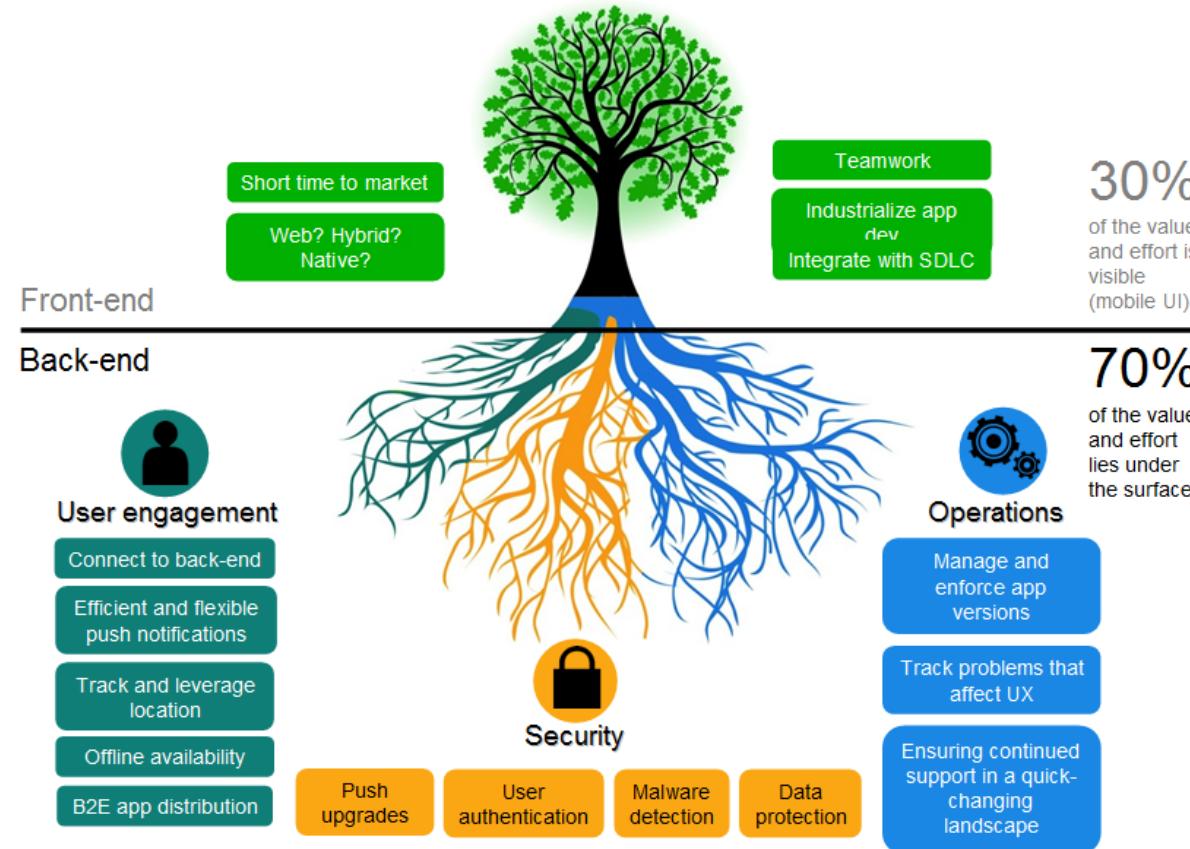
2000

2005

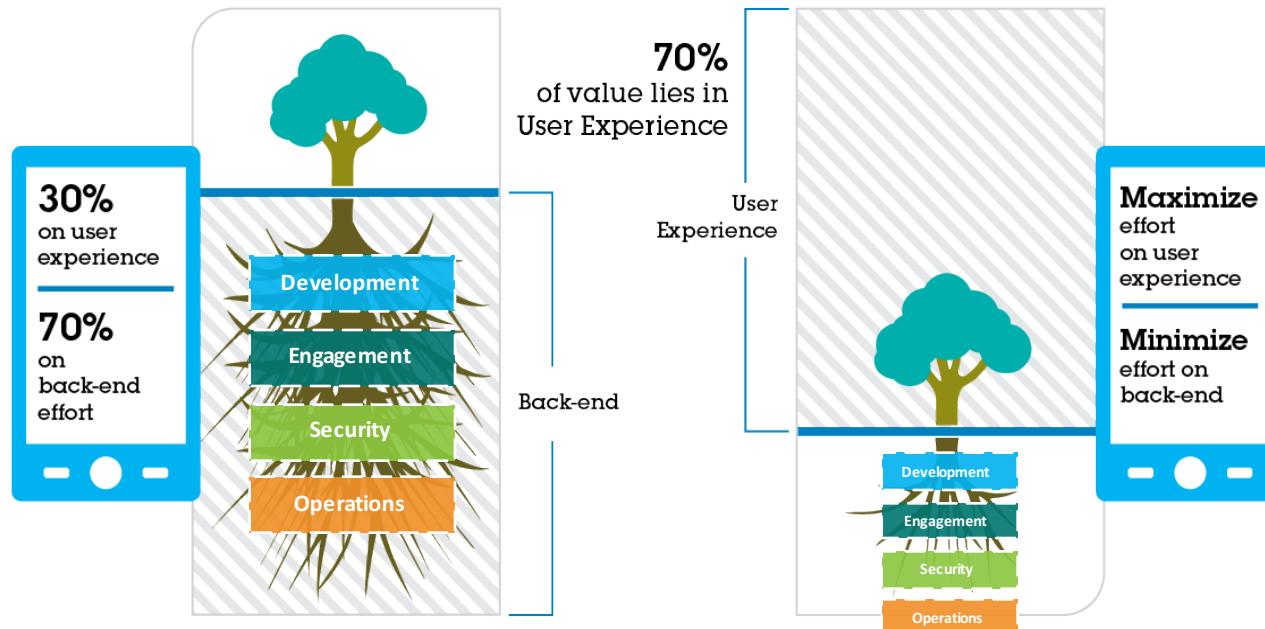
2010

2015

Mobile apps go much deeper than the front-end User Interface



Developers unable to focus on High-Value features



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DASHBOARD SOLUTIONS CATALOG PRICING DOCS COMMUNITY [352]

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Type to search

Starters

- Boilerplates

Compute

- Runtimes
- Containers

Services

- Watson
- Mobile
- DevOps
- Web and Application
- Network
- Integration

Services // The building blocks of any great app

Mobile

Quickly get started with your next app

Mobile Application Content Manager IBM

Mobile Client Access IBM

Mobile Foundation IBM

Mobile Quality Assurance IBM

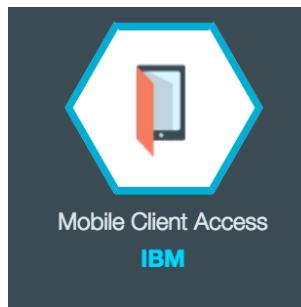
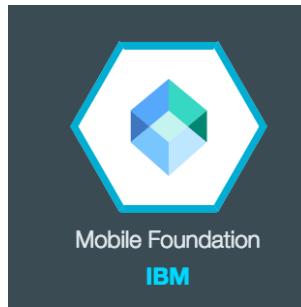
Push Notifications IBM

Kinetise Third Party

Testdroid Cloud Third Party

Twilio Third Party

IBM Bluemix Mobile Services





IBM Push Notifications

Engage Your Users

Send relevant content using [tagging](#) and [subscription](#)

Use [Bluemix Dashboard](#) to select users, send notifications, and monitor the performance of your messages

Segment users

Send targeted messages to a single user or a group of users

REST APIs

Configure, Subscribe, monitor and send notifications

Supported Platforms



See it in action

<https://www.youtube.com/watch?v=REs-JSqlIUI>

The screenshots illustrate the IBM Push Notifications interface. The top window shows the 'Notifications' flow with three steps: 'Choose Recipients', 'Compose Notification', and 'Confirm'. The 'By Consumer ID' option is selected, showing a table of consumer data:

Consumer ID	Name	Device ID	Actions
40637607	Martha Jones	34965789	[Edit]
68247681	Wanda Smith	34665457	[Edit]
14653789	Rachel Horizon	36750392	[Edit]
45765333	James Corwell	34611290	[Edit]

The bottom window shows the 'Tags' screen with a 'CREATE TAG' button. A new tag 'POLICY_CHANGE' is being created with the description 'Tag used to send policy changes to employees'. Subscribers include 'Setting up Push from Xcode' and 'Xcode snippet'.





Cloudant NoSQL DB

The Ultimate Data Store for Your Apps
Fully managed NoSQL JSON data layer
that's always on

Create and store [custom objects](#) in the
cloud

Powerful Client API to Simplify Dev
Handle CRUD operations,
online and [offline synchronizations](#) and
replications with a few lines of code

[Secure access](#) through user authentication
using Mobile Client Access



Databases

Name	Size	# of Docs	Update Seq	Actions
replicator	1.5 kB	2	6	[Edit] [Delete]
animdb	4.5 kB	11	54	[Edit] [Delete]
foundliteDatabase	7.1 kB	10	34	[Edit] [Delete]
runapp	0.1 kB	1	4	[Edit] [Delete]
testdb	0.1 kB	2	16	[Edit] [Delete]

lobbyists

Database

All documents

All design docs

REPLICATED INDEXES

+ New

lookup - fields

lookup - issues

SEARCHED INDEXES

+ New

Q SearchTest : type

Q lookup : uber

Q lookup : all

Create Search Index

Save to Design Document

_design/Test

Index name

amountSearch

Search value function

```
1: Function(doc){  
2:   if (doc.Amount) {  
3:     index("amount", parseInt(doc.Amount, 10), {"facet":true});  
4:   }  
5: }
```

Analyzer

Single Multiple

Type

standard

Save & Build Index



Mobile Quality Assurance

Over-the-Air Build Distribution

Get the latest in the hands of the testers as soon as it is available

Automated Crash Reporting

Get aggregated crash logs from pre-production and production environments automatically

In-App Bug Reporting

Submit defects in seconds while using the application from your mobile device

User Feedback and Sentiment Analysis

Get feedback about your app state from your customers and mine app ratings and reviews to extract actionable insights

Supported Platforms



The screenshot displays the IBM Mobile Quality Assurance dashboard with several key sections:

- Latest Bugs:** Shows two bug reports for 'ver. beta (1004)'. The first report is for an iPhone 4S GSM+CDMA, iPhone OS 7.0.3, dated 2013-11-05, with a red circle highlighting a specific error message: "I am online in flight processing air. You can have a look at the map and get to know where you are. See you later." The second report is for an iPhone 4S GSM+CDMA, iPhone OS 7.0.3, dated 2013-11-01.
- Latest Crashes:** Shows a single crash entry for 'beta (1005)' on an iPhone 4S GSM+CDMA, iPhone OS 7.0.3, last occurred on 05 Nov, 2013. The error message is "Name: Different format Reason:Unknown format".
- Top Clusters:** A list of user feedback entries. One entry is highlighted with a red box:

Cashes on iPhone 6 after update
1 10/20/2014 - 10/21/2014 • 2.00
this app knows where I'm going and how to get there. However, the suggested routes are often questionable. They add crazy loops or me.
- Cluster Stats:** A donut chart showing 100 total clusters, with categories: Star average clusters (green), Star above average clusters (yellow), Star below average clusters (orange), and Star far below average clusters (red).
- Attributes:** A row of four cards: Privacy (red), Content (red), Stability (green), and Satisfaction (green). Each card has a brief description below it.



Mobile Client Access

Keep Apps Secure

Authenticate users with Social Sign-in (Google, Facebook), or any OAuth 2.0 based custom authentication

Secure access to backend resources

Monitor Health with Analytics & Logs

Troubleshoot with logs from device activity

Real-time app usage, network performance, and authentication analytics

Supported Platforms



This app allows unauthenticated access to the backend.

Facebook Google Custom

Enter the Facebook App ID [Where is it located?](#)
Facebook App ID

CANCEL SAVE

FILTERS: 01/29/2015 - 02/04/2015 | All OS | All Models | All Levels |
Keywords SEARCH

2,519 records found.

Level	Date	App Version	Message	OS	Model	Download Logs
►	2/4/2015, 08:50:47		registered for push notifications.	iOS 8.1	iPad	
►	2/4/2015, 08:50:47		Response Content : {"deviceId":"F6D96B85-B9B0-48A7-9243-4FEBFC301ABB","token":"940b2a69 5dedb633...}	iOS 8.1	iPad	
►	2/4/2015, 08:50:47		Response Status Code : 200	iOS 8.1	iPad	
►	2/4/2015, 08:50:47		Request Success	iOS 8.1	iPad	

See it in action

<https://www.youtube.com/watch?v=vgGJLY8oxmc>

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MobileFirst Foundation

Simple, scalable and proven enterprise mobile middleware deployable on-premises and on Cloud



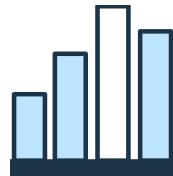
Comprehensive Security

to protect from mobile-specific threats



App Lifecycle Management

to reduce time and costs of operations and incremental updates



Mobile Analytics

to better understand your users



Backend Logic Engine

to add server-side logic to your app

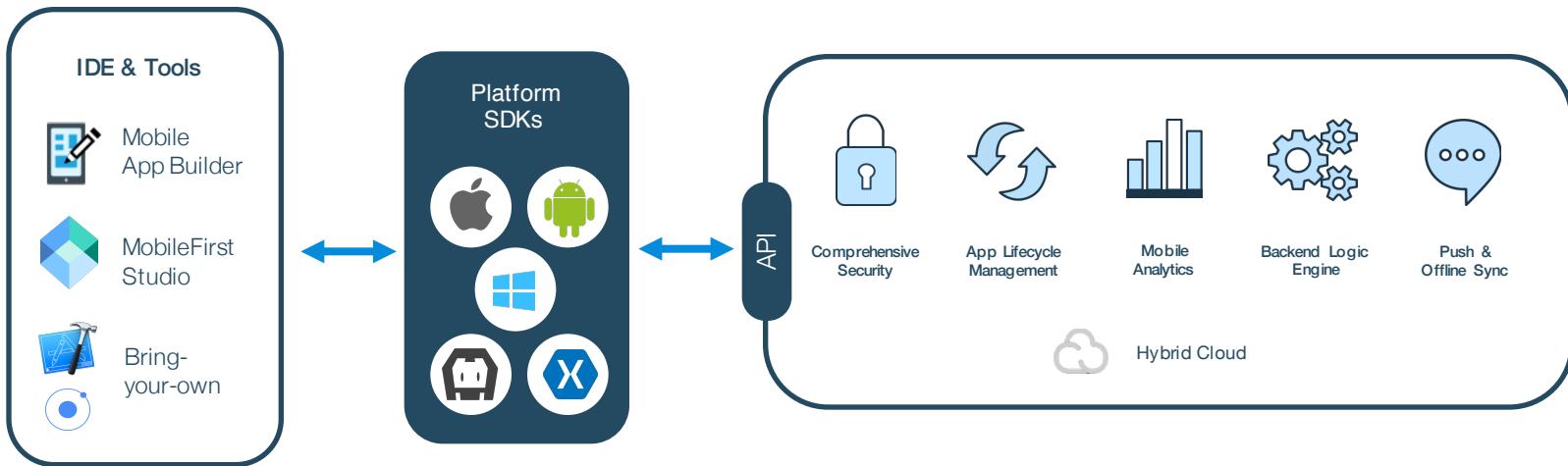


Push & Offline Sync

essential backend services that every app needs



Build using any front-end framework and tools



Build with any development tools, including **Xcode**, **Android Studio** and **MobileFirst Studio**

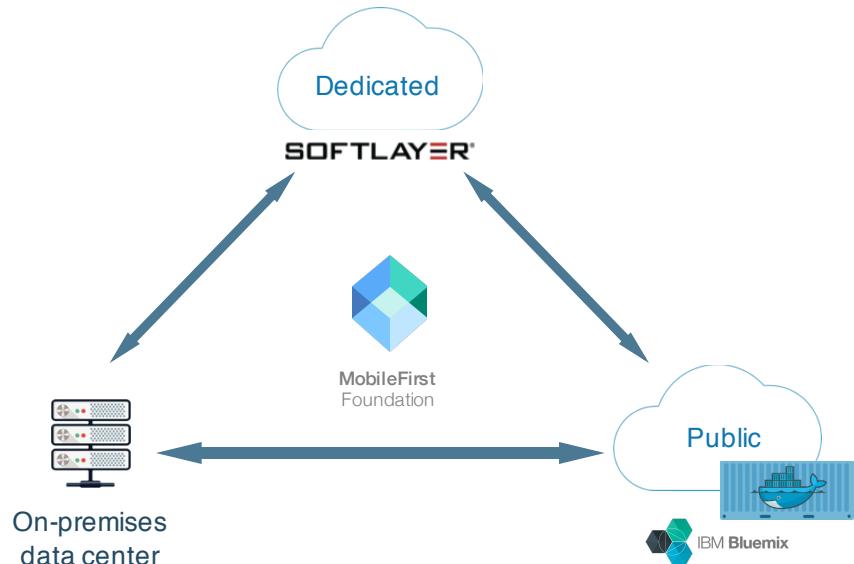
Develop in **native**, **Cordova** or **Xamarin** and integrate any front-end framework

Add **MobileFirst Foundation SDK** to new or existing apps, no matter which front-end framework, codebase or tools you choose



Run your apps in flexible **hybrid cloud deployment patterns**

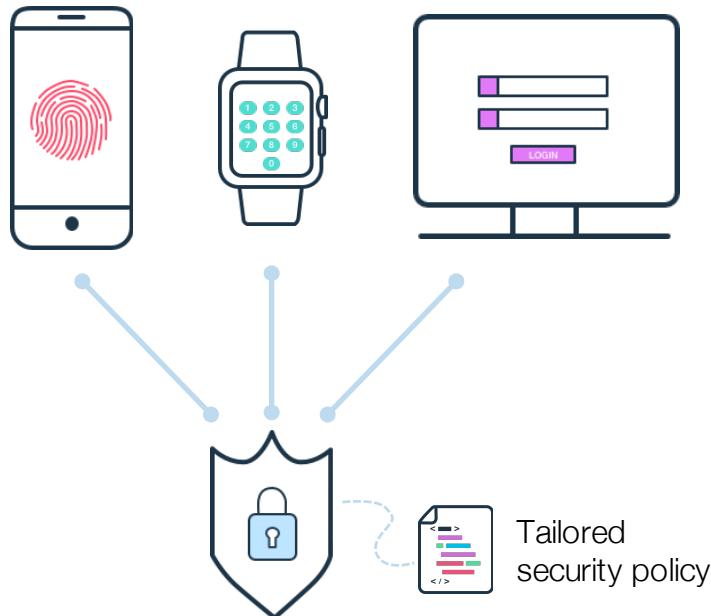
- Leverage **cloud technology** to instantly provision environments on premises or in the Cloud
- Start small and develop in the cloud, then move and scale production workload on premises or in a dedicated cloud environment
- **Quickly innovate on the cloud** and connect securely to tightly governed sensitive on-premises systems and data





Comprehensive
Security

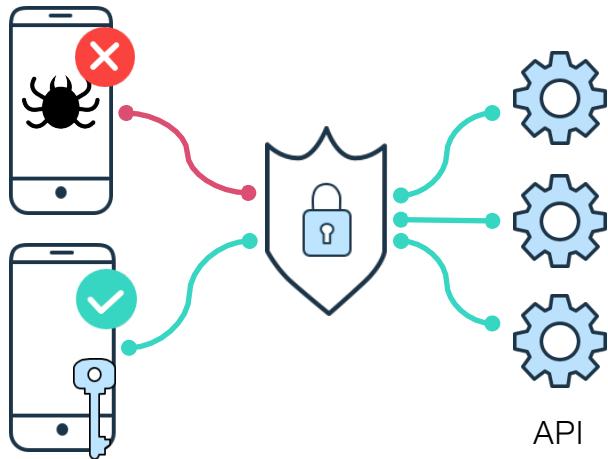
Advanced mobile security to protect data on the device and your brand



- Tailor security checks to the endpoint (e.g. pin code for watch, biometric for phone, password for web)
- Add step-up and multi-factor authentication to balance user experience with security
- Certificate pinning to prevent man-in-the-middle attacks
- Turn on app obfuscation to hide app code and prevent reverse-engineering
- Get started right away while employing best practices using samples and templates, and quickly make and roll out changes with configuration-based approach



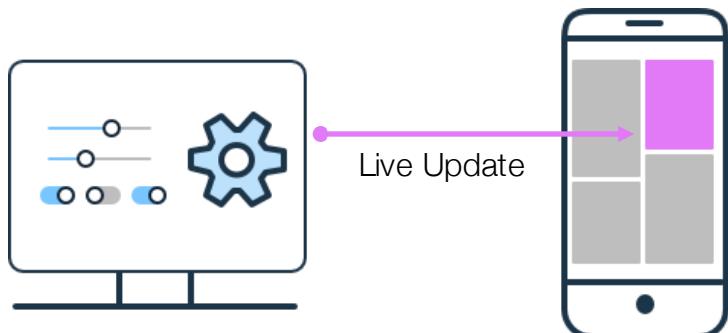
Protection of corporate APIs from hackers and vulnerabilities



- **App fingerprinting** to prevent access to your APIs from malicious apps
- **Remote app disable** and **version enforcement** to protect users from security vulnerabilities
- Use **device whitelisting** and **blacklisting** to control the users and devices that access your app



Streamlined and repeatable process for incremental app updates



- **Live Update** makes backend logic dynamically configurable in order to enable non-developers to change front-end behavior live without recompile
- Use **Direct Update** to push over-the-air changes to front-end web resources without app store review
- **Instantly provision** Cloud or on-premises environments to get started quicker
- Build an **automated DevOps pipeline** to speed updates and avoid human mistakes
- Proven **day-1 readiness** for new mobile OS versions to ensure the continuity of your apps





App troubleshooting and problem determination



- **App and API performance analysis** allows you to uncover where your apps crash and which APIs slow them down
- **Crash log collection** and **on-device troubleshooting** enable root-cause analysis of problems with the app and the back-end
- Configure **threshold-based alerts** to stay ahead of problems





Capture business and operational data to better understand your users

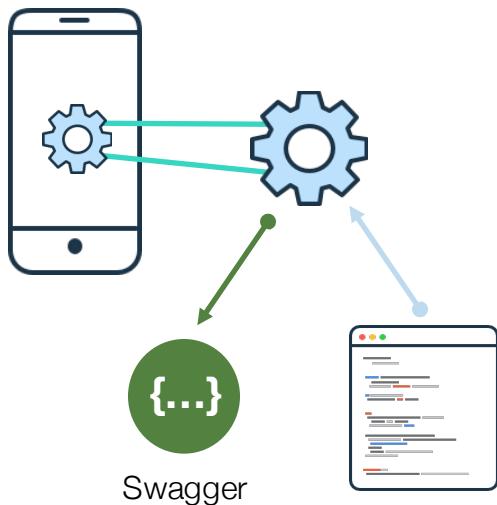


- **Collect dozens of app usage** metrics out-of-the-box, and create **custom business metrics** based on in-app usage events to gain insight on where to invest next in your app
- Use **Built-in flexible, and interactive reports** to enable dashboard view of app usage, then drill down to details and identify trends
- Export data to BI systems for long-term retention and additional analysis





Rich backend logic engine to power your apps

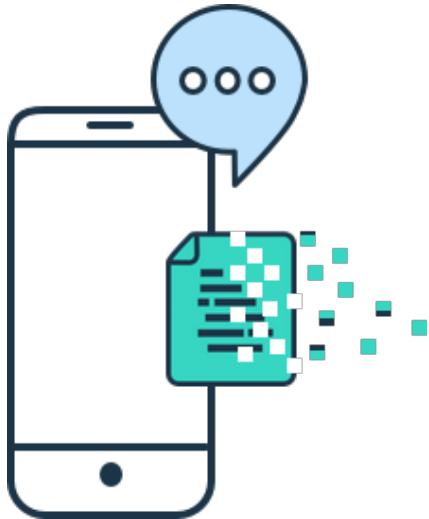


- Write **app business logic**, expose them as REST API endpoints, and document in Swagger to promote collaboration and to simplify testing
- Decouple **security logic from business logic** to abstract away complexity of mobile security from app developers
- Code in Java or Javascript and run it in scalable **enterprise-grade clusters**
- Use **Live Update** to automatically sync app and UI with changes to backend without needing to recompile or redistribute app
- Manage APIs via **API Connect** to ensure maximum reuse across channels





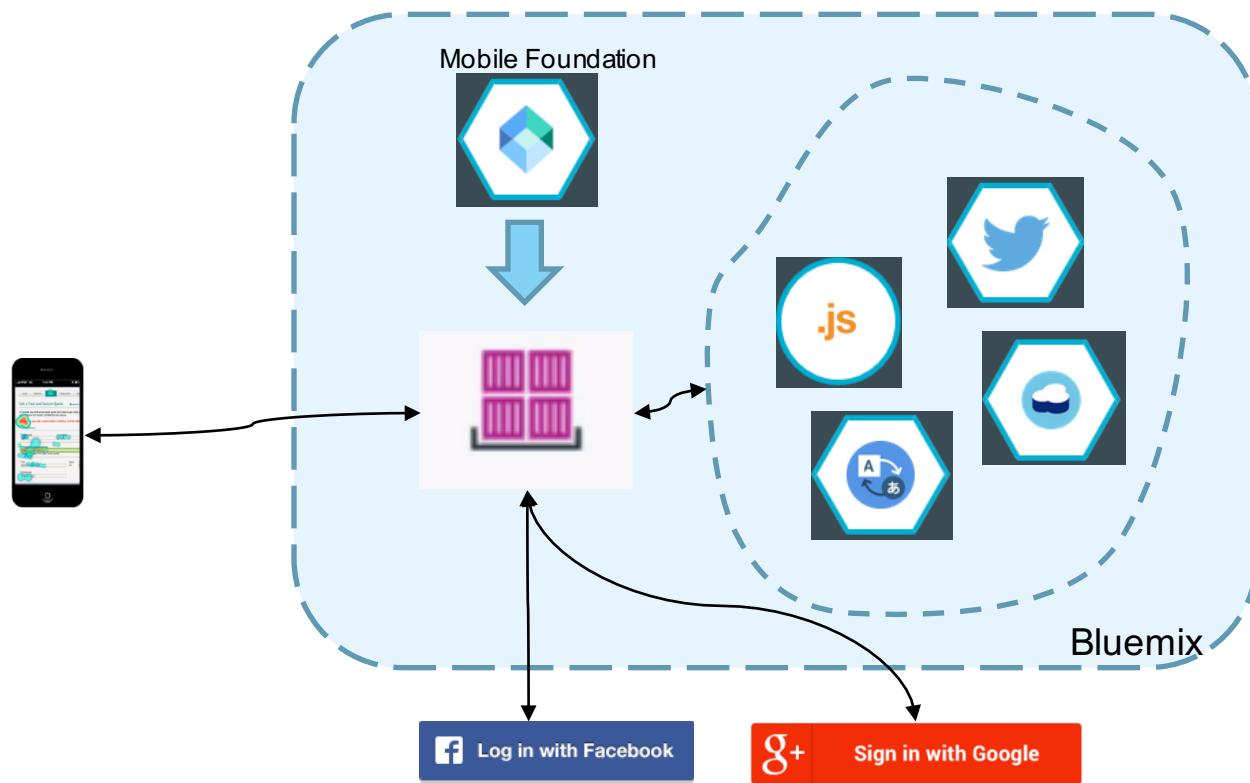
Essential backend services that every app needs



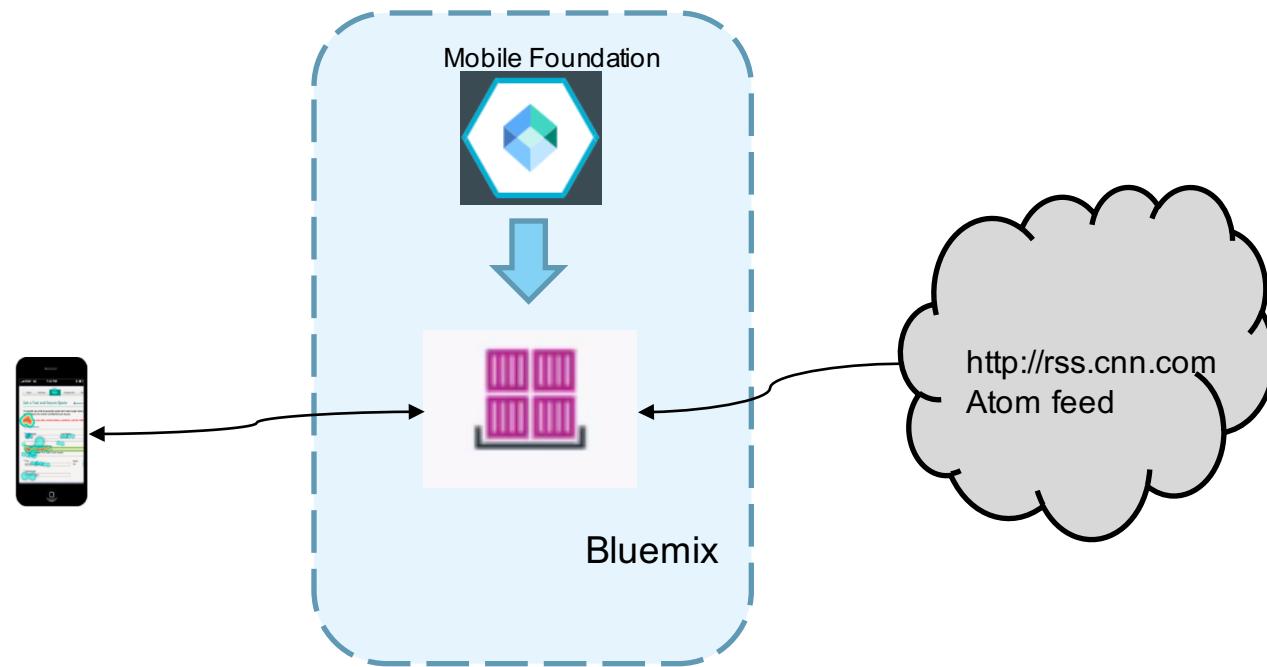
- **Unified Push Notifications** service enables delivery of messages to multiple platforms with single API
- Use web console to send **targeted messages** and publish/subscribe model to broadcast for more effective user engagement
- Use **encrypted on-device storage** to protect data stored on the device and to improve app performance
- Enable **offline access** and transactions with automated data synchronization



Connecting to a Backend - I



Connecting to a Backend - II



Connecting to a Backend - III

