

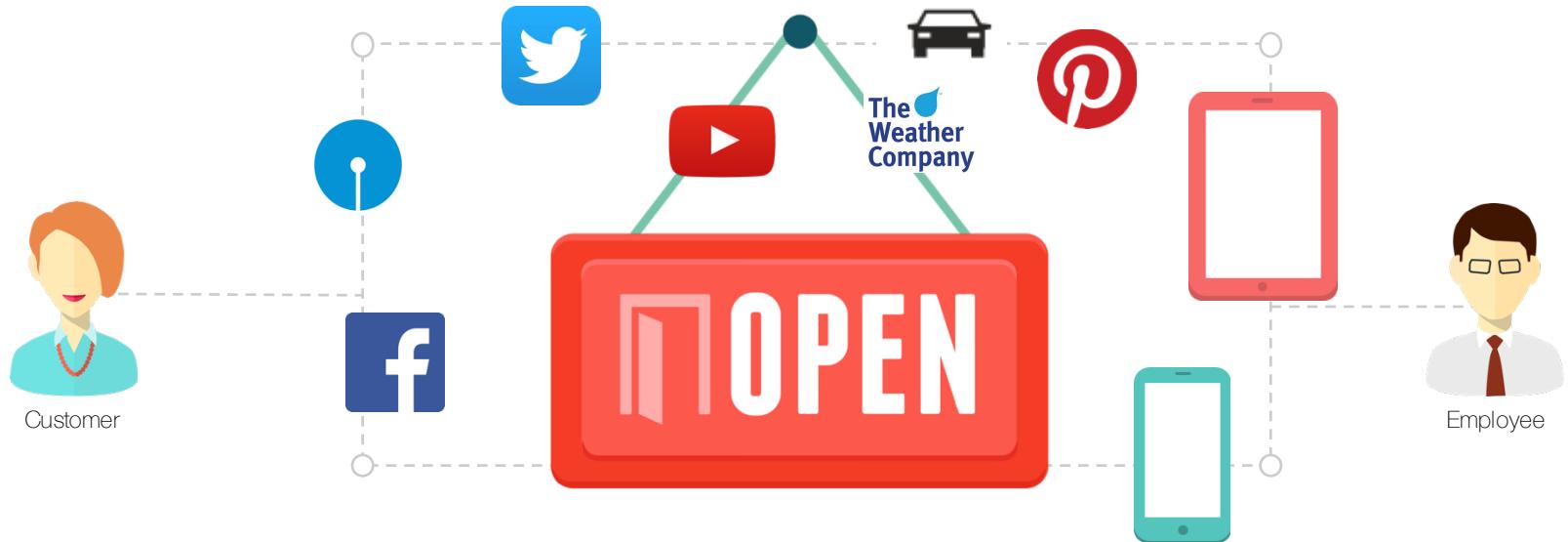
Mobile: Trends and Future



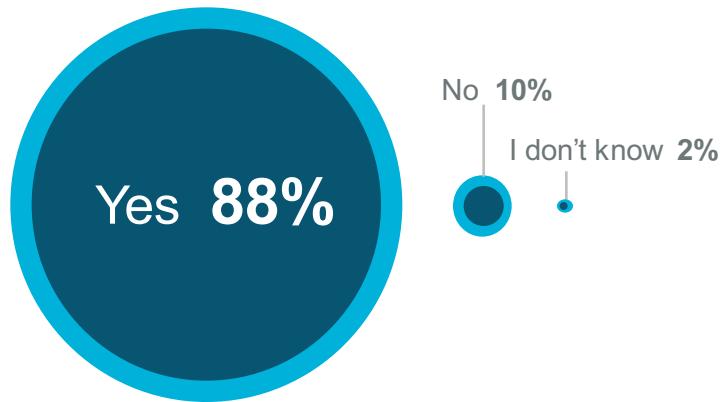
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Mobile is the primary screen for everything



Organizations are Undergoing Digital (not just Mobile) Transformation, Because the Impact is Huge



Source: Altimeter Group Digital Transformation Survey, 2014. N=59.



"By 2018, 1/3 of top 20 market share leaders in most industries will be disrupted by new competitors"



[...] companies can either make the hard changes to dramatically improve their chances to win in the market or preserve old models and defer transforming their operations at the risk of failure.



"Mobility-lagging organizations will suffer negative impacts such as key-employee resignations [...] lower productivity [...] as well as reduced satisfaction levels"

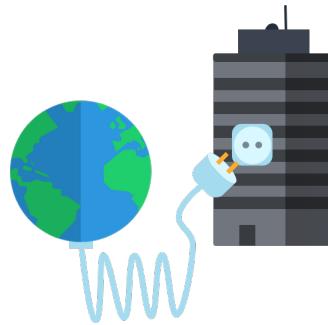


Yet, an estimated 66 percent of mobile app projects fail

They fail due to fundamental challenges that inhibit digital delivery success:



Development must be fast



Integration requirements are exploding



The bar is constantly moving

*Source: IBM Center for Applied Insights, *Star qualities: What it takes for mobile development projects to succeed* For more info, visit: ibm.com/ibmcai/mobiledev



Impact of Mobile on Business results

BMO



Tablet banking offering:

- Adoption and engagement have grown significantly
- 80% increase of active users
- 80% increase of monthly log ins
- 107% increase of monthly transactions



- Built an integrated environment based on IBM technologies to rapidly develop mobile apps for its business units
- 15-20% increase in operating efficiency while significantly reducing paperwork
- Shortened the app development cycle to 2 - 3 weeks



Mobile is not just the phone



Connected sensors

Accelerometer
Magnetometer
Gyro
Pressure
Temperature
Humidity



Light
Proximity
Touch
Cameras
Microphones
NFC, Bluetooth

WiFi
Cellular



Cognitive mobile services

Embed human intuition and expertise into your app



Personality insights

Derive insights from transactional and social media data



Concept expansion

Analyze text and learn similar terms based on context



Concept insights

Beyond traditional text matching, explore information based on concepts



Tradeoff analytics

Make better choices, taking into account multiple conflicting goals

Interact with users as a human would: using natural language



Speech to text

Convert the human voice into the written word



Text to speech

Process text and natural language to generate synthesized audio



Natural language classifier

Recognize concepts from natural language



Language translator

Dynamically translate content instantly into multiple languages



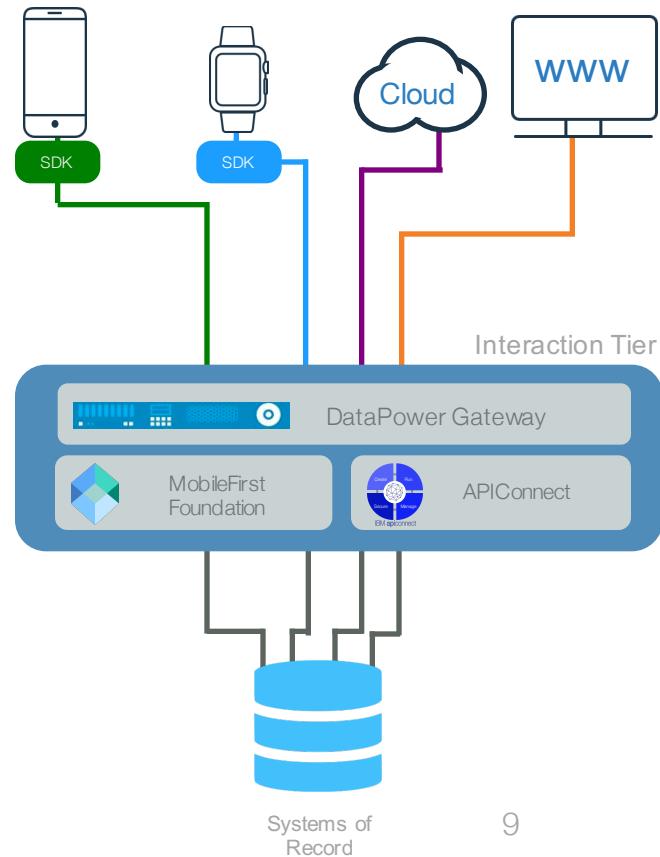
Dialog

Design application interactions through a conversational interface



Mobile strategy - Supported by an API fabric

- Microservice
- Management and security
- Access control and policy enforcement
- Self service
- Metering





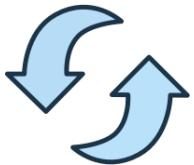
Mobile Middleware

Deployable on-premises and on Cloud



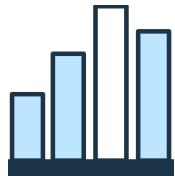
Comprehensive Security

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

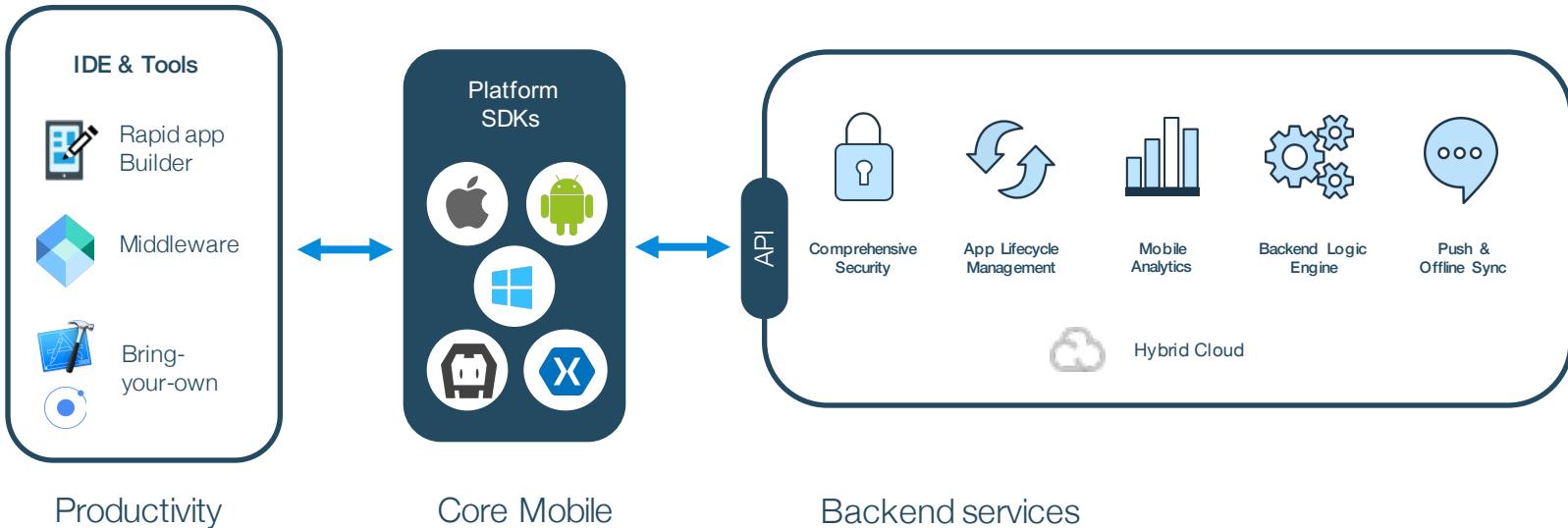


Push & Offline Sync

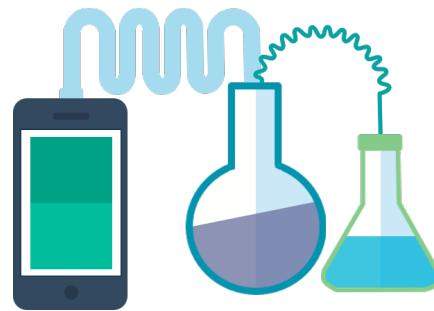
essential backend services that every app needs



Mobile deployment pattern



Areas for exploration



Why mobile development is different

Mobile apps are different.

- **They are more strategic** – Greater urgency and immediacy of engagement
- **They are context-aware** – sensor richness provide invaluable context
- **They run on unstable networks**–interruption is the norm, not the exception
- **Smaller footprint** – More challenging to make compelling and easy to use
- **Always on** – An opportunity to deliver greater value since always within arms' reach

Management is different.

- Smaller screens pulling content from more sources: **need to choreograph** content from multiple repositories and applications , both on premises and in the cloud
- Greater challenges of application **governance, distribution, and version management**
- **AppStore Terms of Service** present challenges for managing B2C apps

Development is different.

- **Faster development cycles**
- **More devices** to support, each with its own set of capabilities, OS and UI behaviors
- **More development approaches** to choose from – Web, HTML, Native or a mix
- More **third-party and open-source tools, frameworks and libraries** to choose from

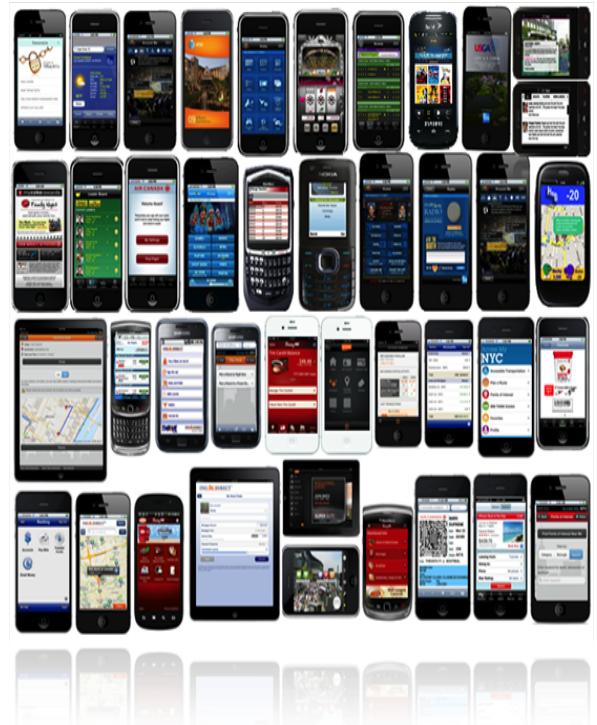
Security is different.

- **Greater risks** of exposing applications and data on small, light and always on portable devices
- **Greater authentication challenges** associated with content mashups
- **AppStore Terms of Service** can limit security options

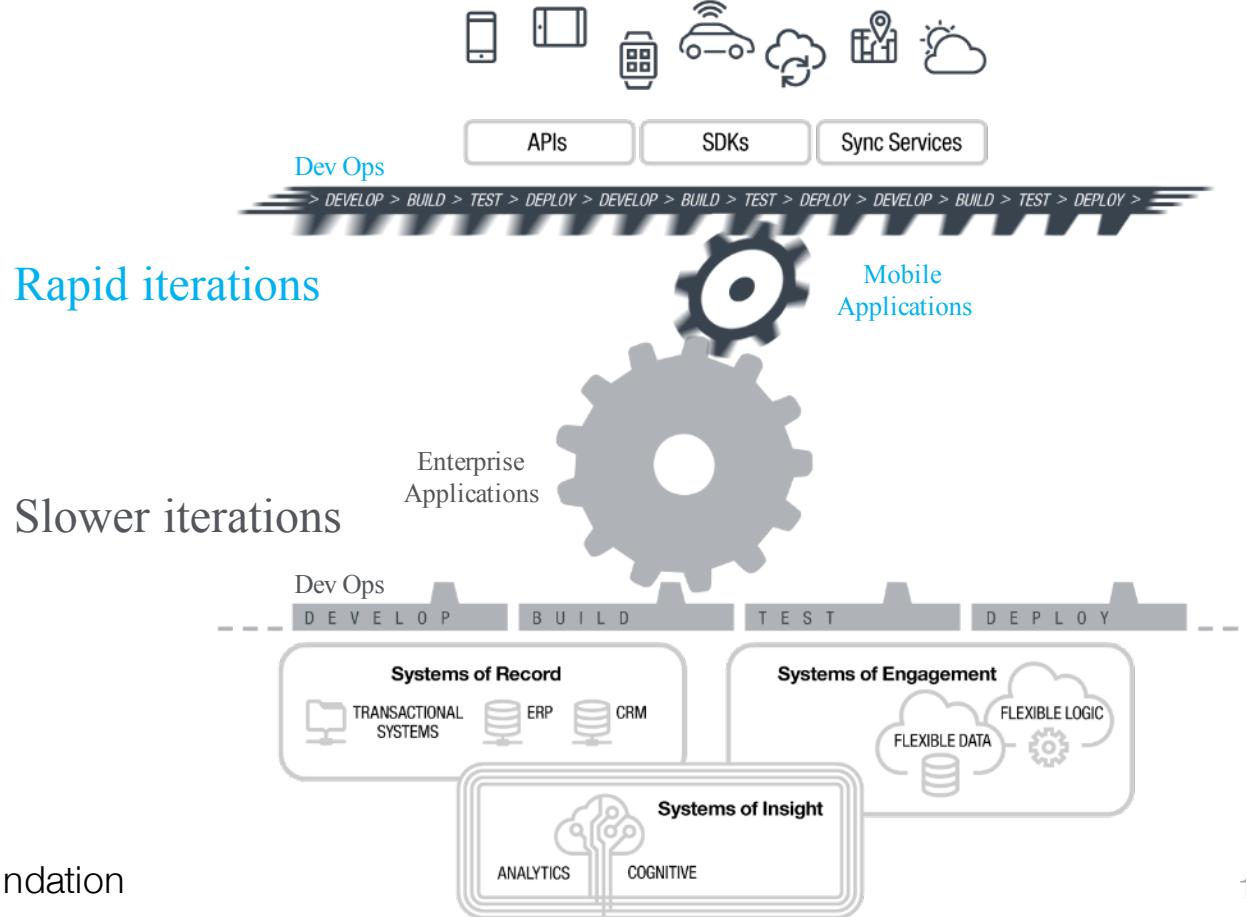


How Mobile application testing is different

- Device platforms, fragmentation, and growth
 - iOS, Android, BlackBerry, Windows Phone, Symbian, etc.
 - Multiple form factors and screen resolutions
 - Device refresh every 24 months
 - In 2011, over 300 new devices released
- New capabilities to test
 - Camera, GPS, orientation, voice, etc.
- More network considerations
 - Multiple carriers, variable throughput and latency, disconnected use, network switching, etc.
- User experience is more critical
 - Usability testing
 - Translation testing
 - In-network testing (average response time, QoS)



How Mobile application delivery is different



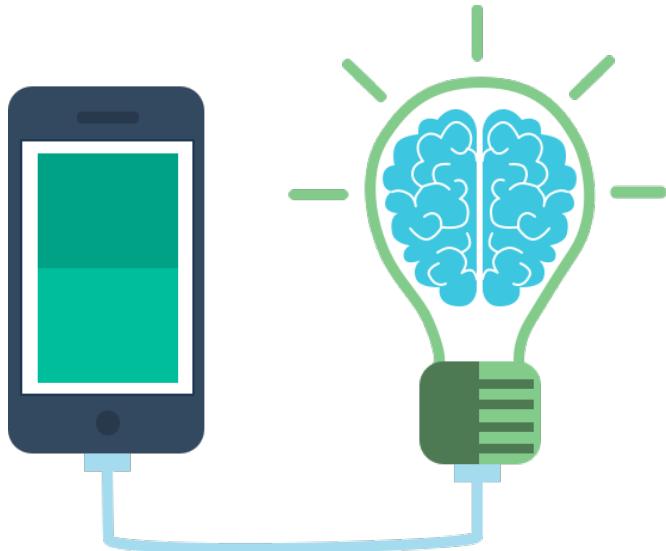
More Choices, More complexity



Devices	<ul style="list-style-type: none">• Which smartphone? Which tablet? Which form factor? Which generations?• iOS, Android, Blackberry, Windows Phone? All of the above? Which versions?
Skills	<ul style="list-style-type: none">• Web or native apps? Java or Objective C? a Mix or other?
Maintenance	<ul style="list-style-type: none">• Separate software stacks for each major OS• Separate applications for each major OS• Version control and enforcement -- how do I make sure users are using the most recent version?
Security	<ul style="list-style-type: none">• Encryption? Authentication?• Response to stolen/lost devices?
Management	<ul style="list-style-type: none">• How do I provide support and service? How do I scale to meet variable demand?
Enterprise Integration	<ul style="list-style-type: none">• How do I build personalized mobile apps -- without re-architecting my back-end systems?



Thank You!

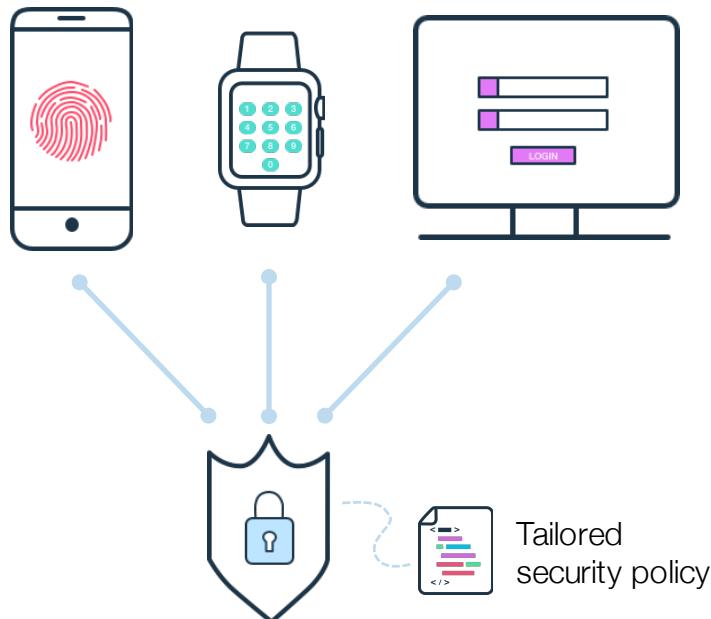


Backup





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

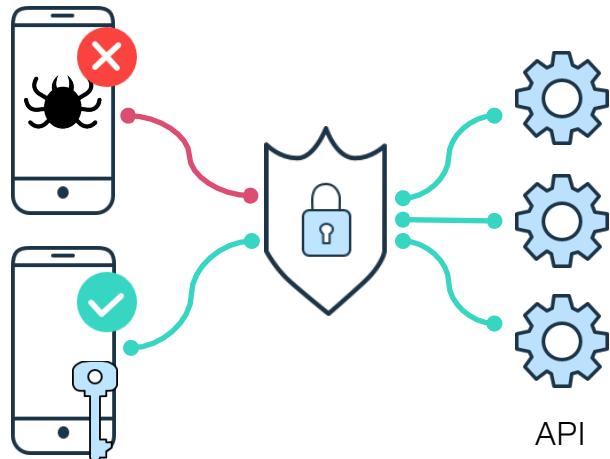


- **Tailor security checks** to the endpoint (e.g. pin code for watch, biometric for phone, password for web)
- Add **step-up** and **multi-factor** authentication to balance user experience with security
- **Certificate pinning** to prevent man-in-the-middle attacks
- Turn on **app obfuscation** to 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

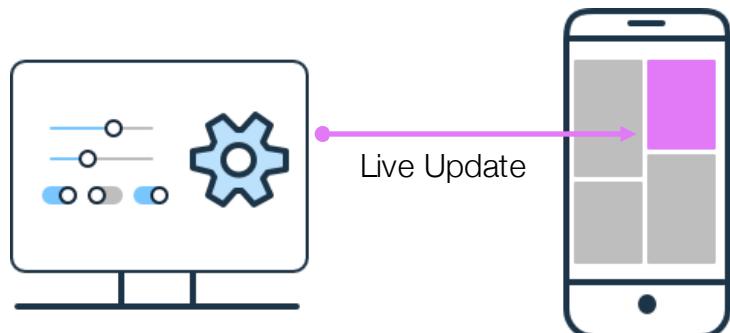


- **App fingerprinting** to prevent access to your APIs from malicious apps
- **Remote app disable** and **version enforcement** to protect users from security vulnerabilities
- Use **device whitelisting** and **blacklisting** to control the users and devices that access your app





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

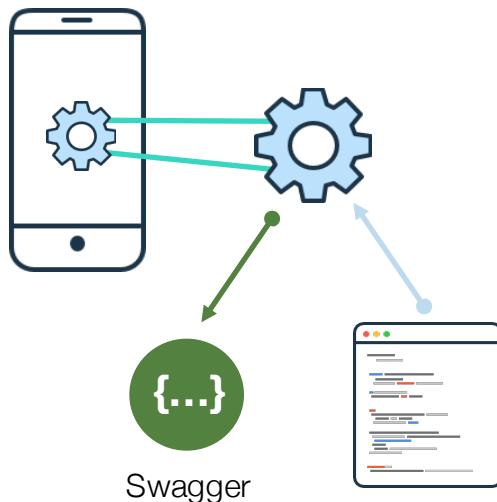


- **Collect dozens of app usage** metrics out-of-the-box, and create **custom business metrics** based on in-app usage events to gain insight on where to invest next in your app
- Use **Built-in flexible, and interactive reports** to enable dashboard view of app usage, then drill down to details and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





Rich backend logic engine to power your apps

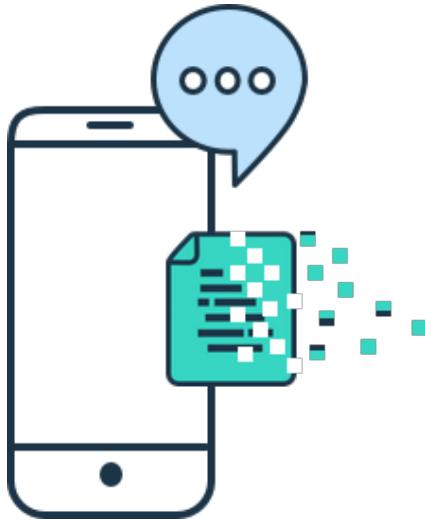


- Write **app business logic**, expose them as REST API endpoints, and document in Swagger to promote collaboration and to simplify testing
- Decouple **security logic from business logic** to abstract away complexity of mobile security from app developers
- Code in Java or Javascript and run it in scalable **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

