salesforce app cloud

Anatomy of a Mobile App

8 Steps to Building Great Mobile Apps

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Introduction

The smartphone has moved rapidly from novelty to ubiquity. Over half of all adults worldwide already own a smartphone – and that's projected to grow to 80% by 2020.*

The rise of the smartphone has produced a parallel rise in customer expectations. The first mobile apps were text-heavy miniatures of web pages. Today's apps are designed specifically for mobile devices and take advantage of the smartphone's built-in features like the camera and GPS. The next generation of apps will connect across multiple data sources like never before – seamlessly accessing users' contextual data, business data, and even data from external app ecosystems – to predict and deliver the most relevant information to the mobile user, instantly.

Today, nearly half of consumers have already made what Forrester calls "the mobile mind shift" – they now expect to immediately get everything they want or need when

they open an app on their smartphone. Delivering on these expectations is the challenge facing organizations of every size, in every industry.

Creating rich, engaging apps that consistently deliver a great user experience – and meet the need of IT for security governance, and management – requires solid strategy, design, and execution every step of the way.

This guide walks through eight key steps for building a mobile app. In each section, we discuss what makes a successful app and suggest questions that teams should ask before they begin building. We'll also discuss how apps are evolving and how to ensure that your apps can be continuously upgraded for success in the future.

* Forrester, The Future of Mobile:
  From App Silos to Open Ecosystems

1 User Experience

A great user experience is essential for a successful app. Your design should make it easier for a user to accomplish the intended goal, not complicate things or add complexity. The question to keep in mind when designing a user interface (UI) for mobile audiences is: How can I connect users with their goal with as little friction as possible? To achieve a great UI, app designers must ruthlessly edit the information displayed in the app, and which functions the app should perform. Only information and tasks that are absolutely critical should be included, and they should be presented in a way that is seamless and intuitive for the user.

Utilizing user context in your app – such as identity, order history, or location – is one way to streamline the user experience by eliminating time-consuming manual steps. Surprisingly, few businesses are utilizing user context well in their apps. According to Forrester, only 34% of surveyed enterprises use location to make services more relevant to consumers.*
Keep in mind that you don't have to create the entire UI from scratch. Instead, think about how you might want to use prebuilt UI components and frameworks. If you're building a native app, take advantage of some of the more sophisticated mobile UI components provided by your mobile operating system (iOS, Android, Windows). If you want to build your app using HTML or if cross-platform capabilities are important, you can utilize any of the popular HTML5 frameworks.

* Forrester, The Future of Mobile:
From App Silos to Open Ecosystems

Questions to ask:

- What activities (prioritized) will users want to complete from their mobile device?

- What devices (watch, tablet, phone) and platforms (iOS, Android) are they using?

- How will I differentiate the user experience on different devices?

- What signals can you automatically access about your user's context and intent?

- How can you remove friction from the users' experience?
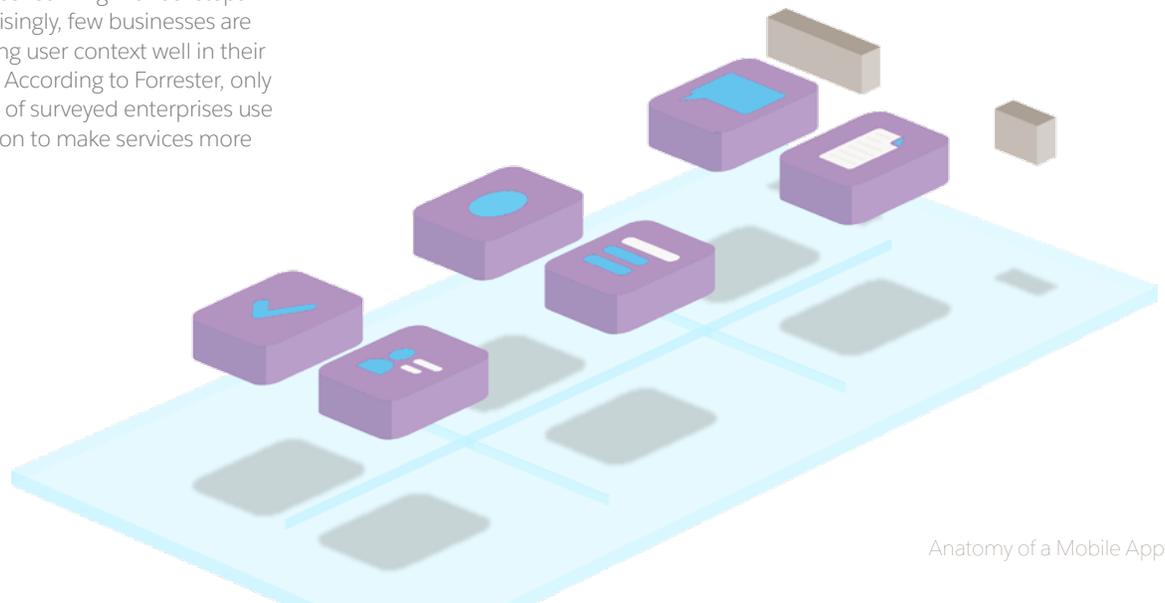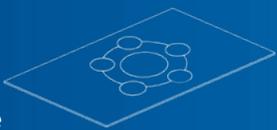
2 Data Integration

The best mobile apps integrate all the relevant customer data available – updated in real time – to create an experience that feels personal, complete, and highly differentiated. Customers respond to well-executed apps because they keep pace with the customer's needs in the moment. There is no lag time, or dead ends, or forms to re-enter info. The app is always on and ready.

The complete set of customer and business data is rarely contained in any one system. So organizations need to integrate their disparate data sources to work seamlessly within their mobile apps. These integration efforts will often have benefits that extend beyond the mobile app to the entire organization, and will become more important as future apps become even more connected to larger app and data ecosystems.

Your app building platform should enable easy access to data housed in the platform, integration with third-party, on-premises data (such as SAP or Oracle), integration with cloud databases via APIs, and integration with Active Directory. Ideally, you'll also want to be able to send streaming data to your apps – for example, for apps that include real-time status updates or real-time inventory levels. Increasingly, enterprises are using apps to provide updates on machines or connected devices. This capability requires integration with IoT event-processing frameworks for streaming data from connected devices and sensors in real time.

*Forrester, The Future of Mobile: From App Silos to Open Ecosystems

Questions to ask:

- What data will your app need to access?

- Where is that data housed?

- Are you going to be pulling from multiple databases?

- Are you accessing cloud data or on-premises data?

- How often will data in your app need to be refreshed?

- How will you capture and use user data produced by your app?

- How will your data needs change as your app ecosystem grows?
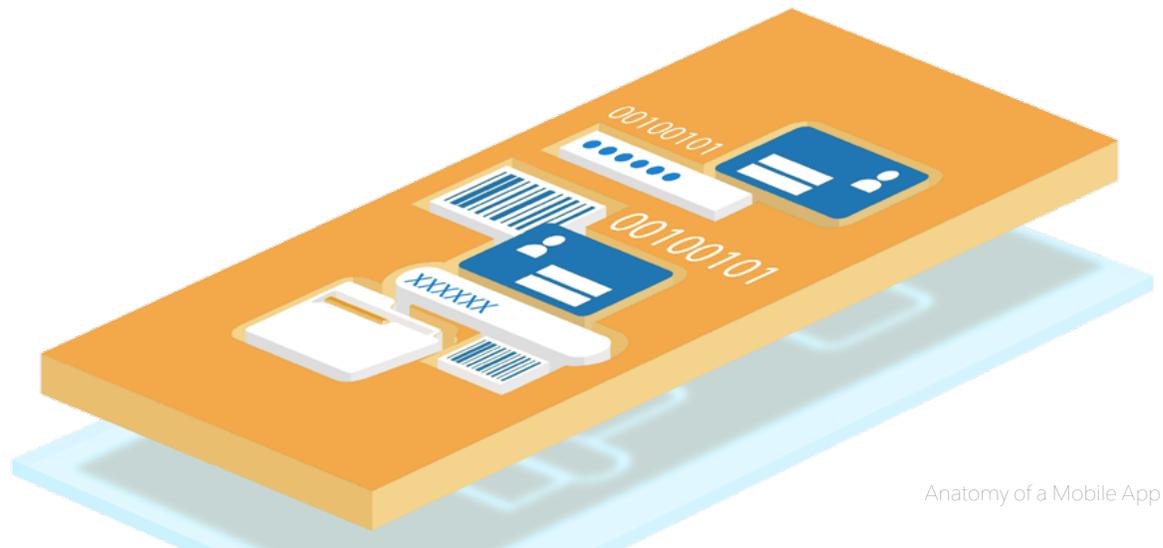
3 Offline Access

Users have high expectations for the responsiveness of mobile apps. This is made even more complicated by the sporadic connectivity of mobile devices.

But there are strategies for creating mobile experiences that feel incredibly responsive even during sporadic connectivity. One best practice is to render immediately, regardless of whether the required data is retrieved. The app should always feel responsive to a user's touch. If the data isn't yet in hand, respond with a partially filled page or loading animations. Users get impatient when it appears nothing is happening. Use that to your advantage by making something happen immediately and then filling in the gaps as the data streams into the app.

Another best practice is to cache items for offline use. Modern mobile devices have file storage available to the app. Use this storage to cache items the user is working with. This will enable the app to respond immediately, even when there is no connectivity. Furthermore, enable the user to work with the data. Cache whatever changes they made and synchronize your changes when they reconnect. Engineer for potential offline versioning conflicts and create a solution that does not incorrectly overwrite new data when a mobile device reconnects.

Questions to ask:

○ How can you make your app respond immediately to a user's touch?

○ How reliable will connectivity be for your user?

○ What data could be cached on the device to make the app work reliably when offline?

○ How can you enable data to be created or edited while offline?

○ How will you handle versioning conflicts, if they occur?

4 Business Logic

Every time a user interacts with your mobile app, a series of steps need to happen in the background to achieve the desired result. For example, if a customer makes a purchase via your app, you may need to: 1) verify a promo code is valid, 2) provide the proper discount, 3) verify the shipping address and payment information, 4) terminate the sale if there is no inventory, or 5) send a message that the delivery will be delayed. These sets of processes and workflows are the app's business logic.

Business logic is critical to fulfilling the goals set out by your app, and can be compared to offline business processes and workflow. A mistake many businesses make is to prioritize customers who utilize more "traditional" channels like phone or in-person visits over mobile app users.

Organizations that have successful mobile apps have made these apps a primary channel for their customer interactions, and have configured their business logic to integrate users from the mobile channel into standard business operations. Doing this not only requires awareness from employees, but also well-defined business rules.

Questions to ask:

- Are you able to respond to mobile users' needs as fast as you do callers?

- Are your business rules enforced consistently across all your channels?

- Do orders or questions from your mobile apps ever get lost or ignored?

- Are there more problems with mobile orders or interactions than with other channels?

- Can you easily create and update your business rules?
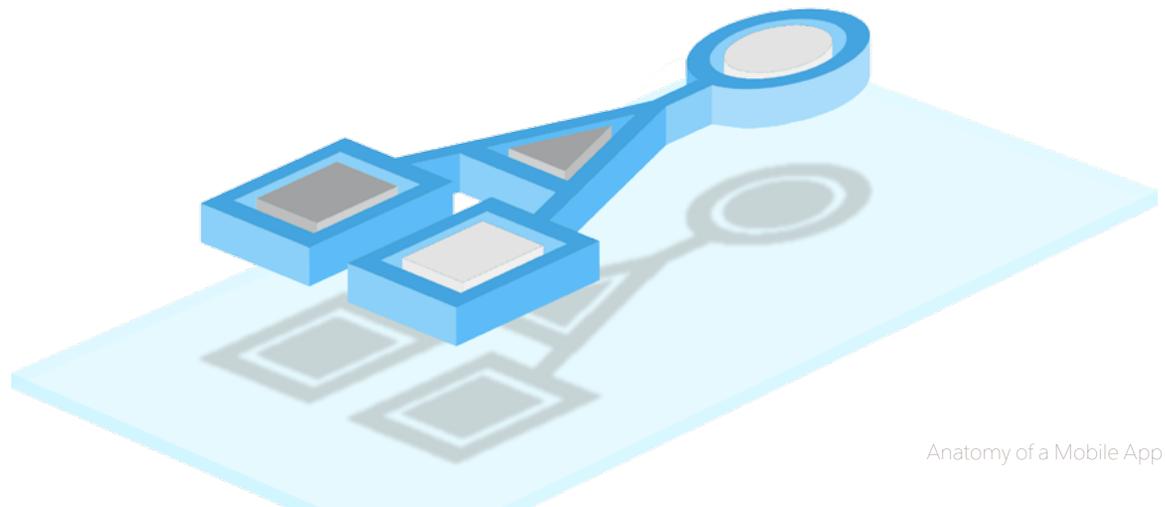
5 Messaging

Mobile apps force us to entirely rethink how we communicate with customers. Thanks to their access to user context like past orders, and mobile-specific information like geolocation, mobile apps have the unique ability to anticipate a question and proactively answer it. Information that's relevant to the user, such as delivery status or location of the nearest store, can be offered automatically via the app or through notifications before he or she even needs to ask.

If you do need to actively communicate with or message your mobile app user, you should be able to do so through push notifications, in-app chat, or text messaging managed through the app itself. The best apps don't force the user to step outside the app to call or email since that disrupts their experience and takes too much of their time.

In the future, messaging and collaboration will be even more important as apps become more interactive with each other and offer information from multiple data sources.

Questions to ask:

o   How does your app identify and store your users' preferences?

o   Does your incorporate user context to make notifications more relevant?

o   How do you prompt a mobile user about important new information?

o   Do your employees have the tools to engage customers using any medium?

o   How do you expect communication through your app to change in the future?
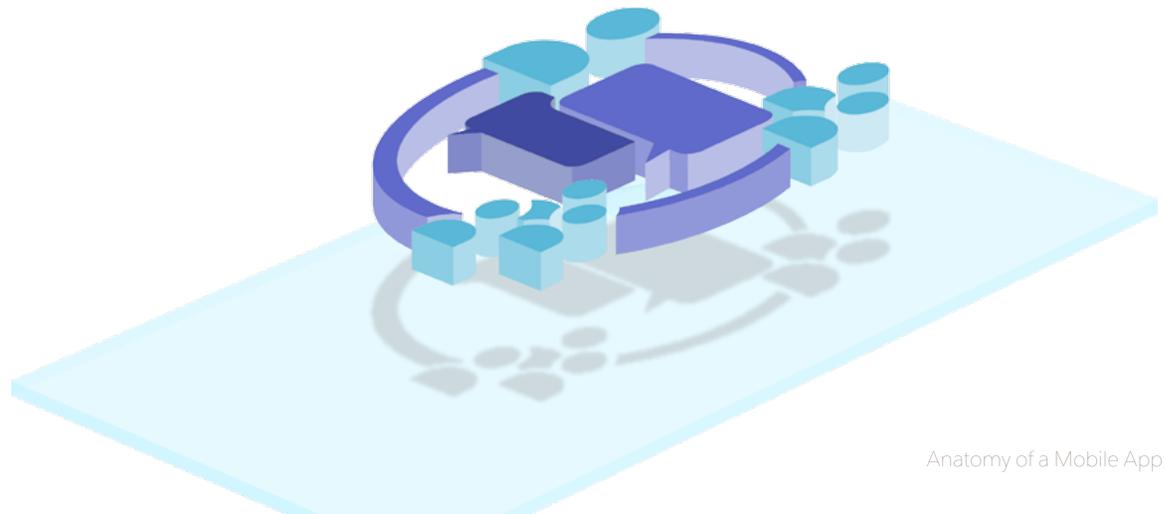
6 Security

Mobile apps and devices are portable and accessible by design, but this creates unique challenges when it comes to mobile security. How do you maintain the security of your app when some mobile devices will inevitably be left in cafés or taxis? Users expect a fast and frictionless app experience, making successful mobile security even more difficult.

User login and authentication is the security step that is usually most noticeable – and often most cumbersome – for users. Consider allowing user login with social credentials, an employee single sign-on, or with a fingerprint to make this part of the process smoother. Where possible, design your app with security features that are invisible to the typical user. For example, you should be able to identify suspicious login patterns and have built-in app policies that disable access, or require additional authentication.

For apps that access sensitive data, two-factor authentication provides an added layer of security. Sensitive user or business data should also be encrypted, and data permissions need to be enforced.

Businesses deploying apps for employees also need to develop a mobile device management (MDM) strategy. MDM enables businesses to manage configurations and access to mobile apps at the device level for additional security. Your mobile app platform should include MDM or have prebuilt integrations with major MDM solutions.

For a more in-depth look at security best practices, download the Salesforce Security Guide.

Questions to ask:

○ What unique security concerns will your app have?

○ How will users log in to your app?

○ How would you identify a "suspicious" login?

○ Have you encrypted sensitive data in your system?

○ What is your MDM strategy?
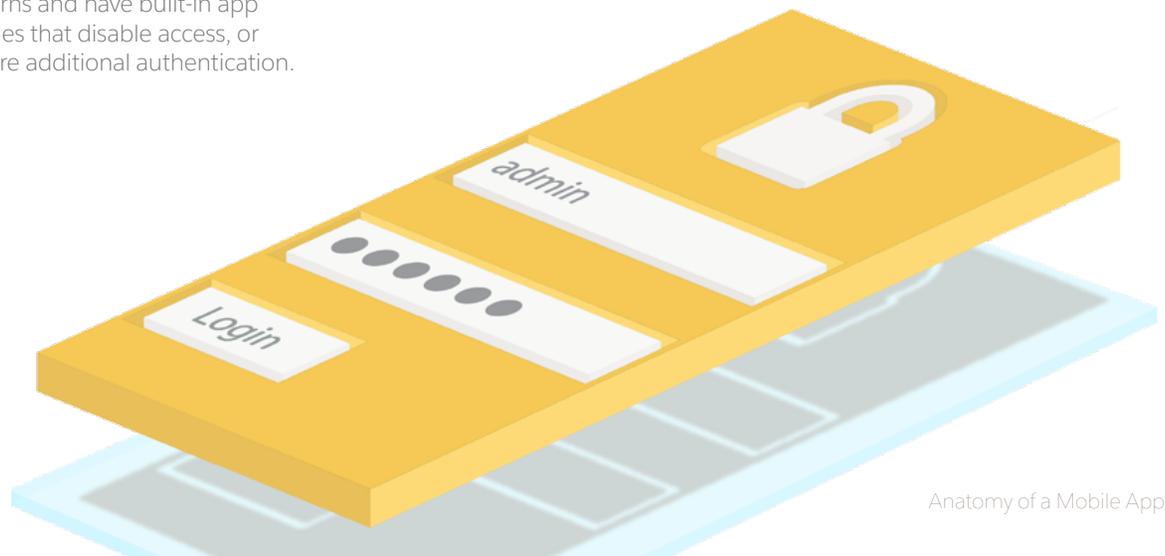
7 Governance

IT governance refers to the processes that ensure efficient and effective use of IT within an organization. One of the major considerations in a governance strategy is determining which part of the organization is responsible for the development, management, and maintenance of the technology.

Centralized governance (IT responsible)

In a centralized governance structure, the IT team can create a well-planned technology architecture across all parts of the business. This means that apps can pull from a single data source – maintaining a single source of truth – and resources for technology projects can be allocated according to priority and ROI for the business. However, this structure can lead to an overloaded IT team, and long lead times for new apps.

## Decentralized governance (Business units responsible)

Business units, such as sales, marketing, finance, HR, and others, are often more familiar with the end users of the app – usually a customer, employee, or partner. This knowledge can lead to apps that closely meet the needs of the users, and can have a quick turnaround. However, decentralized structures mean that app development may be going on in several different places across the business without much coordination, leading to inconsistent and/or incompatible apps.

New mobile app development platforms make it possible to roll out a hybrid governance approach. This allows IT teams to set guidelines and have ultimate control over mobile apps, while also letting business units control more of the design, development, and editing of the apps. This way, business units can have more direct input into their own apps and IT teams can decrease their backlog. However, the platforms ensure that all users are safely operating within the security and data management framework set up by IT.

Questions to ask:

- What are your IT resources? What resources do the business units have?

- How important is it for all of your apps to live on the same platform/infrastructure?

- How will you ensure that your apps are consistent from a branding perspective?

- Who will be responsible for maintaining, managing, and extending apps once they are live?
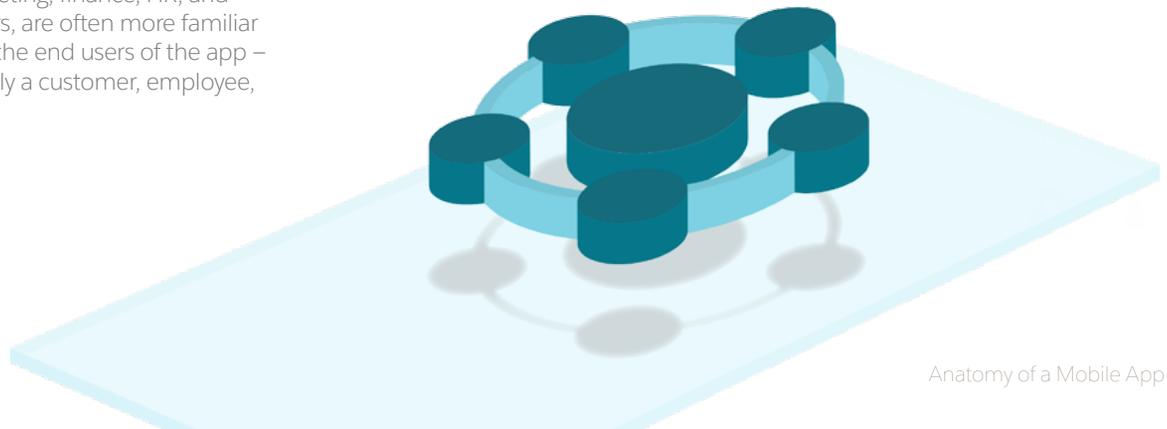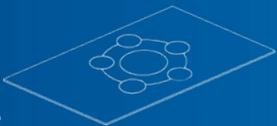
8 Upgrades and Scalability

Mobile technology is evolving quickly, so mobile apps need to be regularly upgraded and iterated to be successful. And, as your business evolves, its demands for mobile apps will also change. This means that the apps you're creating now aren't the same apps you'll need in the future – and the future may be only weeks away.

The apps of just a few years ago were little more than miniature web pages, making for a poor user experience. Today's apps take advantage of micro-moments and utilize user data and context to provide a faster, more seamless user experience. The apps of the future will better predict user needs and will be connected to a larger ecosystem of apps, devices, and data sources.

While no app can be future-proofed, there are steps you can take to make evolving your app(s) easier. First, look for cloud-based app development platforms that provide automatic updates on a consistent basis. Next, choose a platform that allows your app

to easily scale up as needed – whether you need to scale the amount of data streaming to your app, or scale the number of users who can use it. You don't want to build a wildly successful app that crashes due to scalability issues.

Finally, keep in mind that the number of apps that you build and maintain will most likely continue to grow. Think about how your growing ecosystem of apps will work together – from a data sharing, workflow, security, and governance perspective. Find a mobile app platform that can support a connected ecosystem of apps so that you don't end up with many siloed apps that quickly become obsolete.

Questions to ask:

○ How many apps do you have now? How many do you expect to have in the future?

○ How quickly and easily can you scale your apps for more data or users?

○ Are your apps built on a single infrastructure with a shared datasource?

○ Which external ecosystems may you want to connect to in the future?
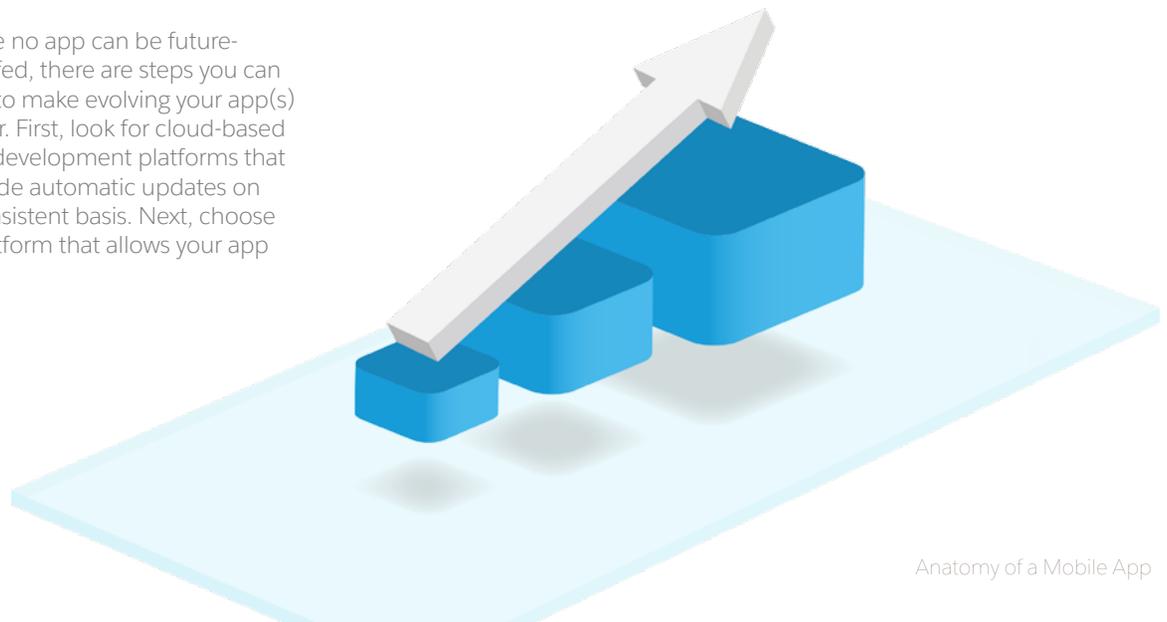
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