Becoming an Apps Company

The Enterprise Recipe for Building Great Apps

heroku

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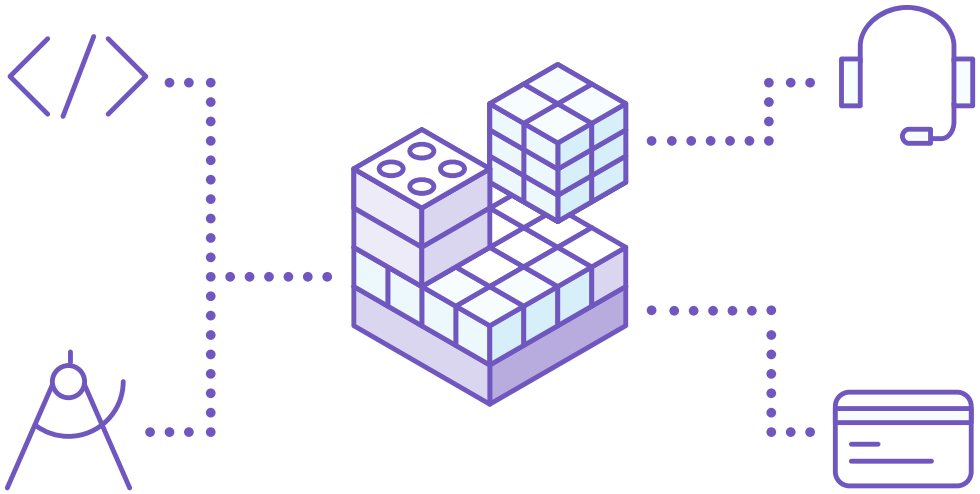


“There’s an app for that” – only a few years ago a catchy marketing campaign introduced the world to a new relationship with the mobile phone. Now, apps have become a way of life for most of us. Whether mobile or web, apps are how we manage our lives, make purchases, socialize, stay informed, and much more.

For online businesses, new technologies bring greater opportunities to deepen customer engagement through highly visual, interactive and personalized app experiences. Many offline industry verticals have seen brilliant new players unlock the app’s potential to reinvent the customer experience, and thus disrupt traditional ways of doing business. Companies such as Uber and Airbnb are no longer novel startups for curious techies but are rapidly maturing into mass-market fixtures. And for them, the app experience drives their business.

Apps and the Enterprise

If you work for a traditional enterprise, you likely also recognize the strategic value of apps for your business. Internally, apps can power a wide variety of business processes, tools, or partner integrations. Externally, apps can reinvigorate your company's existing customer engagement cycle by delivering richer branded experiences, enhancing product consideration and purchase, and also transforming customer service.

However, apps also offer a gold mine of opportunity for inventing entirely new customer experiences that can truly differentiate your brand. For example, we are seeing more blending of online and offline worlds, such as mobile-enhanced in-store shopping. And the recent explosion of connected devices – "the internet of things" – is redefining our relationship with everyday objects. In this way, your traditional company can not only remain relevant to your base, but can also truly delight your customers.

Develop Like a Startup

Today, every company needs to be an apps company. For startups and young digital natives, it's in their DNA. These organizations reflect the agility, tools and expertise needed to respond to a fast evolving marketplace. The traditional enterprise may face a greater challenge to stay competitive, as they attempt to create modern apps using their existing development approach, which is optimized for a different business landscape. How can you steer your IT organization towards this new horizon, and deliver the digital experiences that will differentiate your enterprise? Consider how startups approach app development.

A Winning Recipe for Building Apps

Creating transformative apps that truly empower your customers or employees requires a new approach to development. On the one hand, it's important to consider any organizational, process, and cultural changes needed to establish the right team for the job. On the other hand, you must also be familiar with the app development tools and technologies that are currently considered benchmarks for building modern digital experiences. The technology recipe that many startups follow gives them maximum flexibility, speed, and agility, so their high-performance app can evolve alongside their customer base.

When it comes to engaging today's digital savvy users, your company's apps must accomplish four primary objectives:

1. **Engage** users with sophisticated, rich digital experiences
2. **Evolve** rapidly to keep pace with the market
3. **Scale** flawlessly to support growth
4. **Integrate** seamlessly with other systems

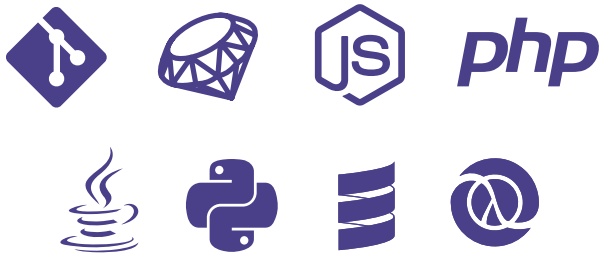
The following development approach can help your organization deliver on these objectives – both at your app's launch and throughout its lifecycle.

Adopt Consumer Internet Technologies

Startups know that customers today demand sophisticated experiences from their apps – beautiful, pixel-perfect design, fluid interactivity, deep integration with data and systems, and in many cases, a highly personalized experience. Enterprise stakeholders, such as sales, marketing, or operations teams, will also demand that your app serve their business needs, such as processing transactions, generating conversions, or providing an immersive brand experience. However, they may also need your app to capture a payload of valuable data and funnel it into their own tools and systems. To accomplish these objectives, you'll need to adopt the consumer Internet technologies commonly used today. And there are many powerful options out there to choose from.

Modern languages

App developers today use a variety of languages – Node.js, PHP, Python, Ruby, and Java. These languages, when used with appropriate light-weight web frameworks and architectures, support a development philosophy and style that offers speed, flexibility, and agility. Unlike system languages, they allow developers to operate at a higher level of abstraction, and in some cases they simplify previously sophisticated, complex and error prone tasks such as managing real-time asynchronous data.



These languages also offer packaging systems for managing app dependencies of external support libraries, which enables a modularized approach to development. A clean separation between the presentation layer and business logic allows the UI and UX to be addressed separately, giving app designers the level of sophistication and interactivity they're looking for. Modern languages are designed to create the responsive experience that users expect, and they are performant, easy, and fun to use. As open source languages, they are supported by large, mature communities working together to resolve any issues that may arise during development.

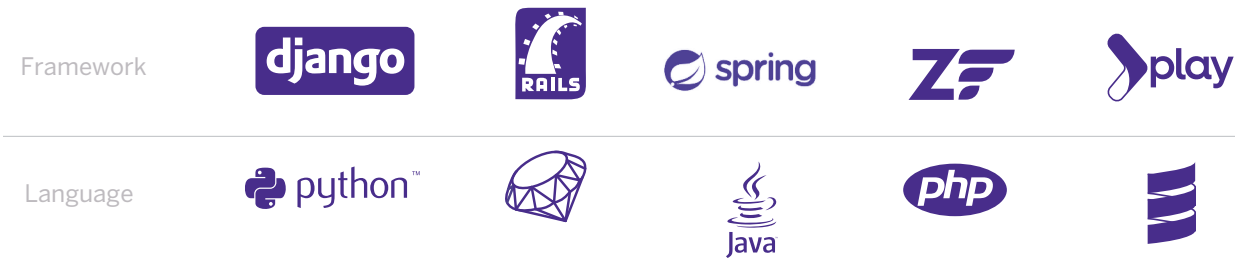
Open source

Developers look to their peers for inspiration and support, but also for reusable code — enabling them to "compose" apps as much as build them. Because open source technologies benefit from the creativity and contribution of the developer community at large, they are often more modern, flexible, and innovative than proprietary, niche products. The community is continually working to improve and evolve the technology and its frameworks, so you know it's been scrutinized and vetted by a sizeable pool of highly dedicated testers and critics.

New frameworks

As new web application languages become more prevalent, developers are using a host of new frameworks to accelerate development, expand the capabilities of the chosen language and better integrate with other systems. These frameworks are used to create the next-generation of interactive experiences despite a fragmented landscape of devices and browsers. Frameworks provide vetted conventions as well as libraries, templates, session

management tools, and reusable code to help modularize code and maintain consistency at scale. Examples of popular frameworks include Django for Python, Ruby on Rails, Spring for Java, Zend for PHP, or Play for Scala and Java. Frameworks also simplify the often complex process of on-boarding developers to an unfamiliar codebase, which can greatly increase productivity and allow flexibility for the team. In addition, managers can more easily source new team members from the sizeable engineering talent pool in today's job market.



Build on a Scalable, High-performance Platform

To build competitive apps that differentiate their business, startups dedicate the bulk of their resources to innovation – building apps and features – rather than infrastructure operations and maintenance. This often means choosing to run their apps on a managed platform. It's a strategic decision that keeps their team lean and empowers their developers to focus on building a differentiating app. Enterprises too can benefit greatly from this approach, so their teams can continuously deliver unique new features or experiences that amplify customer engagement. Wasting high-value talent on patching or waiting for devops support impacts your team's momentum, but more importantly, it hinders your app's ability to achieve its business goals. Running your apps on a managed platform also controls costs and allows you to bypass the headache of setting up and maintaining a separate infrastructure and teams just to run your app.

Platform-as-a-service (PaaS)

PaaS solutions, such as Heroku, can help companies of any size get their app to market quickly – the platform is ready to deploy whenever you are. Unlike infrastructure-as-a-service, PaaS is not about moving your hardware headaches to the cloud. Rather, it's about bypassing

those hardware headaches altogether. PaaS is focused squarely on apps.

The managed PaaS service supports rapid iteration and provides instant scalability to easily handle rapid and uneven growth. Throughout your app's lifecycle, minimal staff time is required to maintain or monitor your app (also keeping costs low). When a security issue arises, such as a new virus or vulnerability, a dedicated team of experts from the PaaS provider is on hand to address it immediately. Your developers also benefit from in-house expertise in the latest languages, frameworks, and other web or mobile app technologies.

New architectures

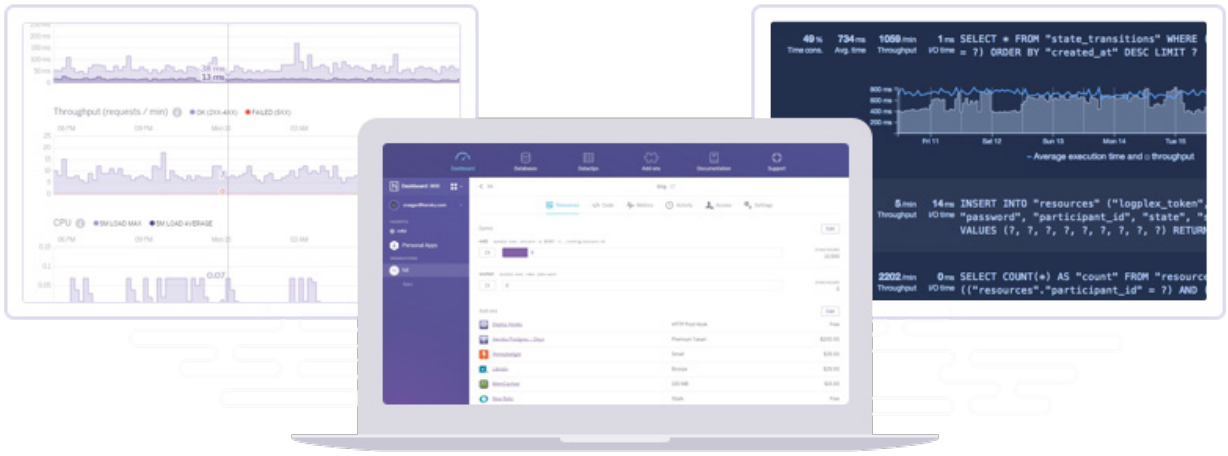
PaaS enables developers to build new architectures that can support apps that are easier to scale and extend. Modern approaches provide further flexibility when it comes to building a high-performance app. Your architecture may also include various microservices to integrate specific functionality or 3rd party technologies. Your "system of record" – where you store and analyze data – should be tightly integrated with your "system of engagement" that runs the customer or partner experience. Overall, you want to create a single, unified system that can capture and store a complete picture of your customer engagement, and empower your staff to effectively manage that engagement. Using a robust CRM platform such as Salesforce at the core, combined with app logic and presentation layers running on a PaaS solution such as Heroku, can create the kind of seamless, unified system that can transform your business.

Enable a Smooth Developer Experience

Developers work best when they are "in the zone" – when they are working at a comfortable pace and everything just "flows." Developers today, especially those used to a startup environment, have a lot less patience for "old school" processes that are not efficient or conducive to their concept of flow. The more they break concentration by having to grapple with devops tasks and tools, the less time they have to focus on the end-to-end customer experience or the product's evolution. Ideally, your team's app platform gives them intuitive shortcuts that make their lives easier so they can be more creative, move faster, and deliver on time. And the more a developer can contemplate the project as a whole, the better able they are to make decisions on where to invest their engineering efforts.

Development tools

Tools are designed to solve a specific problem well, and many are extensible to meet your specific project needs. Developers have their own favorites that match their personal work style. However, it's important to consider the developer experience of any technology or service that you bring on board. For example, Heroku has thoroughly analyzed the developer experience of a PaaS solution. The platform offers a host of built-in features that make deploying, configuring, fine-tuning, and managing apps simple and straightforward. Tools such as the Heroku CLI allows developers to use a familiar and preferred command line environment. The Heroku Dashboard, with its embedded App Metrics, gives developers a holistic view of their apps, resources, performance, and more. The right tools will allow you to extend the solid foundation you've built and customize it to meet the needs of your business, app, and team.



Heroku dashboard, metrics, and Postgres

App Elements

Today, developers are not just writing custom code to create apps. They are composing apps out of pre-built elements, such as messaging services, payment systems, app monitors, and data stores. Developers using the Heroku platform can leverage the Heroku Elements marketplace to quickly search a broad ecosystem of trusted tools, components and services and discover the elements needed to develop better apps faster. Developers can source add-ons, which are tools and services pre-integrated into Heroku that are tailored for developing, extending, and operating apps. Heroku Buttons are third-party components, libraries, and pattern apps that allow users to deploy with a single click. Buildpacks allow developers to

easily customize the build process in their preferred framework, language, and community. Utilizing app elements, developers can more efficiently build, deploy, and manage their apps.

Plan for Seamless Integration Across Systems

Your app may accomplish its user engagement objectives, but what else can it do for your enterprise? How can it also transform the way you do business? One advantage that start-ups have is that they start with a blank slate. They can design and plan a disruptive business model that is unified across all components right from the start. Enterprise teams often face the extra requirement of building on top of complex legacy systems and it can be a challenge to retrofit your innovative app into this environment. In an ideal world, you would build your app's front-end and back-end at the same time. However, developing your app with modern languages and a flexible architecture improves your ability to connect it with internal systems, processes and workflows. Such deep integration can transform your business.

Single, unified system

Your app is likely collecting a treasure trove of customer and market data and can serve as powerful data ingestion channel for a wide variety of stakeholders. In addition, your app can extend your company's investment in existing tools and services, such as a Salesforce instance, with additional functionality and interoperability. Designing a unified system with a powerful customer success platform like Salesforce at the core, not only maximizes your app's potential for engaging customers, but also empowers your company's ability to deepen those customer relationships. Moreover, your stakeholders can access and use the data without affecting your app or developer workflow.

Extra Support for the Enterprise

Although large companies can leverage the same app development recipe used by start-ups, they also typically need additional ingredients to ensure their app is successful both internally as well as externally. Enterprise IT organizations often require tools that support more advanced collaboration and access controls, as well as enterprise-grade support. Looking at your development plan and technology mix, consider additional tools and services, either standalone or provided by your chosen vendor, that can meet such enterprise requirements. For example, if you want a PaaS solution, Heroku Enterprise offers an additional layer of support for large organizations.

Collaboration

Your app development team may be small and local, or it may be distributed across organizations or geographies. Consider tools that will help your developers work together in a more tightly integrated way that increases both their productivity as well as sharing of new ideas. Such tools can empower individual developers to innovate at their own pace while the organization retains complete visibility over the state of all projects. They also provide teams with a safe way to collaborate openly while still meeting company security standards.

Security control

Because your app users entrust you with their personal or business information, you'll need to closely manage access to that data, including those who deploy code that touches it. Accountability is critical. In a small team, simple practices may be sufficient. But for larger and distributed teams, it's important to consider more formalized security controls.

Support

Many vendors will offer enterprise-level support for your team, sometimes dedicating personnel to your account. Consider the expertise needed to fill any gaps on your team, and the capabilities and professional services of vendors who can support your development plan.

Staffing Your Enterprise Startup

Becoming an apps company requires establishing a team with the right skills, mindset, and ways of working that will produce transformative apps for your enterprise. Like founding your own startup, it requires a keen eye on finding and recruiting top talent. But unique to the enterprise are typical organizational hurdles that may work against your fledgling team – and may even jeopardize their success. Read the Heroku white paper entitled: "The Innovation Lab Model: Unlock Your Inner Startup," to learn more about this growing trend amongst large companies. An innovation lab may help your app development team operate like a startup, but benefit from the resources of a large company.

Next Steps

Many large enterprises have successfully transformed themselves into apps companies through taking the startup approach to app development. Their stories can help you envision how your enterprise can embrace this new way of working. Learn how a wide range of companies have leveraged the Heroku platform to develop, deploy, and manage their apps: **heroku.com/customers**.