Mobile Application Distribution and Deployment

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204311 Mobile Application Development Framework

Introduction to Mobile App Distribution

- Mobile App Distribution is the process of making a mobile app available to users.

- App Lifecycle is the entire process from conception to retirement. Distribution is part of App Lifecycle.

- Distribution Process:

1. Publish App
2. Download App

Application Portal

4 Payment
3 Payment

Developer
User
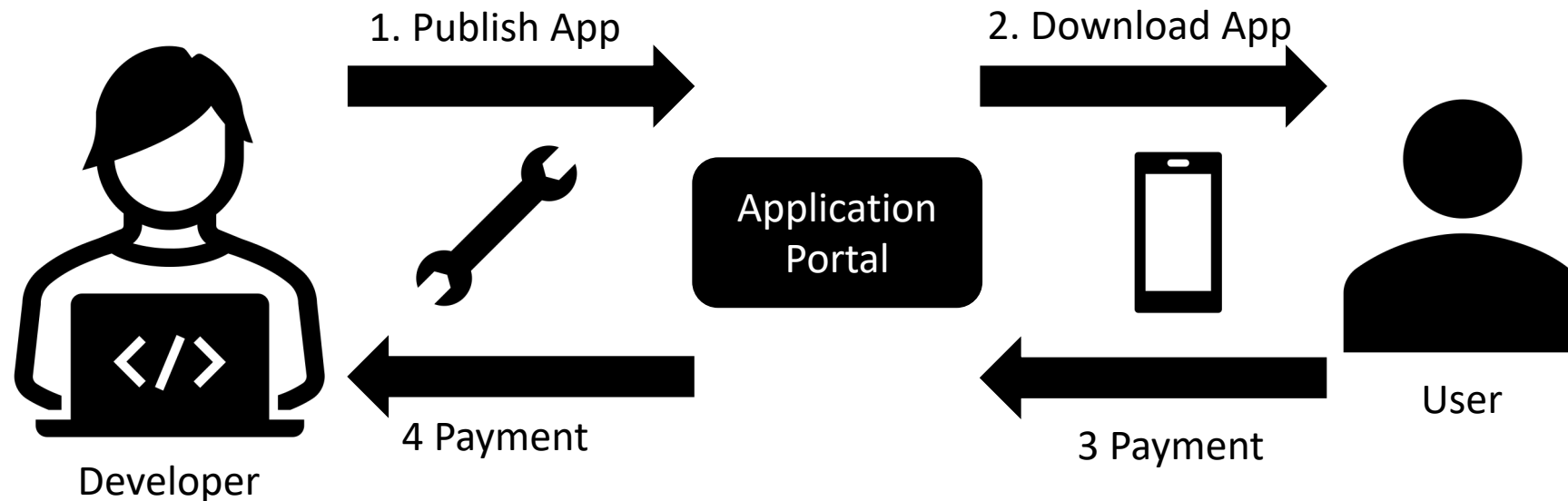
Types of App Distribution

- App Stores (Public Distribution)
  - Most common, submit to Apple App Store or Google Play Store.
  - Submission -> Review -> Compliance -> Approved
- Enterprise Apps (Private Distribution)
  - Company distributes app to employees via enterprise app store or MDM
  - Example is Google Buganizer System (Google Issue Tracker).
- Beta Testing
  - Release for testing before official release.
  - Apple's TestFlight and Google Play's beta testing

App Store Optimization (ASO)

- Similar to SEO, ASO maximize its visibility in app store search results.

- Typical ASO tactics include keyword optimization, search and paid ads (they also affect organic search results), category rankings, and top charts or apps featuring in Google Play or App Store.

- 70% of mobile users utilize search to find new apps. Furthermore, 65% of all downloads occur directly after a search.
  - Some strategies involves letting user search for app instead of direct link to download page.

SEO VS ASO

Search Engine Optimization | App Store Optimization

Search Engine	
Google Search, Bing, Yahoo	Apple App Store, Google Play

On-Page	On-Page
Title Tag	App Name (Title)
H1, H2, H3	Description
Internal Links	Keywords (iOS)
Page Speed	Usage & Quaility Metrics
Topic Coverage	Uninstall Rate

Off-Page	Off-Page
Links	Backlinks
Anchor Text	Ratings & Reviews
Social Signals	Download Stats

Goals	
Traffic (Visitors)	Downloads (Users)

App Store vs Play Store

- Apple takes longer to review app. Consider 3 days buffer when releasing an update.

- ASO in Play Store follows Google Search so repeat keywords in all many fields will yield high rank.

- ASO in App Store has keyword fields. No need to repeate keywords.

Ranking Factors

App Store	Play Store
App Name	App Title
App URL	Short Description
App Subtitle	Long Description
Keyword field	In-app Purchase
In-app Purchase	Rating and Reviews (4.4+)
In-app Events	Updates
Ratings and Reviews (4.4+)	Android Vitals
Updates	Download and Engagement
Download and Engagement	

Fun Activity 1

- Work in pairs
- Compare Top Ten ranking in App Store and Play Store based on a given keyword
    - Is the same app ranked the same?
    - Does the same app provide the same description, images?

App Store Guidelines and Requirements

- Common Guidelines for Submission
  - Technical requirements: compatible, no crash, no bug, optimize performance and battery usage, privacy policy.
  - Content: no offensive stuff, clear UI, localization for different market (global)
  - Security: provide disclosure, follow legal compliance, no spyware
  - IP: no plagiarism, no copyright infridgement
  - Monetization: clear pricing and subscription terms
- Compliance is following the rules. Failing to do so can lead to app rejection, app removal, legal action, reduced revenue, block updates, dev account suspension.

Private and Enterprise App Distribution

- Unlike public app stores, private distribution channels offer a controlled environment, allowing companies to manage app access and security more tightly.

- Mobile Device Management is a type of security software used by IT to monitor, manage, secure employees' mobile devices. Some requires constant VPN connection for security.

- MDM is crucial for organizations embracing the Bring Your Own Device (BYOD) trend or deploying corporate-owned devices, as it helps maintain security and compliance while allowing employees the flexibility to use mobile devices for work.

TestFlight for Beta Testing

- TestFlight is an online service provided by Apple to distribute and test beta versions of iOS, watchOS, tvOS apps.

- Send invite, download app, start testing.
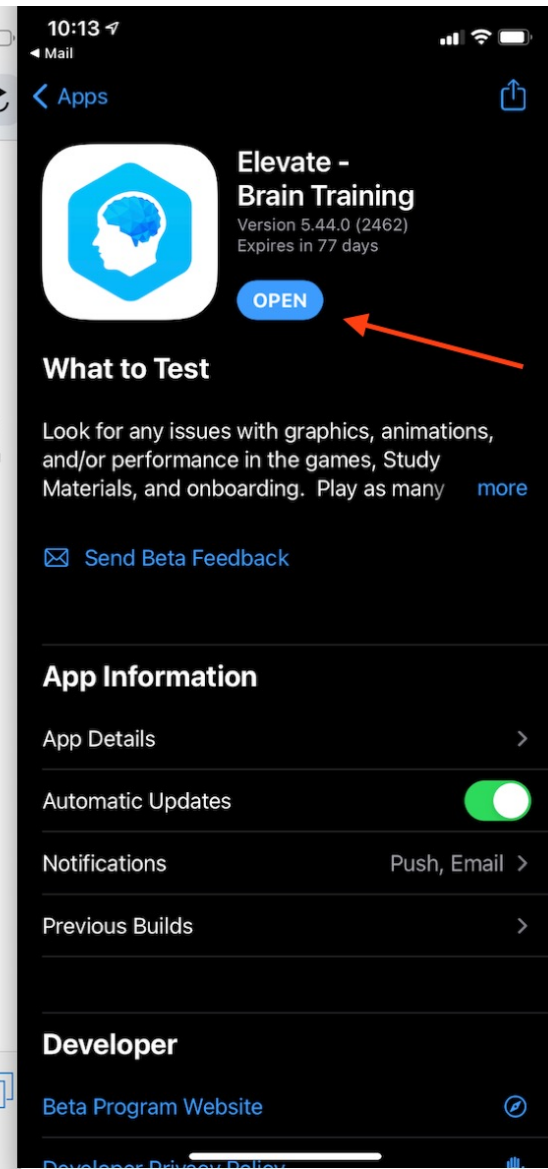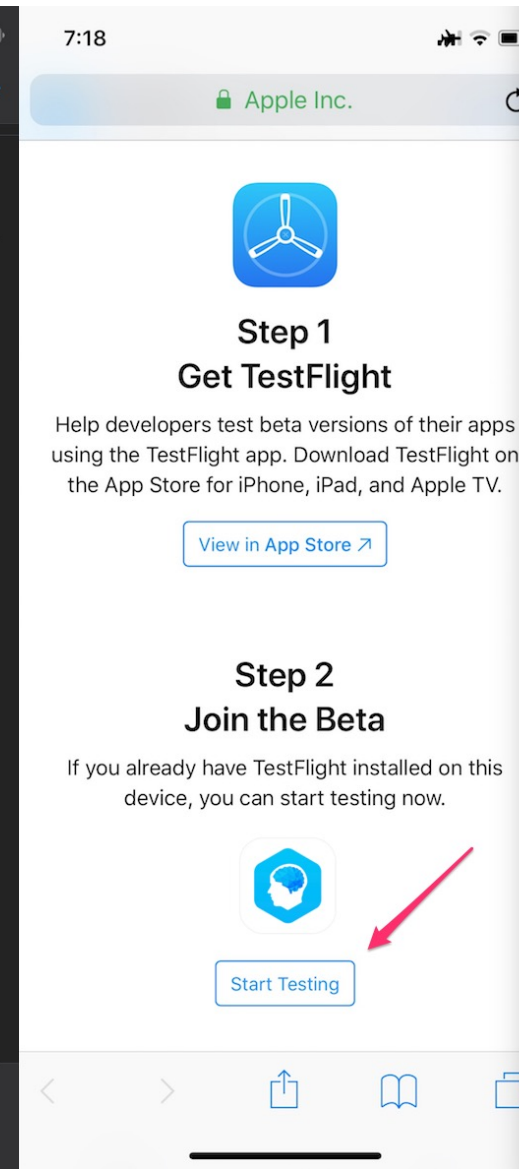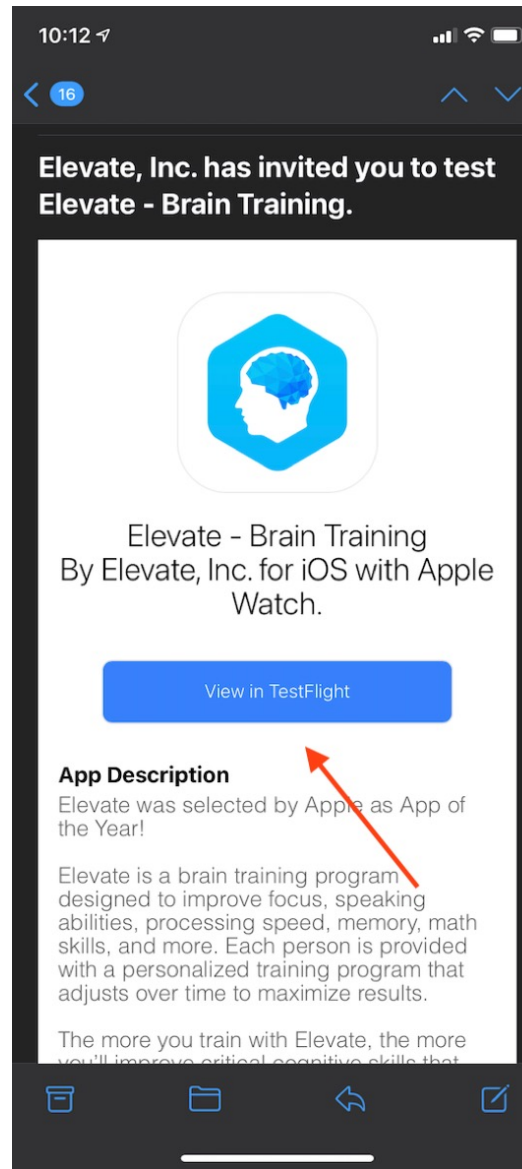
Beta Testing for Android

- Unlike TestFlight, Android does not have an official online service.
- Most beat testing comes from APK distribution or third party.
 - TestFairy, Applivery, Microsoft AppCenter, TestApp to name a few
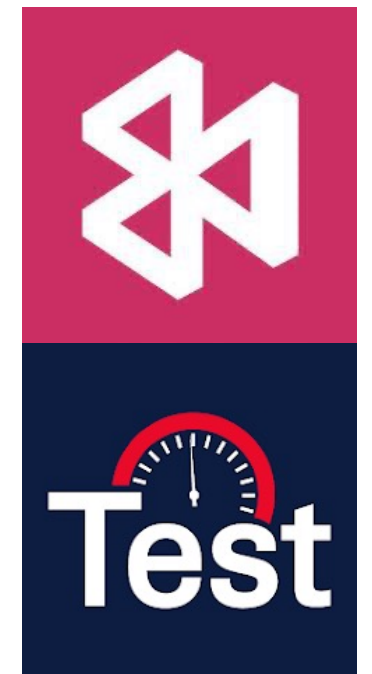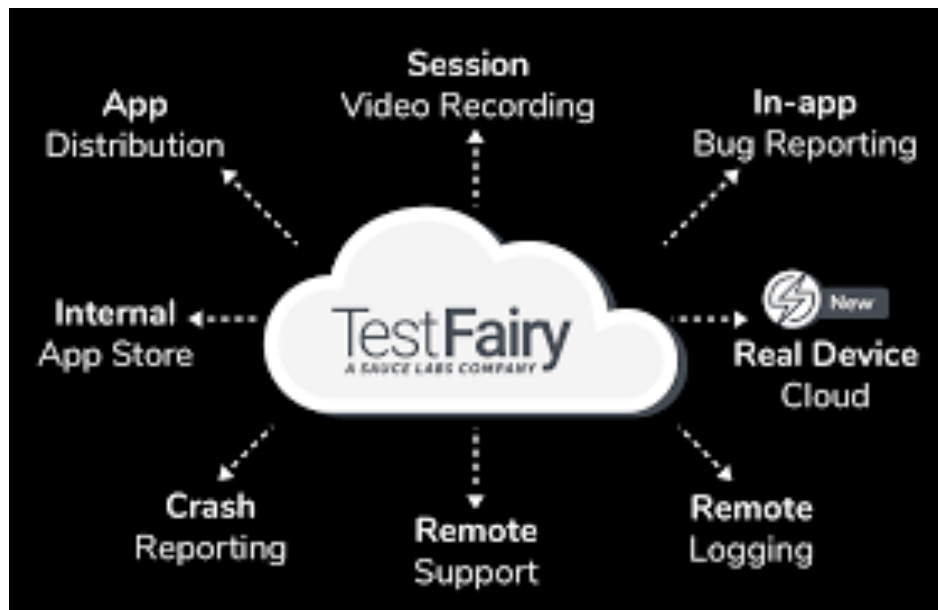
Deployment Strategies

- **Staged Rollouts:** an app is released to a subset of users first, allowing developers to monitor performance and user feedback before a wider release.

- **A/B Testing:** different versions of an app are released to different user groups, enabling developers to determine which features or designs are more effective.

- **Feature flags:** a technique that allows developers to enable or disable certain features without deploying a new version, providing flexibility and control over the app's functionality.

A/B Testing Hypothesis

1. Don't test more than one hypothesis simultaneously.

2. Test with variations that significantly differ.

3. Too small details might be too less to give you a precise result.

4. It isn't only about adding or editing elements - sometimes it's also about removing them!
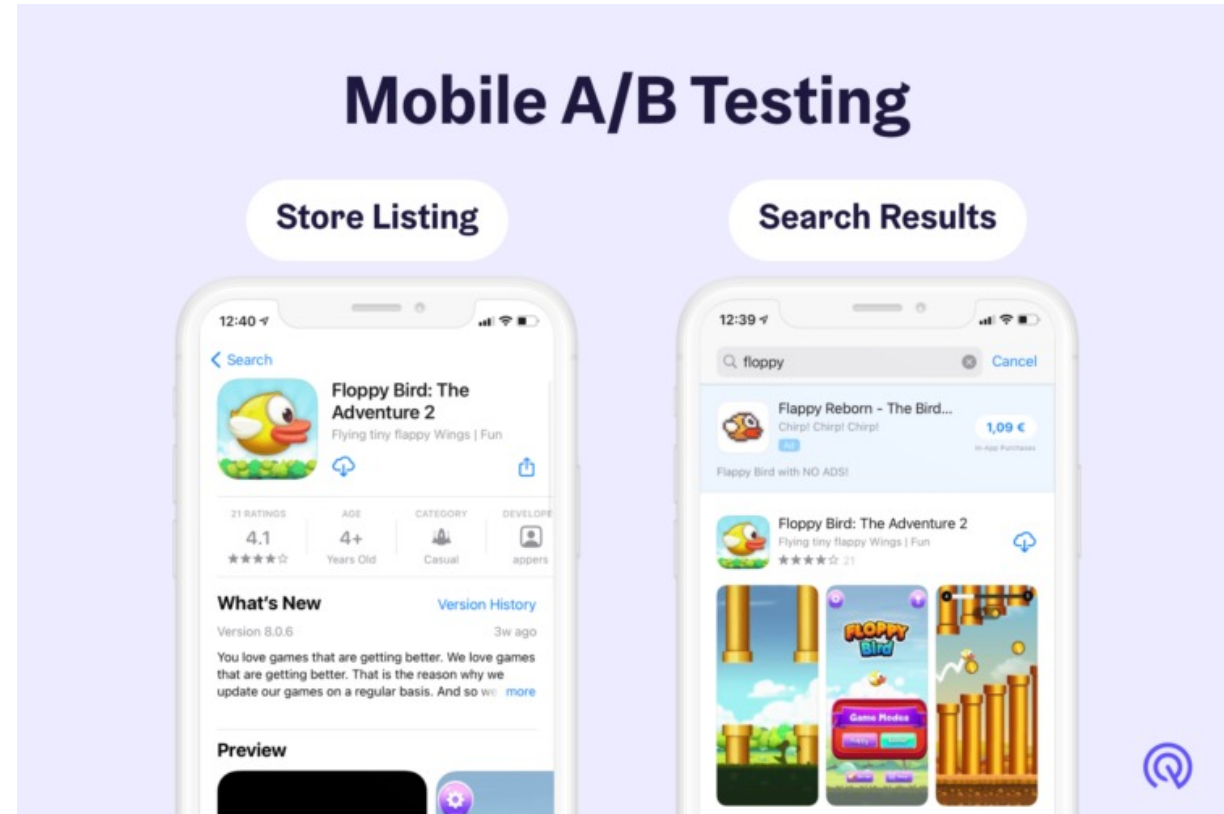
A/B Testing App Icon

- Many mobile games have app icons featuring characters with angry faces or with their mouth open.

KPI for Mobile A/B Testing

- If the result shows that your new variation wins by less than 2%, think twice before updating your store listing. To see a real impact, you need an advantage of at least 3% on the winning variation.

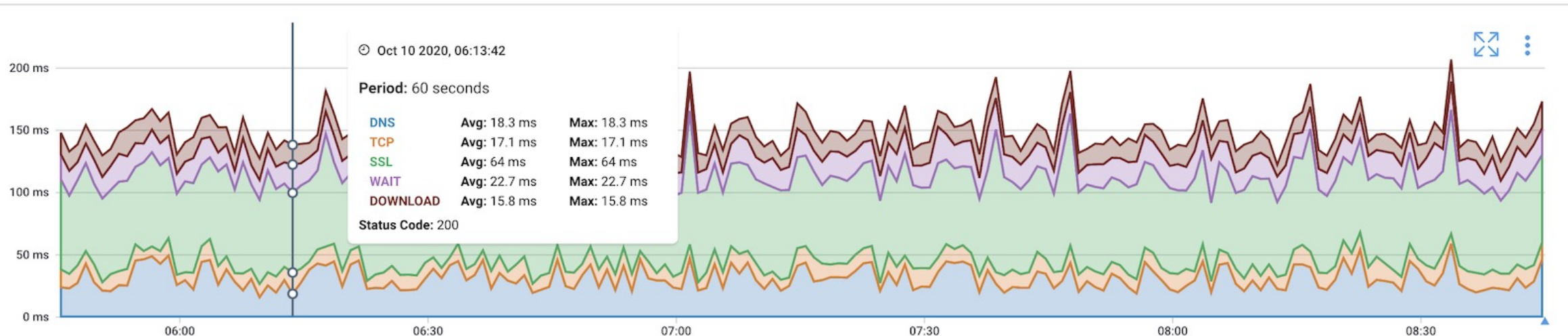- The result may show you that your hypothesis was wrong, and that's okay.

App Deployment Tools and Services

- Continuous Integration and Delivery (CI/CD) Pipelines

- Popular Tools (Jenkins, Travis CI, Fastlane) automate various stages of app development and deployment.
    - Jerkins ensures that every code commit is tested and reported.
    - Travis CL integrates with your repository to test and deploy applications.
    - Fastlane automates tedious tasks like generating screenshots, managing provisioning profiles, and releasing your app.

- We will not cover the use of these tools in this course, but you are encouraged to try them.

Monitoring and Analytics Post-Deployment

- Post-deployment, it's imperative to continuously monitor the app's performance, user engagement, and overall user experience.

- Tools for analytics and performance monitoring will catch bugs that slip through testing phase while the performance data will dictate what the next update will be.

HTTP Duration

⊘ Oct 10 2020, 06:13:42

Period: 60 seconds

DNS	Avg: 18.3 ms	Max: 18.3 ms
TCP	Avg: 17.1 ms	Max: 17.1 ms
SSL	Avg: 64 ms	Max: 64 ms
WAIT	Avg: 22.7 ms	Max: 22.7 ms
DOWNLOAD	Avg: 15.8 ms	Max: 15.8 ms

Status Code: 200

Fun Activity 2

- Work in pairs
- Answer the following questions:
  - How does Spotify succeed?
  - How does Google Glass Companion App fail?