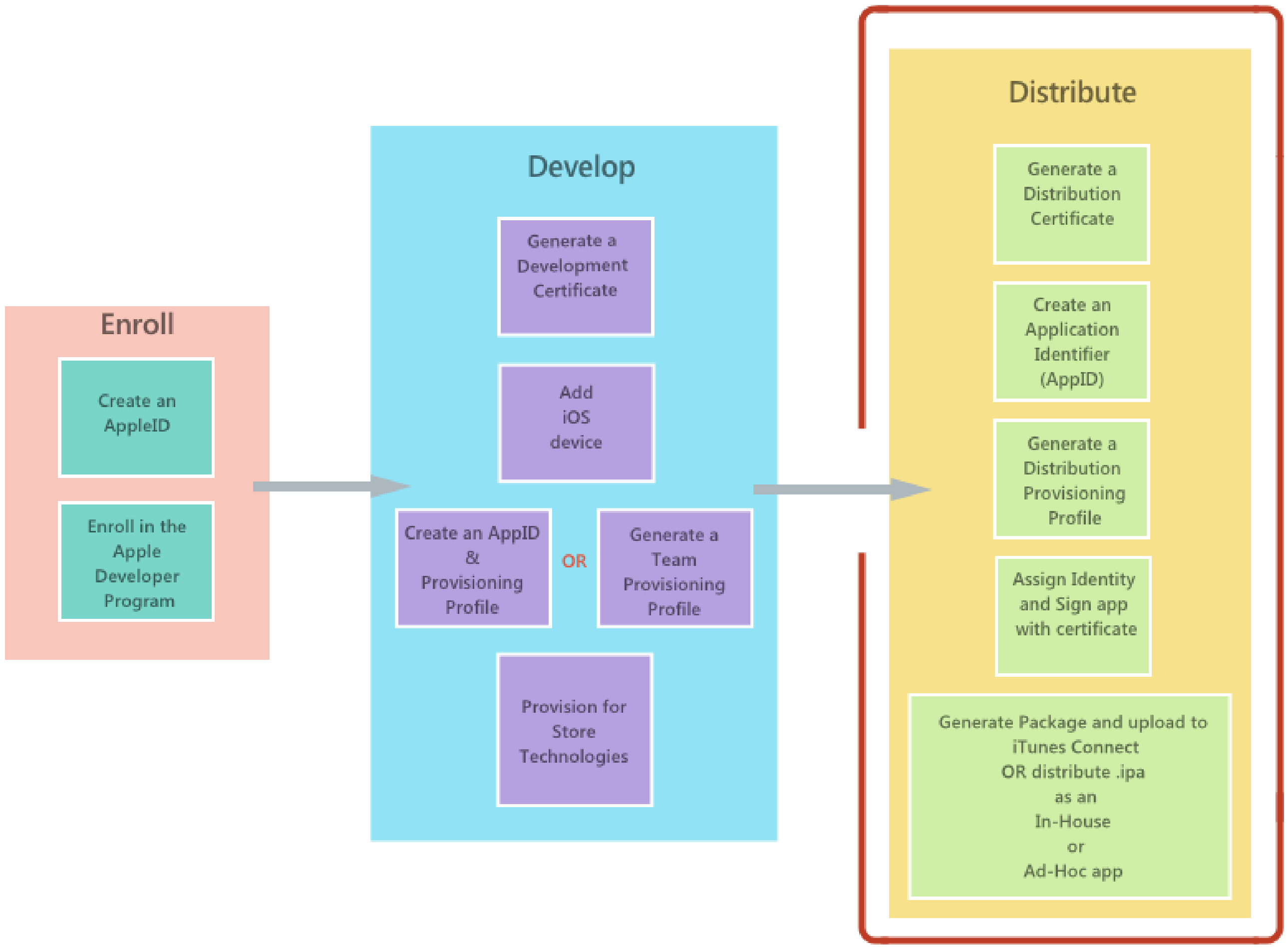
Xamarin.iOS app Publishing and distribution

1.**Overview**

Once an Xamarin.iOS app has been developed,

- the next step in the software development lifecycle is to distribute the app to users, as shown


Enroll
Create an AppleID
Enroll in the Apple Developer Program
Develop
Generate a Development Certificate
Add iOS device
Create an AppID & Provisioning Profile
OR
Generate a Team Provisioning Profile
Provision for Store Technologies
Distribute
Generate a Distribution Certificate
Create an Application Identifier (AppID)
Generate a Distribution Provisioning Profile
Assign Identity and Sign app with certificate
Generate Package and upload to iTunes Connect OR distribute .ipa as an In-House or Ad-Hoc app

2. **Distribution**

- to distribute an iOS application,we require that applications be provisioned using the appropriate provisioning profile.
- Provisioning profiles are files that contain code signing information, identity of the application ,intended distribution mechanism.
- For the non-App Store distribution , it contain information about what devices the app can be deployed to
- Apple provides the following ways to distribute an iOS application:

1. App Store
2. In-house (enterprise)
3. Ad hoc
4. Custom apps for business

3. App Store Distribution

- all apps and updates to the App Store must have been built with the iOS 12.1 SDK or later
- Apps should also support the iPhone XS and 12.9" iPad Pro screen sizes.
- this is main way that iOS applications are distributed to consumers on iOS devices.
- Apps are submitted to the App Store through a portal called iTunes Connect
- developers who belong to the Apple Developer Program have access to iTunes Connect
- steps in App store distribution

1. Provisioning an App for App Store Distribution

- to release a Xamarin.iOS application, you'll need to build a Distribution Provisioning Profile specific to it
- a Distribution Profile will contain the following:

- An App ID
- A Distribution Certificate

1. Creating a Distribution Certificate
2. Creating a Distribution Profile

- Creating an App ID
- Creating a Provisioning Profile

3. Selecting a Distribution Profile in a Xamarin.iOS Project

4. Configuring your Application in iTunes Connect Configure your App in iTunes Connect guide

5. Submitting an App to iTunes Connect

4. In-house distribution

- Sometimes called Enterprise Distribution,
- in-house distribution allows members of the Apple Developer Enterprise Program to distribute apps internally to other members of the same organization.
- advantages of not requiring an App Store review, and having no limit on the number of devices on which an application can be installed.
- Apple Developer Enterprise Program members do not have access to iTunes Connect,so cant distribute to store.
- Steps:

1. **Creating a Distribution Certificate**
2. **Creating a Distribution Provisioning Profile**

- Creating an App ID

3. Creating an IPA for In-House Deployment

- Once provisioned, applications can be packaged into a file known as an IPA
- IPA is a zip file that contains the application, along with additional metadata and icons.

4. **Distributing your App In-House**

- it is done using Locally through iTunes ,MDM server , An internal secure web server, Email
- To distribute your app in any of these ways you must first create an IPA file

5. Ad-hoc distribution

1. Ad Hoc distribution techniques that are primarily used for testing an Xamarin.iOS applications with a wide group of people

- which is available on both the Apple Developer Program, and the Apple Developer Enterprise Program and allows up to 100 iOS devices to be tested.
- The best use case for ad hoc distribution is distribution within a company when iTunes Connect is not an option.
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2. Steps invloved:

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0. Setting Up for Distribution

- to release a Xamarin.iOS application for In-House Deployment, for testing purposes, you'll need to build an Ad Hoc Distribution Provisioning Profile specific to it.for this we will create

1. Create a Distribution Certificate
2. Create a Distribution Provisioning Profile
3. Selecting a Distribution Profile in a Xamarin.iOS Project
4. IPA Support for Ad Hoc Deployment

- Once provisioned, applications can be packaged into a file known as an IPA
- The IPA is used to add an application locally into iTunes so that it can be synced directly to a device that is included in the provisioning profile.

5. Ad Hoc Distribution

- TestFlight is a popular means of beta testing and distribution TestFlight Guide

Custom apps for business

- Apple allows custom distribution of apps to businesses and education

Understanding provisioning Profile

1. Why we need?

1. Code Signing

- this certifies or digitally signs the code written by you.
- it confirms that the code cannot be modified after you have signed it and in simple words,
- we can say that it makes it more secure

2. Provisioning Profiles(PP)

- Acc to Apple, A Provisioning profile is a collection of digital entities that uniquely ties developers and devices to an authorized iPhone Developement Team and enables device to be used for testing.
- Unlike Android, apple apps cannot run directly on any device. it has to be signed by Apple first.

- Provisioning profile acts as a link between device and developer account.
- only devices we have provisioned ,our dev apps can only work on those devices.
- so , PP decided that app can run on what all devices, and what services can be accessed by the app

- it is related to entitlement of our app, what all services it can use like push notification

1. Steps:

- Before IPA is made, the profile are downloaded from development account or picked from the machine,
- and profile are embedded in bundle ,
- and the bundle is code signed using certificates

2. so, the extra information which authenticates you to use the app on certain devices, by using certificates and signing the app , is PP process.

3. What Does a PP contains:

1. Development Certificates

- authorizies test devices on which we want to run our apps on .

2. Unique Device Identifiers

- List of device that the app can run on

3. Add Id

- An Add id is a two- part string used to identify one or more apps from a single development team.
- it is used to check if this app is authorized to run on this device.
- it contains team id and bundle identifier,so it check bundle id of app and profile if matches then app can run

4. How does an app install from XCOde

1. the developer certificate mentioned in your PP is checked against the certificates saved in your Mac's keychain.

- this certificate is used to sign the code.
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    - device running app, its UUId is checked against PP ID
- BUndle Identifier of the app is checked against the Id in PP
- Entititlement requiered by your app are verified and the associated ones with your app ID
- if all goes all, app is installed

5. Types of PP:

1. Development

- contains list of test devices on which our app runs
- cannot be used for distribution on test side or app store

2. Ad Hoc

- to distribute our app to beta testers

3. Enterprise

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4. Distribution

- doesnt contain identifier of any of our device
- to ship it on app store
- once apple code signs it.

COde signing

1. give us a sense of trust, that app in not modified, and who signed it.
2. the signing identity consist of a public private key pair that apple creates for us

- using Assymetric Crptography.
  - i.e there are pairs of , one public one private key, and two publc twp private key,
  - and one public key data can be viewed by private key of another user
- for this we creATE A CSR

Certificate Signing Request (CSR)

- CSR created through our Keychain , in which public key embedded in CSR which we sent to Apple
- A CSR is a block of encoded text that is given to a Certificate Authority when applying for a certificate
- Apple will proff the request and issue a certificate for you.
- THis certificate is pushed into the keychain and paired with your private key to form the COde Signing Identiity.
- FInally, at the time of app installation, the private key used for signing the app matches the public key in th certificate given by apple
- if it fails ,app is not installed