

Mobile App Development for IoT

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Agenda / Outline

- What value does a mobile app bring into your IoT product?
- Use case examples and associated system overview
- Fork on the road: native vs cross-platform
- Mobile app design flow: design, development and distribution
- Worth remembering and useful resources
- Silicon Labs cooperation with Comarch

Why a Mobile App?



- End-user comfort and mobility
- Out of the box experience (ID commissioning)
- Additional feature for the IoT solution
- Wider end-user pool
 - App stores provide additional audience

Where to start?



Value



Audience



Design



Team Experiences



**Architecture &
Connectivity**

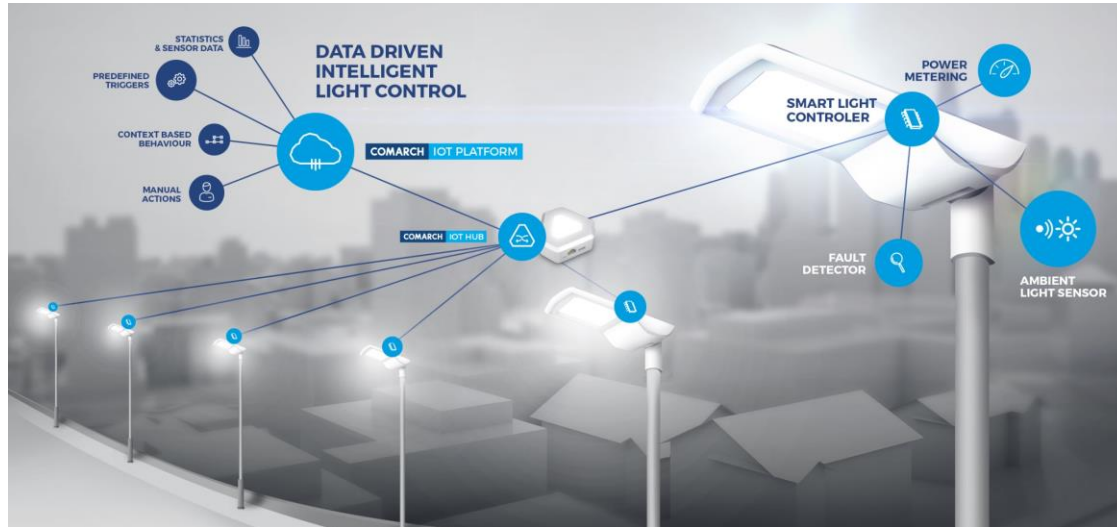


Quality Assurance



Time Constraints

Use cases

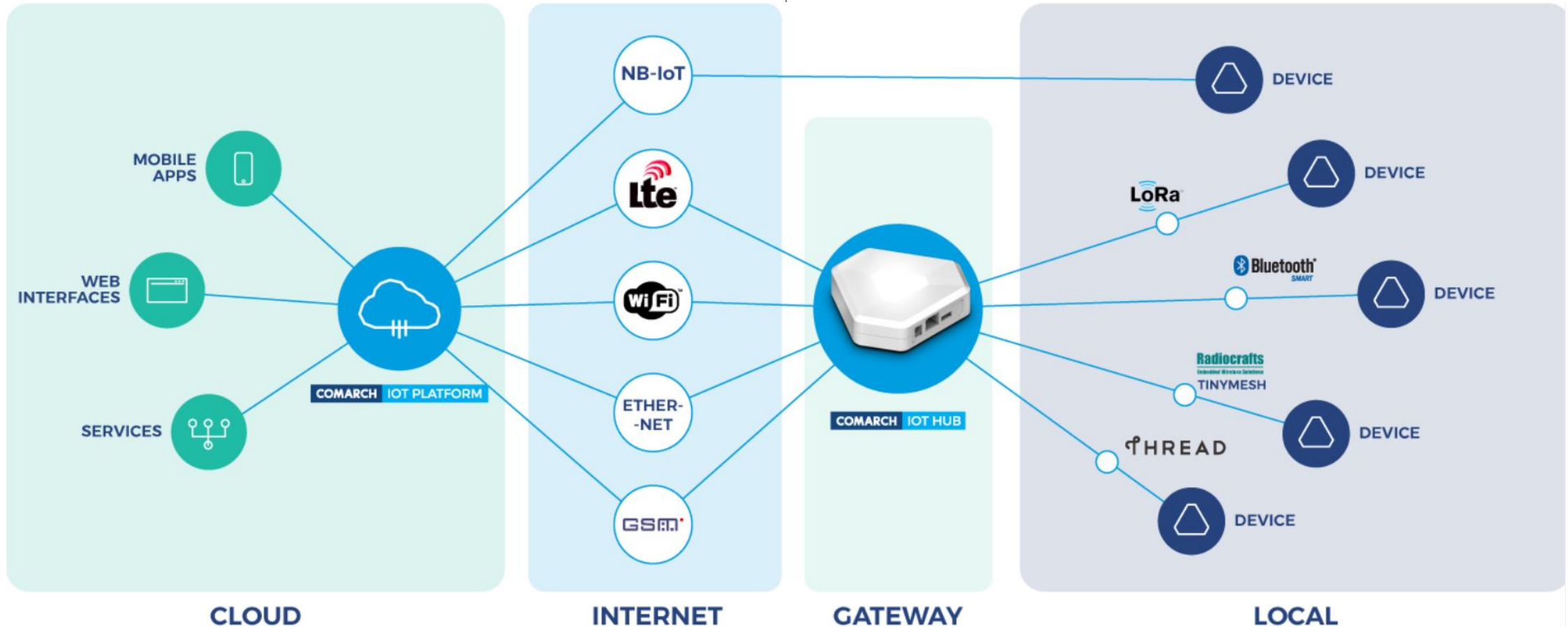


- **Smart lightning:**
 - Mobile app for technicians:
 - ▶ Configuration and maintenance

- **Beacon based location:**
 - Mobile app – location and ad provider
 - Mobile app – providing data from beacons

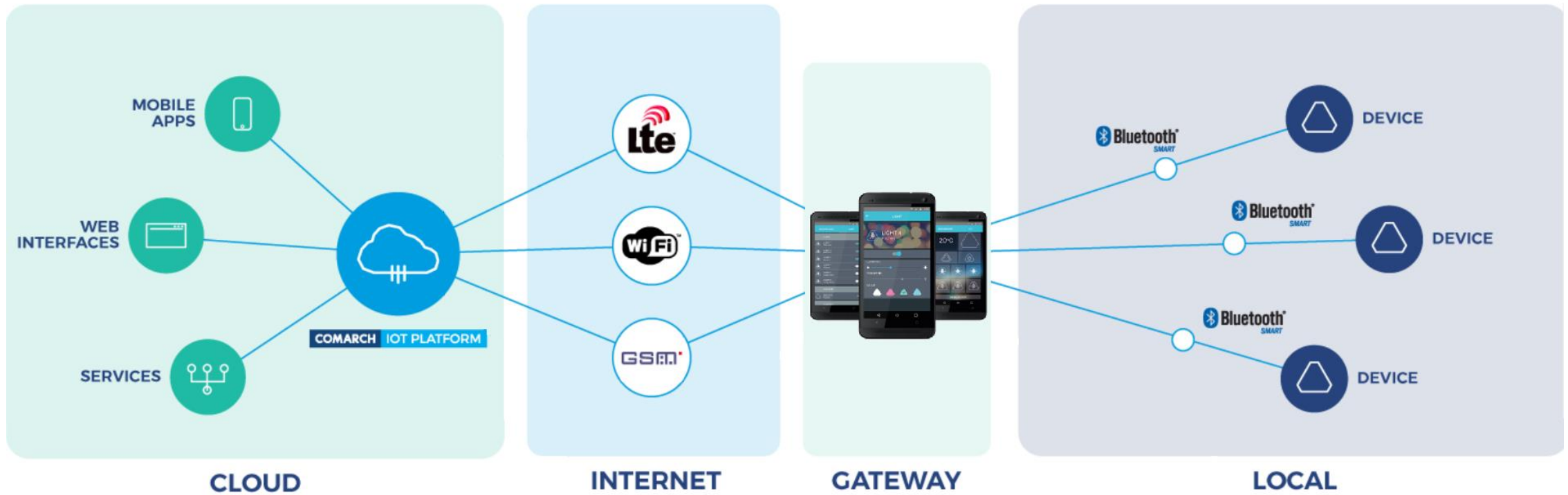


Mobile App – User Interface for Cloud



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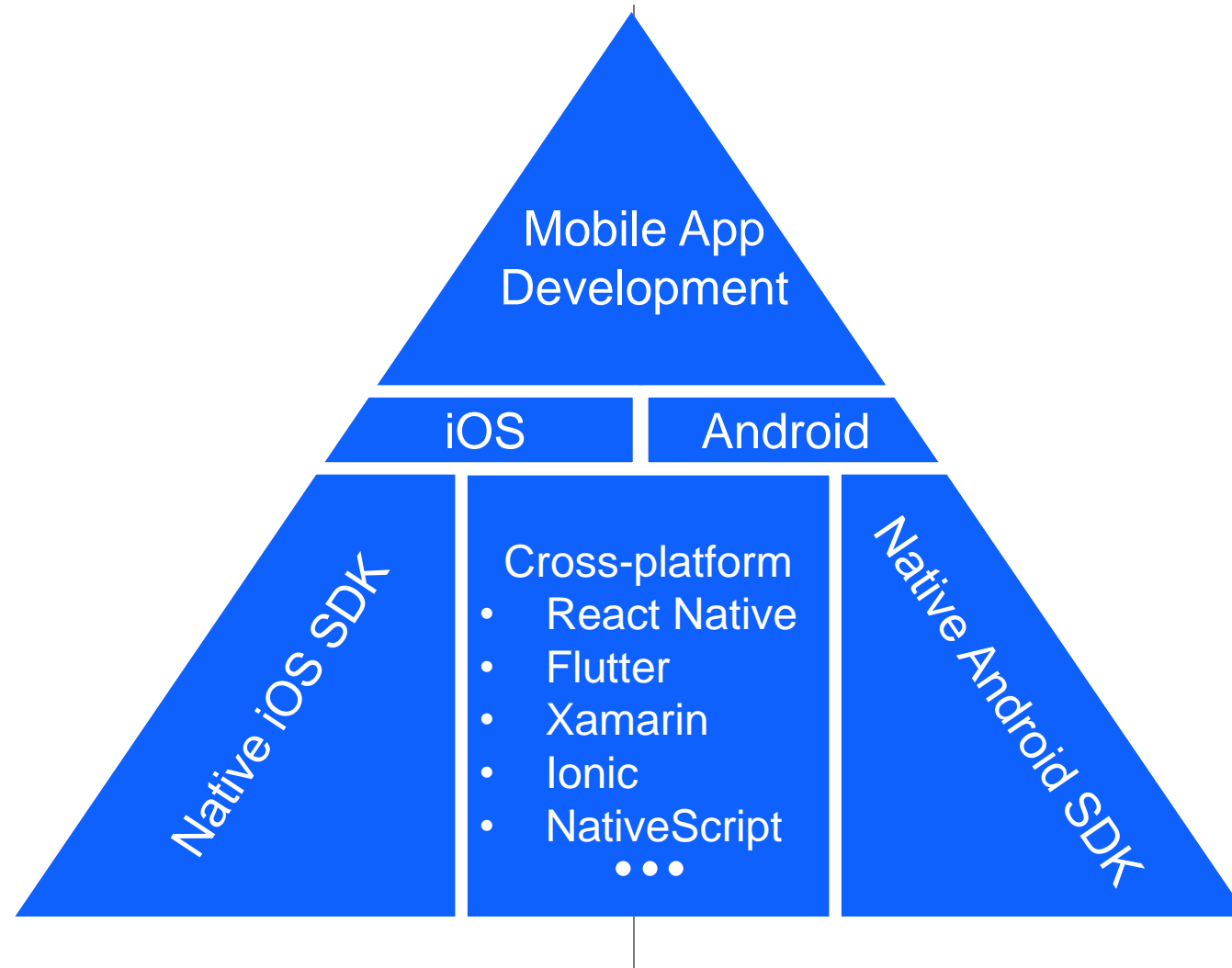
Mobile App – User Interface and Gateway




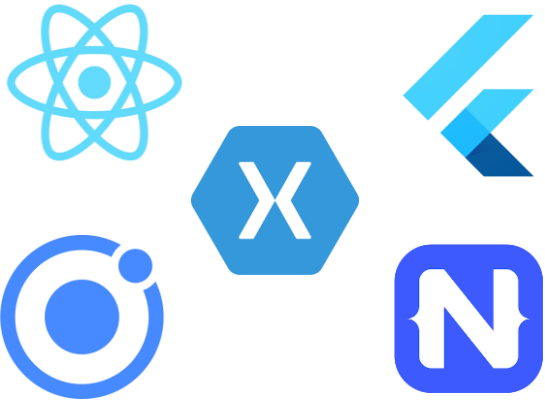
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Mobile App – Development Concepts



Native vs Cross-Platform

Platform		Pros	Cons
Native		<ul style="list-style-type: none">• Native user experience• High performance• Direct usage of platform's API• Easy to debug• Better store support• Smaller app size• A lot of 3rd party libraries	<ul style="list-style-type: none">• Higher project complexity• Higher overall cost• Separate code bases & teams• Set programming language
Cross-platform		<ul style="list-style-type: none">• Faster development• Single code base & team• Hot/live reload• Native-like user experience• 3rd party libraries & API wrappers• Multiple programming languages• Access to native API	<ul style="list-style-type: none">• Sometimes slower app• Complex debug• Requires 3rd party dependencies• Steep learning curve

Connectivity



- Mobile devices communicate via Bluetooth and Wi-Fi
- Choice between Bluetooth and Wi-Fi
 - IoT Solution dependent
- Bluetooth – primary for direct communication
- Wi-Fi – primary for access to the internet but not only
 - Typical use case as a first time configuration
- Some devices introduce Ultra Wideband

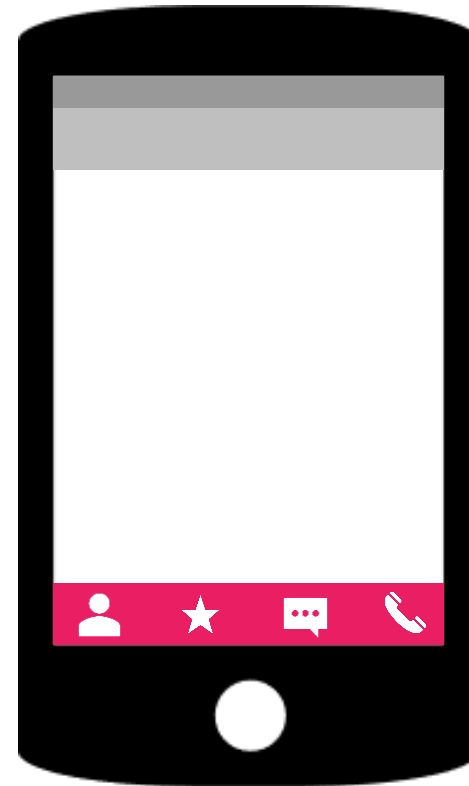
Resources:

- Android: [Bluetooth overview](#)
- iOS: [Core Bluetooth](#), [Core Location](#)

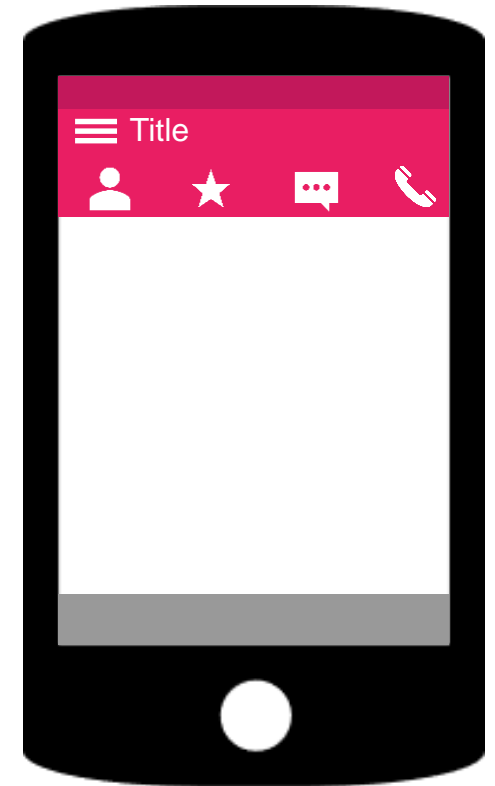


Design

- iOS uses Human Interface Design
- Android uses Material Design
- Moving between states/screens
- In-app navigation patterns
- Action buttons
- App settings and options
- Support for right-to-left languages
- Uniformity



iOS



Android



Quality Assurance

Mobile app should never crash!

- Manual tests
- Regression tests
- Unit tests
- UI & Integration tests
- Verification of app internationalization



App Distribution



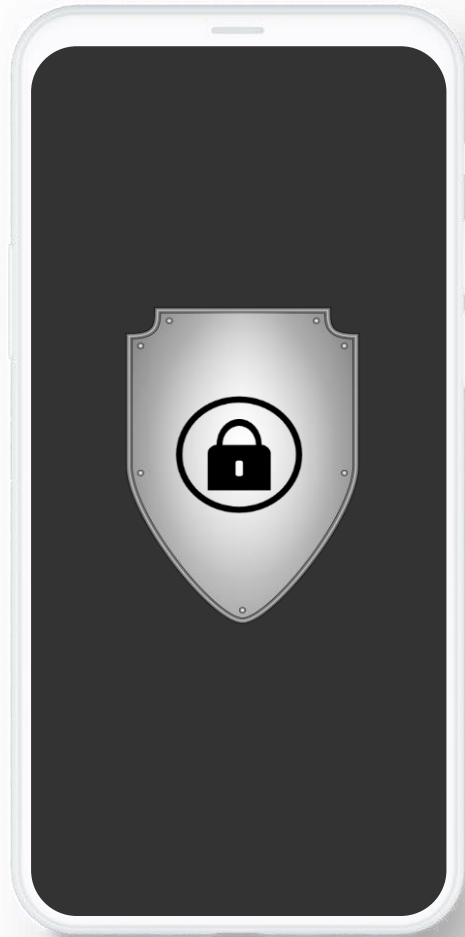
- Official store: Apple App Store
- Official testing platform: TestFlight
- Developer account cost: \$99/year
- Test builds of iOS app must be uploaded to TestFlight



- Official store: Google Play Store
- Official testing platform: Firebase
- Developer account cost: \$25/one-time
- Test builds of Android app can be distributed by sharing an APK file



Worth Remembering



- Background processing in iOS is highly regulated
- iOS app cannot scan for Bluetooth classic devices
- Necessity of testing Android app on phones from different manufacturers
- App may need to be adapted to the new OS versions
- Each release of the app is reviewed
- User has to give permission to the app to use camera, location etc.



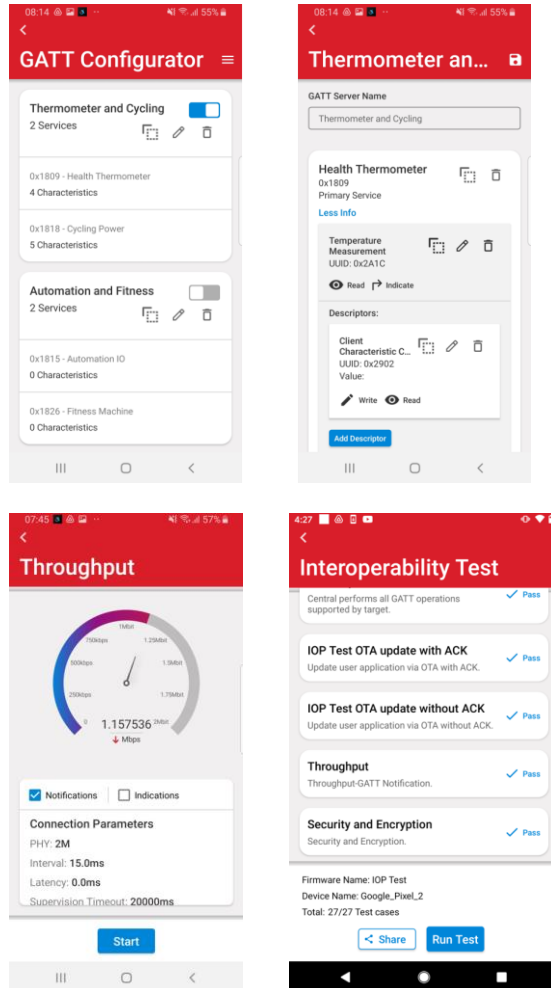
Useful resources



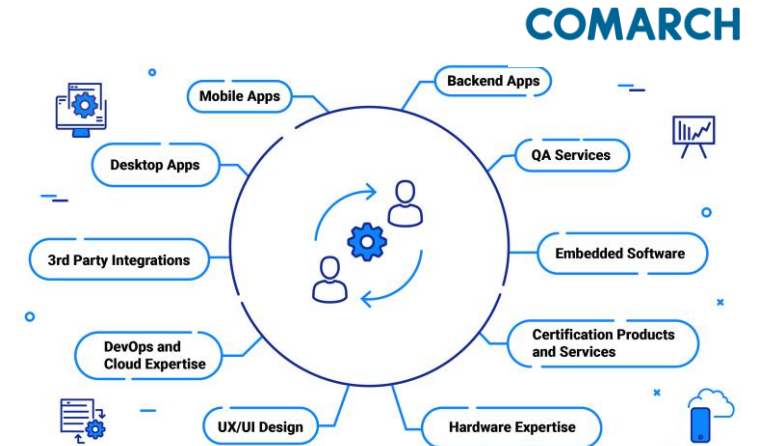
- [Fastlane](#)
- [CocoaPods](#)
- [Dagger](#)
- [Node Version Manager](#)
- [realm](#)
- [i18next](#)
- [raywenderlich.com](#)
- [Semantic Versioning](#)

Silicon Labs Cooperation with Comarch

EFR Connect



- [EFR Connect](#) – great introduction to IoT mobile app development
- Comarch can develop such application for you and much more
 - [Comarch – IoT Ecosystem Solutions](#)
 - [Comarch – Professional Services](#)





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