

# How to Run Your Existing Android APK on the Tizen Platform

Chandra Bajpai

Matt O'Keefe

OpenMobile World Wide

[www.openmobileww.com](http://www.openmobileww.com)



Chandra Bajpai  
Vice President of New Technologies



Matthew O'Keefe  
Director of Content





# Introducing the OpenMobile™ Application Compatibility Layer (ACL™)

# What is ACL?

- ACL = Application Compatibility Layer
- What does ACL do?
  - Allows you to run Android apps on Non-Android operating systems without any modification to the app
    - Tizen!
  - Think of it as Android run-time layer
- Supporting Samsung Z1 in India since launch in January 2015
  - Over 600,000 users
  - 4.5 stars in the reviews



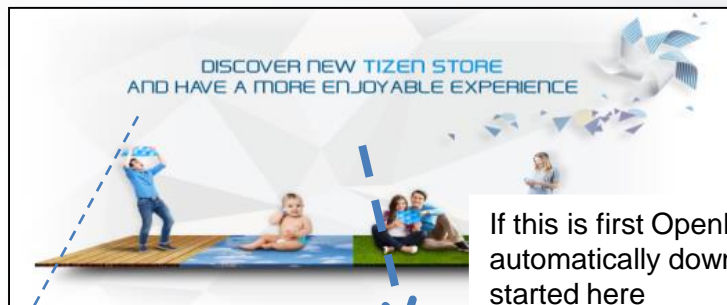
# ACL-Enabled App Ecosystem for a Seamless Tizen User Experience



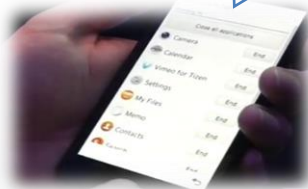
1. ACL submitted to Tizen Store



2. OpenMobile-Enabled Apps submitted to Tizen Store



If this is first OpenMobile-Enabled App, ACL is automatically downloaded, installed and started here



1. User Visits Tizen Store

2. User Selects and Installs OpenMobile-Enabled App

3. User Launches Newly Installed App

4. User Enjoys Newly Installed App!

# OpenMobile's Mission: Breaking The App Barrier

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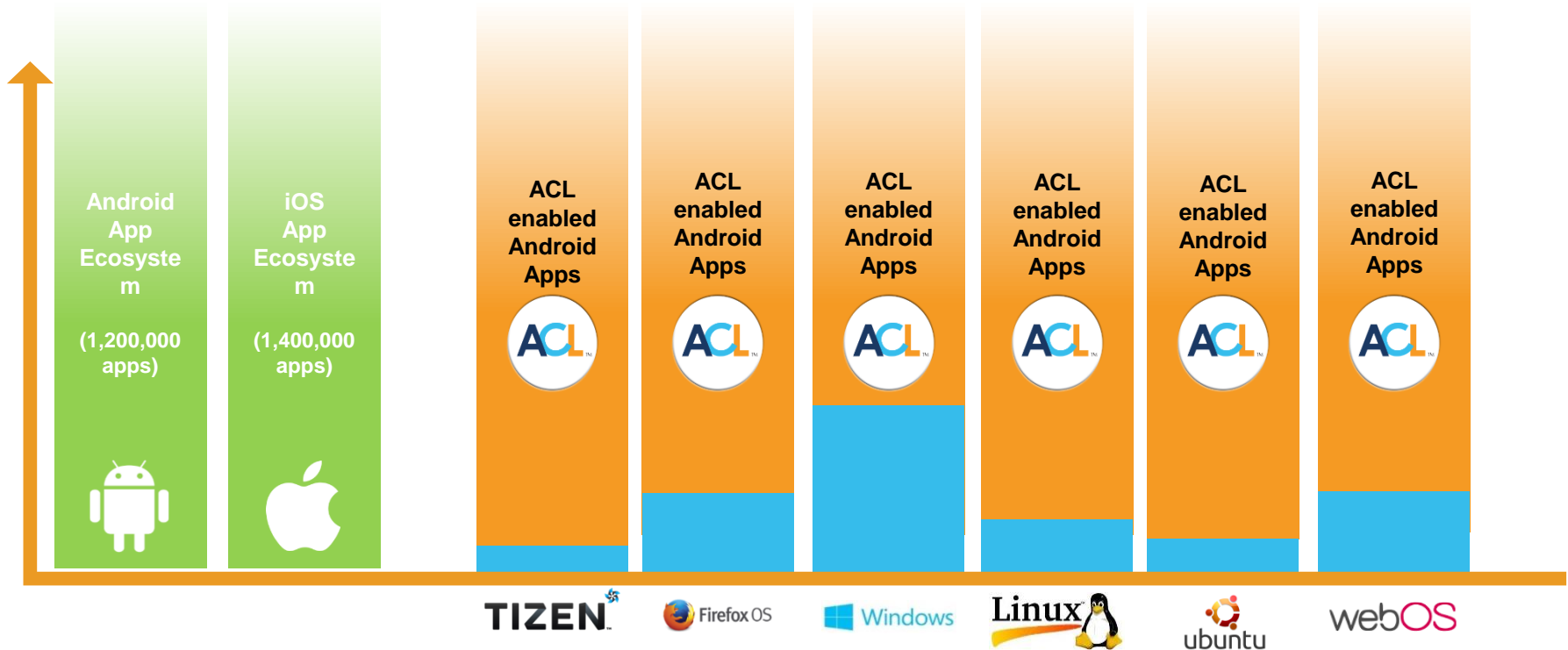
- In the competitive marketplace for mobile devices, it is virtually impossible to attract millions of customers without a vibrant apps ecosystem with many apps.
- For Global mobile OEMs aware of the App Barrier, and understand they need a robust App ecosystem when launching their new devices.
- For Mobile Device buyers
  - They demand the ability to run the same popular apps that everyone expects on their devices.
- For App Developers
  - They don't want to rewrite their apps for each new operating system.

It's an Apps World!



# It's An Apps World

*Apps drive user adoption and device sales.  
OpenMobile's goal is to level the OS playing field with ACL™!*



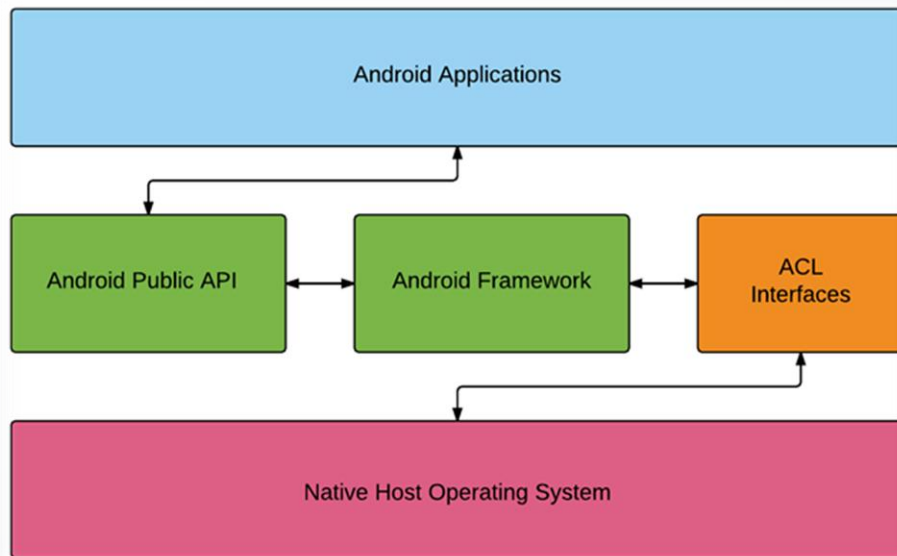
# How ACL Works





## ACL Architecture (Continued)

- When an ACL-enabled Android app is launched by a user, the app executes within the virtual machine just as if it were running on an Android platform
- The Android public API, Android framework, and Android interface libraries are linked to the native host OS
- App calls to Android libraries are mapped to the linked libraries and execution occurs properly and transparently



# OpenMobile GMS Compatible Services

- Google Play Services in Android is very important component of Android
- OpenMobile ACL provides compatible services
  - In-App Billing (IAB)
  - Maps
  - Cloud Messaging
  - Google+, Login, Games
- Important: 100% API compatibility means your Android App can run without code changes!
  - Example: In-App Billing
- Other services: Advertising, Analytics = run as normal



# ACL for Tizen Technical Details

| Characteristic                              | ACL for Tizen                                    |
|---|--|
| Installation Source                         | Downloaded from Tizen Store as TPK               |
| Upgrade Type/ Source                        | Tizen App Upgrade / Tizen Store                  |
| ACL TPK Package Size                        | Approximately 45 MB                              |
| Installation Time after Download            | ~10 sec  |
| ACL Launched at                             | Device Startup and/or launch of ACL-Enabled App  |
| Device Memory (RAM) Footprint               | Approximately <64MB (cache dumped)               |
| Device Storage Footprint (Zero Apps Loaded) | <100MB   |
| Process Types on Device                     | Tizen Native App Services, Automatic and daemon  |
| Supported Devices                           | Samsung Z1 and Tizen Reference Phone             |
| Tizen Revision Supported                    | Tizen v2.3 and 2.4                               |
| Android Version                             | Gingerbread and Kit Kat                          |
| Tizen Privileges Required                   | Varies based on Android App Permissions/Features |
| Licensing and user Acceptance               | ACL for Tizen custom EULA                        |

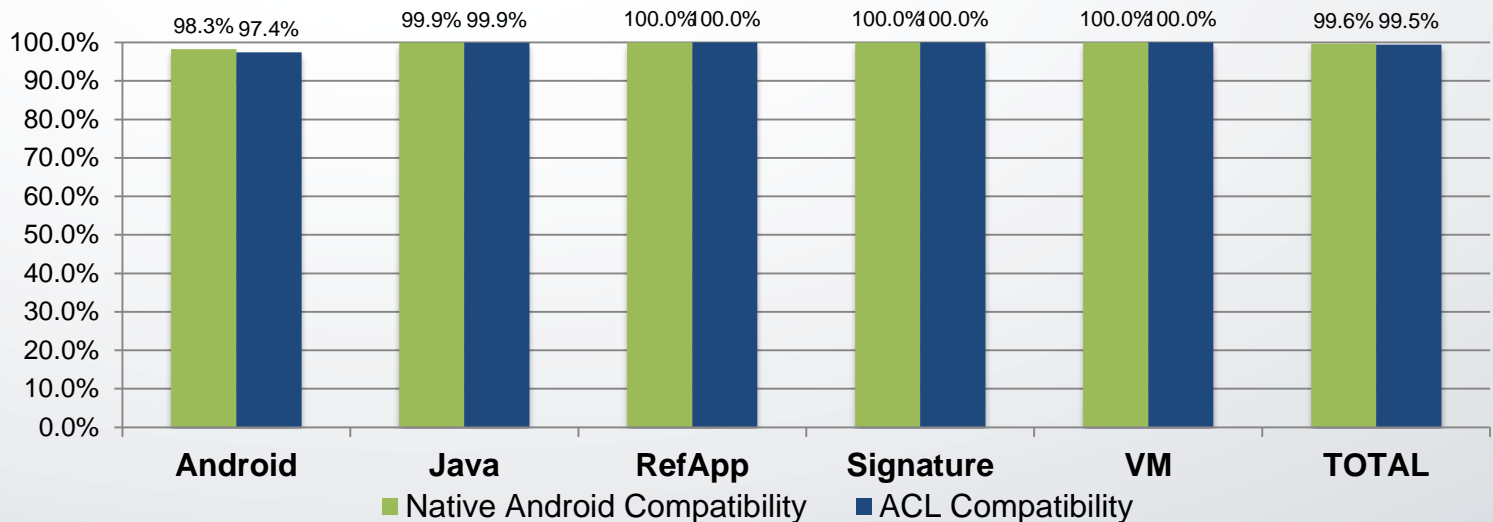
# ACL™ for Tizen Technical Details (Continued)

| Hardware & Software Features  | Supported By ACL for Tizen |
|---|----------------------------|
| Sensors (Accel, Tilt, Gyro, Ambient Light, Proximity)                   | Yes                        |
| Sensors (NFC, Barometer)  | No                         |
| Power Management  | Yes                        |
| Internal & External SD Card Sharing                                     | Yes                        |
| Gstreamer/Multimedia (Samsung–provided Codecs)                          | Yes                        |
| OpenGL/OpenGL ES Accelerated 3D Graphics                                | Yes                        |
| Light (Visible Indicator), Vibrator                                     | Yes                        |
| ARM and X86 Architectures   | Yes                        |
| Bluetooth   | Yes                        |
| Camera, Wi-Fi   | Yes                        |
| Telephony/SMS   | Yes                        |
| Device Settings   | Yes                        |
| Background Services   | Yes                        |
| Access/Integration with Tizen email, contacts, widgets, wallpaper, etc. | Most                       |

# ACL vs. Android CTS Tests

- ⊙ Android CTS tests run to analyze ACL's performance on a non-Android devices
- ⊙ ACL-powered device performed equal to the native Android devices, with the small exception of unsupported hardware – less than 1% difference from the native Android platform's compatibility with Android

## CTS Compatibility Results



# Application Compatibility Layer (ACL) Summary

- Software Technology from OpenMobile
  - Enables Android Apps to run on non-Android platforms
  - NO modifications to your existing APK
- Enables OEM's and Device Manufacturers to Break the App Barrier Immediately
  - Provides access to over 700,000 Android Apps
  - Runs on multiple OS and device platforms
- Enables App Developers to Leverage their Android App Investment
  - Gain a foothold in new App ecosystems while they develop native Apps



An abstract graphic on the left side of the slide. It features several overlapping, curved shapes with blue and white horizontal stripes. These shapes are surrounded by a trail of small, colorful dots in shades of blue, green, and dark blue, which appear to be falling or moving downwards from the striped shapes. The background is a light gray with subtle, concentric circular patterns.

# OpenMobile-Enabled App Ecosystem

## OpenMobile - How to Become a Developer Partner

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- Android developer registers on the OpenMobile Developer Portal
  - Completes registration form
  - Accepts click-through agreement, granting OpenMobile Tizen distribution rights
- A welcome email is generated and sent to the developer contact
  - Developer can login and manage their own account
    - Upload APK, screenshots, In-app Products, etc.
- OpenMobile QA team validates and submits Apps to Tizen for further testing
- App Developer is responsible for updating their APK when necessary.
  - Our suggestion is to update the same time you update to other Android stores
- OpenMobile manages the Tizen Store Seller Office relationship



- There are no upfront fees associated with becoming an OpenMobile partner
- OpenMobile's in-app billing technology allows for developers to increase revenue through the Tizen store
- For developers whose Apps support in-app billing, OpenMobile supports the industry standard revenue share model – 70/30 split
- For developers, who monetize through in-app advertising, the developer keeps 100% of that revenue
- If your app is free, there are no associated costs!

# OpenMobile App Validation Process

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- OpenMobile has created an App Validation Process
- Our QA Team ensures that apps pass store validation and will run on the target device(s)
- Providing users with the desired user experience
- Focus on:
  - Installs & launches properly
  - Display and resolution are correct
  - Major functionality operates properly
  - Terminates correctly
  - Uninstalls properly
  - Etc.



# Summary



# OpenMobile Summary

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- OpenMobile is a Strategic Partner of the Tizen Community
  - Ensures key apps are available to Tizen end users
  - Breaks the App Barrier
- Enabling Technology for Tizen Device Manufacturers
  - ACL for Tizen Provides Immediate App Availability
- Great Path / Bridging Strategy for App Developers into Tizen
  - No modifications or changes to the existing APK
  - Leverage Android App Investment
  - Gain Foothold in the Tizen Ecosystem
  - No Up-front charges for the APK to TPK conversion
  - No costs to the App Developer

- ACL Technical Advantages
  - Expanded sensor support
  - Tizen theming
  - Seamless install/invoke process with/from the Tizen Store
- App Validation process
  - Includes real humans running your app on Tizen platforms
  - Ensures that user experience is recreated
- Developer-Friendly Business Model
  - Lets you get started with no up-front costs
  - NO engineering resources – NO APK modifications!

# Next Steps for App Developers

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- Allow OpenMobile distribute your existing APK into the Tizen store
  - We will test and validate your App
  - We will handle all the administration with the Tizen Store Seller Office

For more information, please contact:

Matthew O'Keefe  
Director of Content  
Email: [mokeefe@openmobileww.com](mailto:mokeefe@openmobileww.com)  
Skype: [matt\\_okeefe\\_work](https://www.skype.com/people/matt_okeefe_work)  
Direct: +1.508.663.5792  
Mobile: +1.781.424.2522

THANK YOU!

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**Any App Anywhere!**

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