
Tizen Introduction

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What is Tizen

- ❑ Tizen is an open-source operating system based on
 - the Linux kernel and GNU C library
 - HTML5
- ❑ Tizen targets a wide variety of devices
 - Smartphones, tables, IVI (in-vehicle infotainment), smart TVs, wearable devices, home appliances, ...
- ❑ Tizen is a project governed by
 - A TSG (Technical Steering Group) within the Linux Foundation
 - Two major members of the Tizen association are Samsung and Intel



History of Tizen

- ❑ Tizen roots back to
 - the Samsung SLP (Samsung Linux Platform)
 - The LiMo (Linux Mobile) project
- ❑ Samsung's collaboration with the EFL project, and especially Carsten Haitzler, was known as LiMo for years
 - It was renamed Tizen when Intel joined the project in September 2011, after leaving the MeeGo project
 - A common misconception is that Tizen is a continuation of MeeGo
 - In fact, it builds on Samsung Linux Platform (SLP), a reference implementation delivered within LiMo



History of Tizen

❑ January 2012 & In 2013

- The LiMo Foundation was renamed Tizen Association
- Samsung merged Bada into Tizen



❑ October 2013

- Samsung's NX3000M smart camera was the first consumer product based on Tizen



❑ January 2015

- Samsung released Tizen-based Z1 smartphone to the Indian market

❑ September 2015 & In 2016

- Samsung released Tizen-reference phone TM1 and Tizen-based Z3 smartphone in Indian



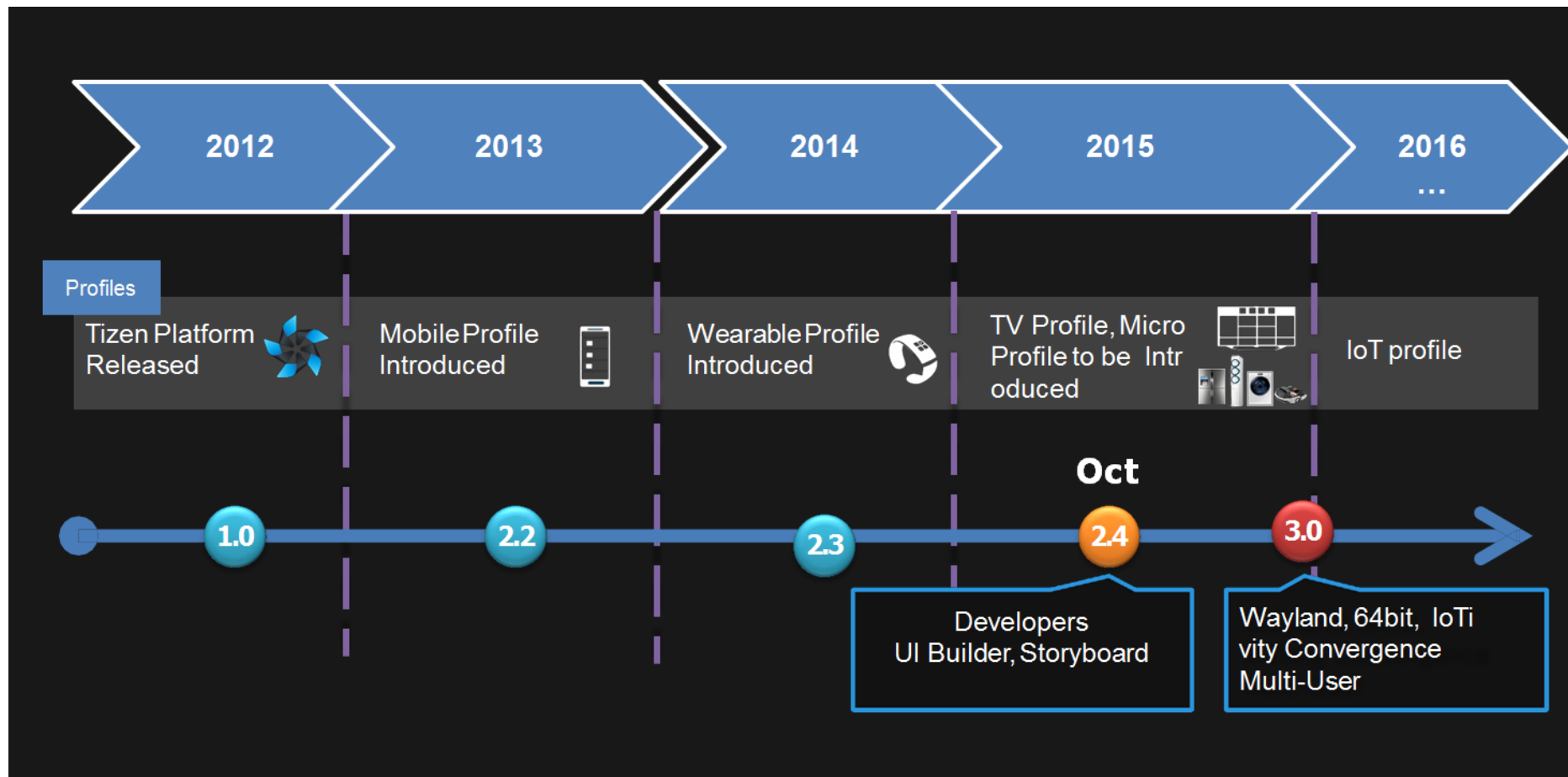
Tizen Feature

❑ Tizen leads all other mobile platforms in support of HTML5

- Highest on both html5test score and bonus points
 - 492 out of possible 500!
- Receives max bonus points of 16



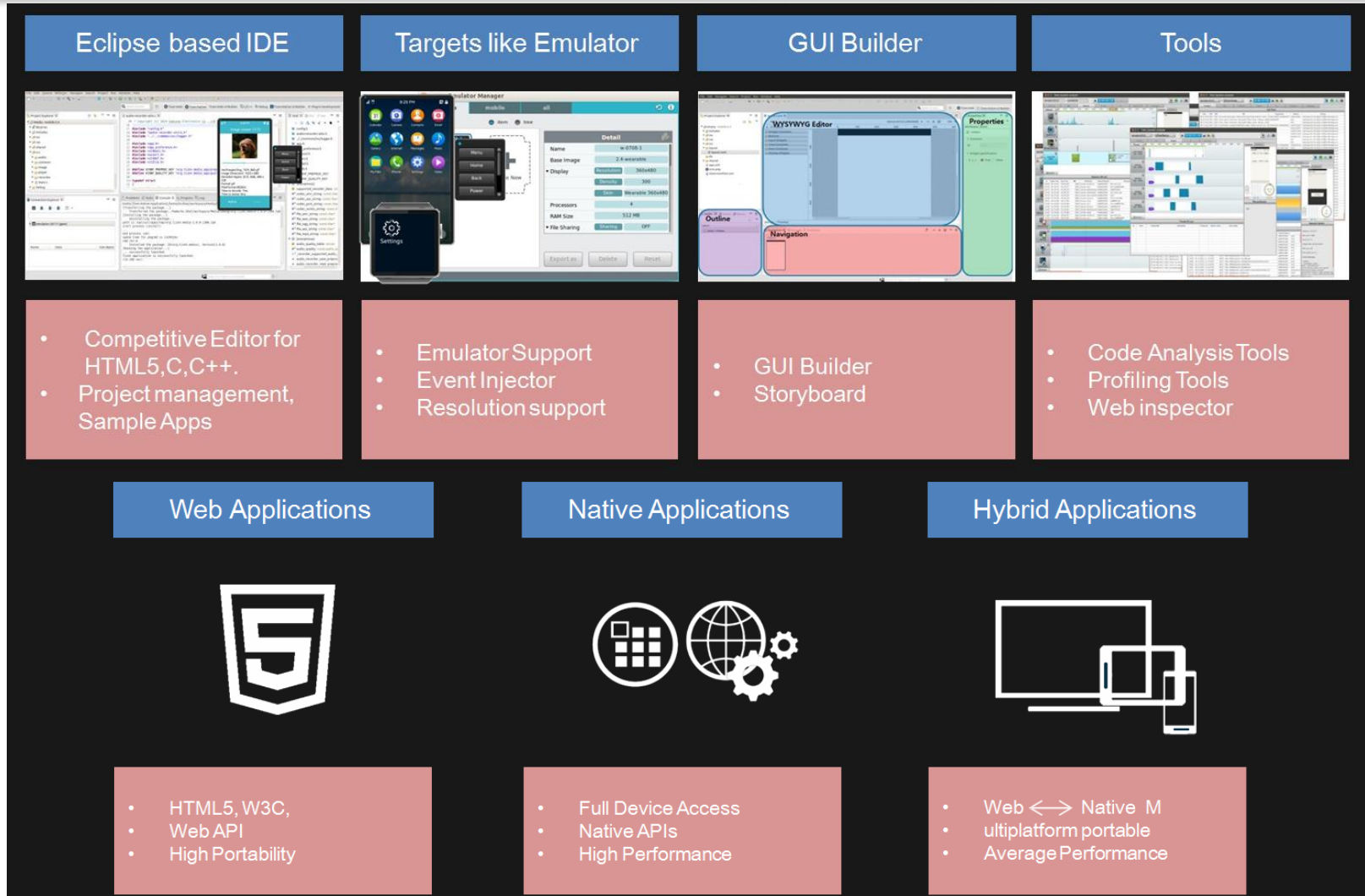
Tizen Mobile Profile Release History



Tizen 2.x Source Code and SDK Release

- ❑ **Tizen provides application development tools**
 - Based on the JavaScript libraries jQuery and jQuery Mobile
- ❑ **SDK (software development kit) supports HTML5 and related Web technology**
 - oFono is the telephony stack
 - Smack is utilized to sandbox HTML5 web applications
 - **Windowing system**
 - The X Window System with the Enlightenment Foundation Libraries
 - Wayland: Tizen up to 2.x supports Wayland in in-vehicle infotainment (IVI) setups and from 3.0 onward defaults to Wayland
 - **ZYpp was chosen as package management system (PMS)**
 - **ConnMan was chosen over NetworkManager**

Tizen 2.4 Source Code and SDK Release



Tizen Open Source Information

□ Visit

- <http://www.tizen.org>
- <http://developer.tizen.org/sdk>
- <http://source.tizen.org>
- <https://developer.tizen.org/documentation>

□ Community

- Mailing lists: <http://www.tizen.org/community/mailling-lists>
- Wiki: <https://www.tizen.org/community/wiki>
- JIRA: <http://bugs.tizen.org>
- Forums: <https://developer.tizen.org/ko/forums>

Source Code Management

❑ Git

- A particularly powerful, flexible, and low overhead version control system that makes collaborative development efficient and robust
- <https://review.tizen.org/git/>

❑ Gerrit

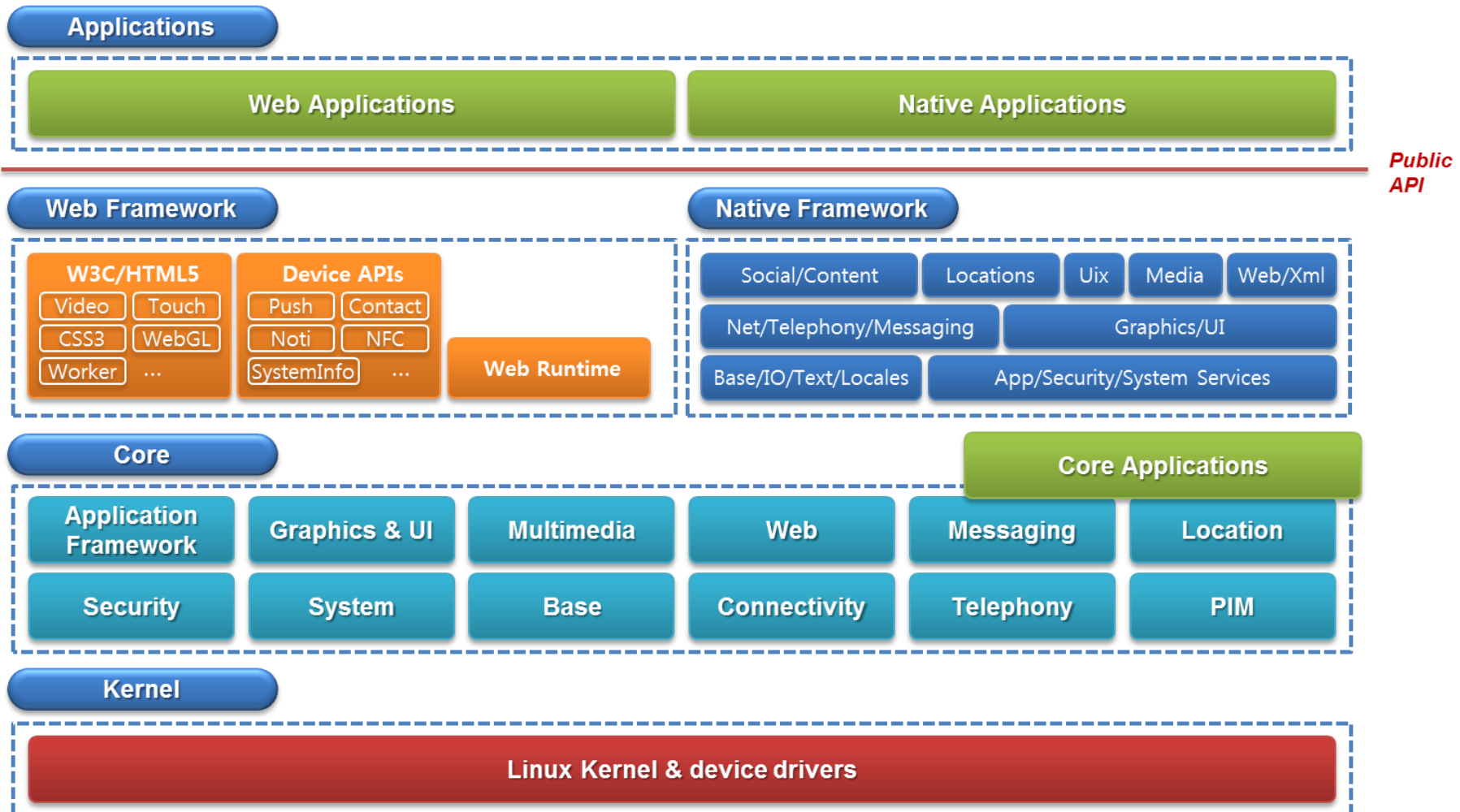
- A web-based code review system, facilitating online code reviews for projects using Git version control system
- Gerrit optimizes the code review process, enhancing review quality
- Gerrit simplifies the maintenance of the Gitbased projects, enabling a more centralized use of Git
- <https://review.tizen.org/gerrit>

Tizen OS Bug Tracking

- ❑ Tizen uses JIRA to track bugs and to gather feature requests
 - <https://bugs.tizen.org/jira/secure/Dashboard.jspa>

- ❑ Developers need a Tizen account created to
 - Add a new bug
 - Comment on an existing bug
 - Submit a patch to fix bug
 - To work on Tizen bug reporting and tracking, a set of guidelines are defined
 - <https://www.tizen.org/community/guidelines/bug-guidelines>

The Tizen Architecture (~ v2.2.1)



The Tizen Architecture (~ v2.2.1)

❑ Web framework

- Provides state-of-the-art HTML5/W3C APIs, Web UI framework, supplementary APIs, and additional Tizen device APIs

❑ Native framework

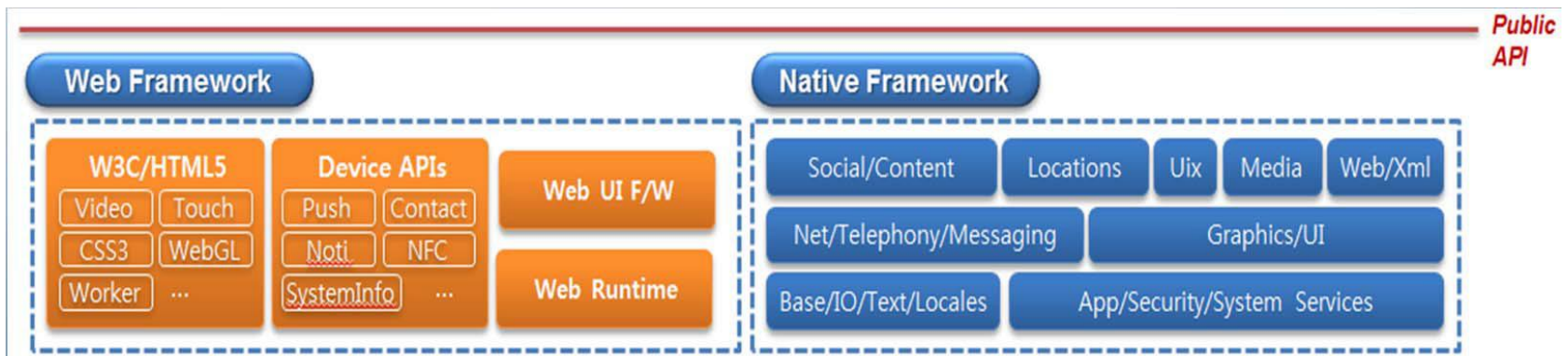
- Supports full-featured native application development and provides a variety of features like background service, image and face recognition, and TTS/STT

❑ Core

- Underlying layer for Web and native providing common functionalities and a security mechanism
- HW adaptation layer with plug-in architecture
- OpenGL® ES/EGL graphics driver

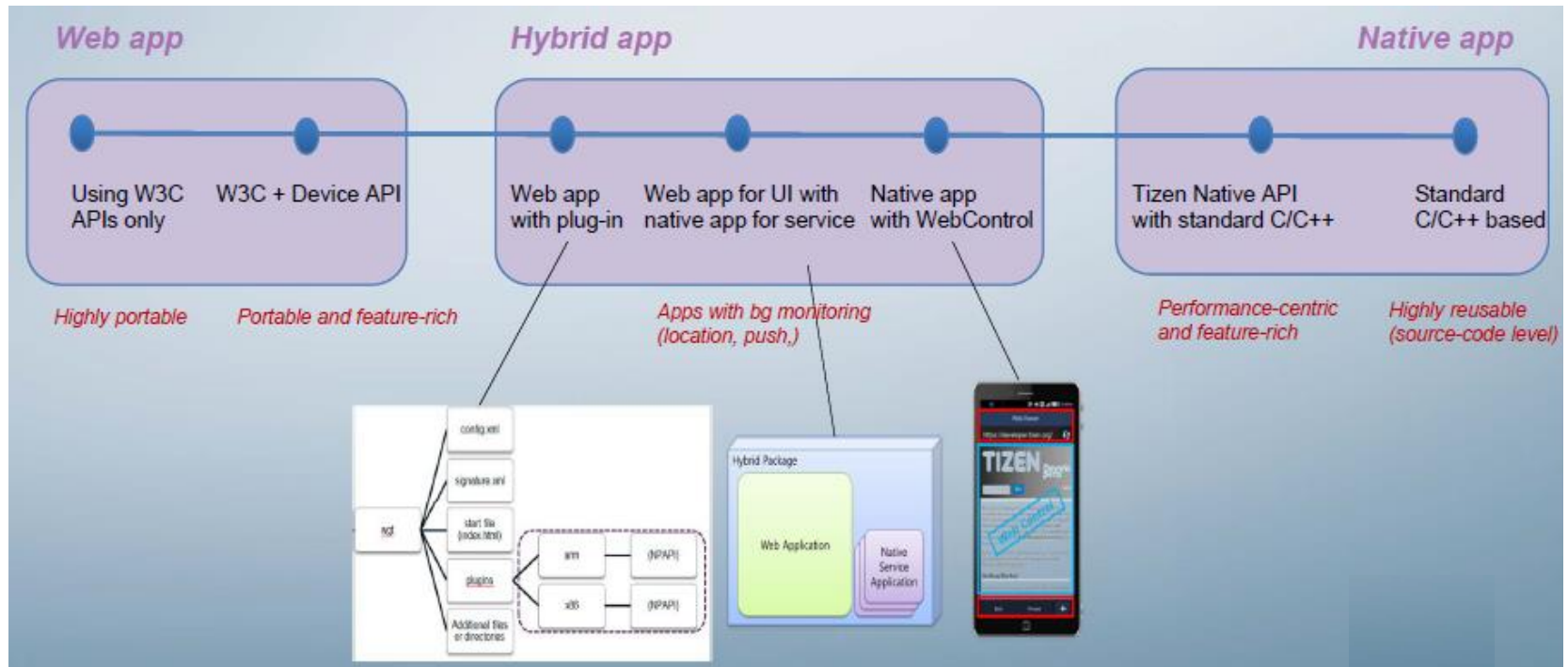
Web vs Native Framework

- ❑ Native and Web frameworks are complementary to each other
 - Web is strong in portability, ease of app development, and has a minimal learning curve
 - Native is relatively better in terms of performance and memory consumption
 - Native enables reusing the existing engine and libraries written in C & C++ in app development



Web vs Native: Mix & Match

- ❑ Different combinations for mixing Web and native, depending on the characteristics or requirements of the app to be developed



Native Framework vs Code

- ❑ Both are native in nature but focusing on different aspects
- ❑ Core focuses on:
 - Providing common functionalities to Web and native frameworks
 - No need to guarantee app binary compatibility (ABC)
 - Performance and power optimization
- ❑ Native framework focuses on:
 - Application development productivity while guaranteeing ABC
 - Well-documented API references, developer guide, sample codes, and associated tools

Application Types

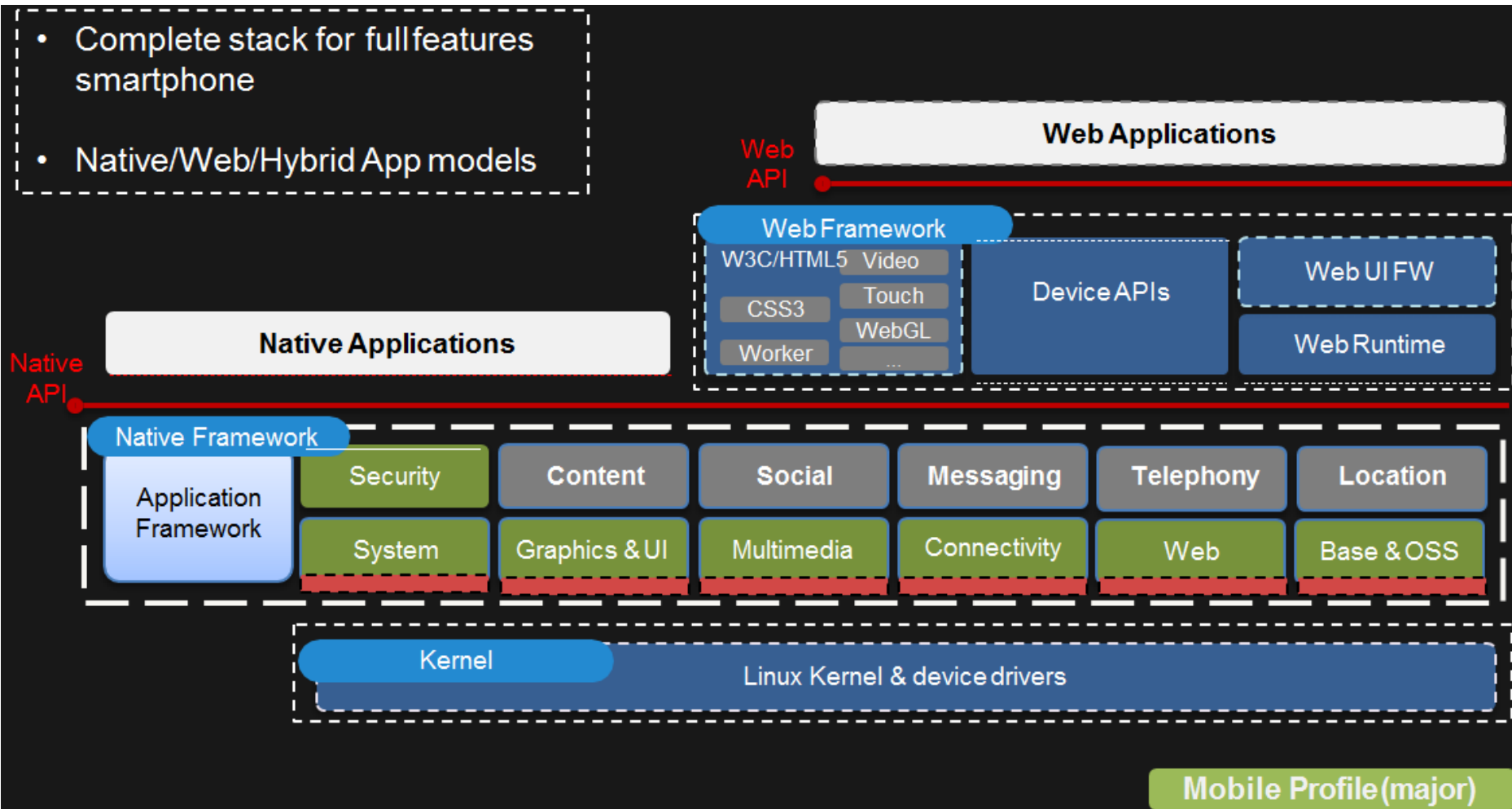
☐ Web and native applications

- Apps using only public APIs to get full support for package installation and upgrade, security, backward compatibility, and so on
- Many sample apps included in the SDK

☐ Core applications

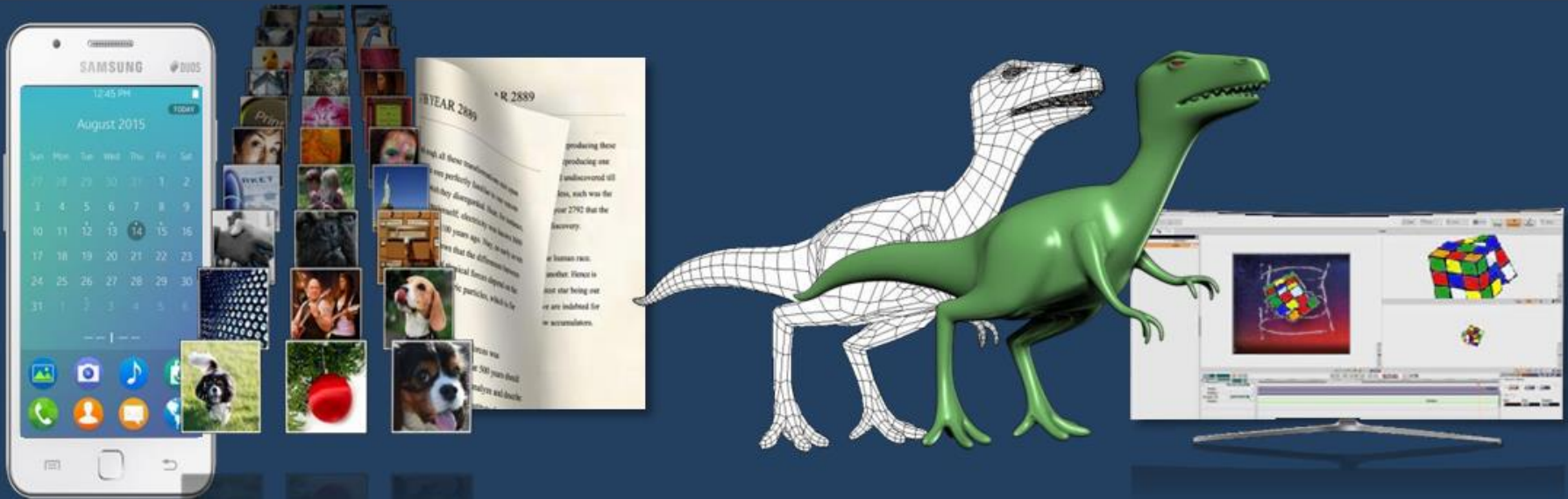
- Apps using Core APIs to fully utilize device capabilities such as telephony
- Usually implemented and preloaded by device implementers
- Backward binary compatibility is not guaranteed

The Tizen Architecture (v2.4 ~)



Tizen 2.4 –Enhanced Features

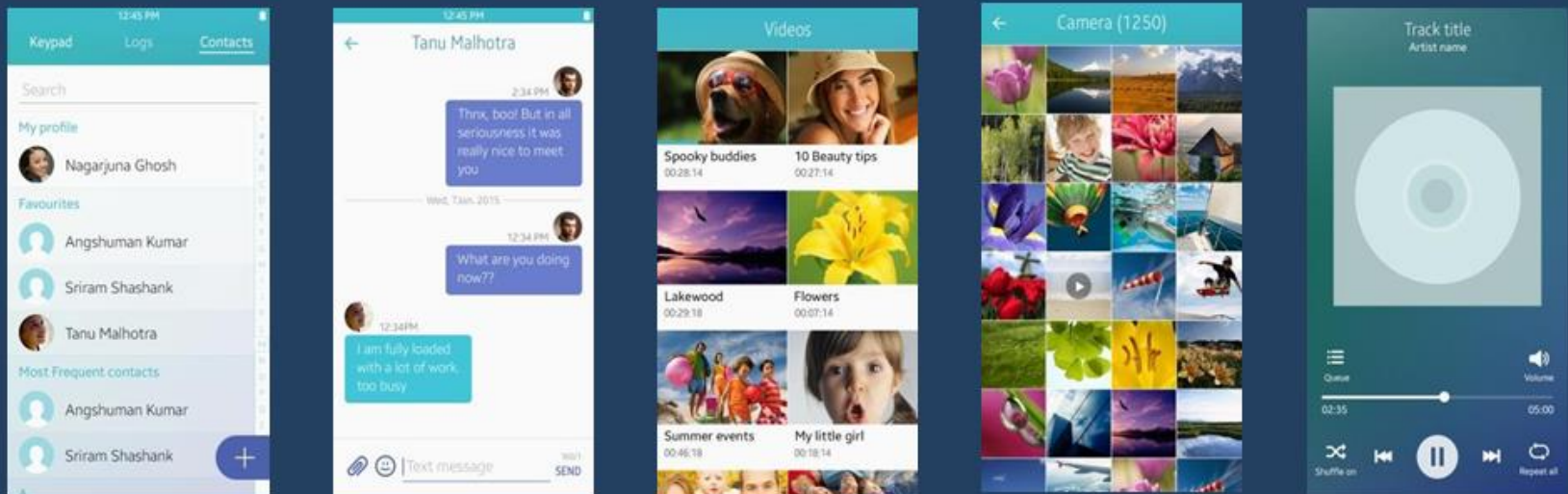
DALi 3D Ui Editor and Engine



- ✓ Allows 3D object rendering with ease.
- ✓ DALi provides built in effects like page turn, particles , gaussian blur etc.

Tizen 2.4 –Enhanced Features

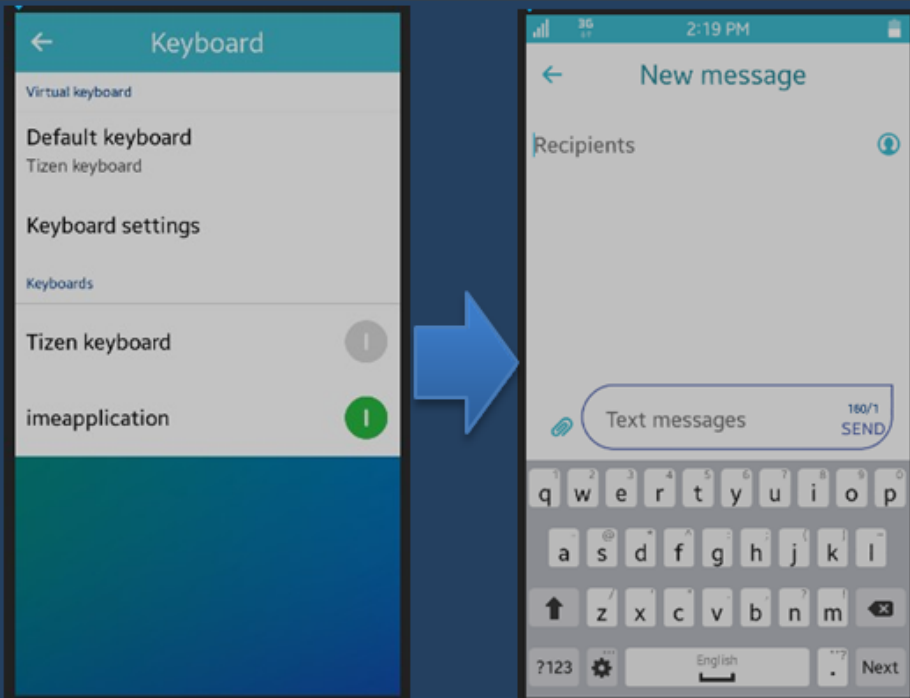
AIR UX



- ✓ New UI Design philosophy in Tizen enables more user friendly and intuitive UX.
- ✓ Provides a rich and fulfilling UI experience.

Tizen 2.4 –Enhanced Features

Native & Web IME API



- ✓ For 3rd party keyboard developers
- ✓ Allows creating custom keyboard

Sync Manager



- ✓ Allows to schedule sync requests
- ✓ Option for periodic and on-demand sync.