

A Review on 'Tizen: An Open Source Platform for Creating Mobile OS'

Ashish Agrawal

M.Tech.(S.E.)*
SRMS CET, Bareilly

Sadhana Singh

M.Tech.(S.E.)*
SRMS CET, Bareilly

Malay Tripathi

M.Tech.(S.E.)*
SRMS CET, Bareilly

ABSTRACT

This is the era in which mobile computing and its open sources becoming a better part of our life. So be detached and be solitary from these technology is not good because we can't promote and advance ourselves for the forthcoming period. For enlightening and enhancing the knowledge, we are writing this review paper on Tizen which is mainly an industrial effort to create and expedite new, open and flexible mobile operating systems Its intense flexibility gives weapon to operators, OEMs (Original Equipment Manufacturers) and developers to create their desired services and business models to show themselves more advance and global in-front of customers.

General Terms

Tizen, OS, Mobile applications.

Keywords

Tizen, Tizen SDK, open source

1. INTRODUCTION

Tizen is a crisp, strong name that matches the scope and capabilities of these new open source operating systems. The name was created by combining the connectivity of "tie", the activity of "rise" and the meditative qualities of "zen". It shows that system works with and for you to give desired results [1]. It is expected to be based on 3S rule which means it is swift, simple and supportive in nature to create and support new off springs.

Tizen was developed to provide these facilities:-

1. An open source that support completely flexible UX design.
2. OEM's can build flexible business model to enhance features in their ongoing products to satisfy various consumer demands
3. HTML5 supported and ensures great user satisfaction of Tizen device users.

Tizen is an open source, standard based, cross architecture software platform for multiple categories initially focusing on smart phones, tablets and automotive infotainment, with other consumer electronic device envisioned moving forward^[1]. The advantage of being open source is manufacturers can deploy the platform on their products easily new features/services can be added without breaking [given the software complies to platform standards] ^[5]. Current members of Tizen association are operators, OEM's, NTT DOCOMO, orange, Samsung and Vodafone etc.

2. Tizen Release History [2]

Tizen 1.0 (April 2012) Larkspur-Web centric platform

1. Highest HTML5 coverage
2. Tizen Device Web API
3. Web UI framework (jQuery Mobile based Extension)

Tizen 2.0 (February 2013) Magnolia - Web/native dual framework

1. Native API
2. Unified SDK for Web and native
3. Web Runtime based on WebKit2
4. Web Audio, HTML Media Capture
5. HTML Drag & Drop, Clipboard API

Tizen 2.1 (May 2013) Nectarine- Readiness for commercialization in terms of stability & maturity

1. Hybrid Web and native app support
2. Content security policy
3. Trusted inter-app sharing
4. Account management
5. QR code and image recognition
6. System replacing init daemon

3. Comparison between Tizen 2.0 and Tizen 2.1

Features of Tizen 2.0 [1]

1. Built-in Application Highlights

- Home/Lock Screen with a notification area (pull---down menu), movable icons, customizable wallpapers and support for up to nine panels.

- Contacts application integrated with other applications such as dialler and email. Support for contact sharing over Bluetooth, SMS and email.
- Dialler can initiate a call from the dial pad, contacts, or history. Dialler also supports call barring/rejection (with message back to caller), speed---dial, multiparty call, DTMF and USSD.
- Messaging support for SMS and MMS. Common email protocols and spams filtering.
- High---performance Web Browser with hardware---accelerated CSS.
- Leading HTML5 compliance, customizable security settings, and integrated media support.
- Search across contacts, mails, calendar, applications and media metadata.
- Calculator with standard functions (portrait) and advanced functions (landscape).
- Calendar with integrated to do list, year/month/week/day/list view, links to email and contacts, and vCal import/export support.
- **Clock** with alarm, timer/stopwatch, support for multiple world clocks and automatic/manual location setup.
- Text and draw **Memos**. URL links and phone numbers are clickable. Memos can be transferred via email/message.
- **Gallery** handles both videos and pictures, and supports tags, favourites, sharing, basic manipulation (crop/rotate/zoom), and slideshow.
- **Music Player** has views for album, artist, composer and genre. Playlist support with automatic most played and recently played/added lists.
- **Internationalization** support for 43 display languages and 36 input languages.

2. Platform Core Highlights

- Basic SMS, MMS and email functionality, including push notifications.
- GPS, WPS and CPS location support. Geo-coding, POI and route search feature support.
- Power---saving mode, Sensors (accelerometer, geomagnetic, light, proximity and motion).
- Bluetooth, tethering, NFC and WiFi connectivity.
- Radio interface layer to modem software, call management and emergency services.
- Create/Retrieve/Update/Delete contacts, vCard 3.0 and vCal 1.0 support.
- Application switching, task killer and application launch control.

3. Developer API Highlights

- HTML5/W3C APIs, Web UI Framework (full screen, multi---windows, built---in widgets),

Web Runtime(native/hybrid support, device API access), Tizen APIs.

Features of Tizen 2.1^[6]-

- Enhanced web framework that provides state of the art HTML5/w3c API support including new features such as content security policy1.0 and navigation timing and relevant specification updates.
- Web Dynamic box runtime framework supporting the embedding of web dynamic box in viewer like applications (e.g. Home screen applications).
- Enhanced web IDE providing WYSIWYG (what you see is what you get) design environment, chrome based java script inspector and java script log viewer.
- Native IDE providing a project wizard , WYSIWYG design environment , unit test tool and dynamic analyser.

4. Tizen Architecture

The architecture of Tizen platform is shown in fig.1 and can be explain as the Web framework provides state-of-the-art HTML5/W3C APIs, Web UI framework, supplementary APIs, and additional Tizen device APIs. The Native framework supports full-featured native application development and provides a variety of features like background service, image and face recognition, and TTS/STT. The **Core** underlying layer for Web and native providing common functionalities and a security mechanism.

Native Framework and Core both are native in nature but focusing on different aspects Core focuses on providing common functionalities to Web and native frameworks and performance and power optimization and the Native framework focuses on Application development productivity while guaranteeing ABC and well-documented API references, developer guide, sample codes, and associated tools. Web and native applications uses only *public* APIs to get full support for package installation and upgrade, security, backward compatibility, and many sample apps included in the SDK. The Core applications *use Core APIs* to fully utilize device capabilities such as telephony and usually implemented and preloaded by

Device implementer's backward binary compatibility is not guaranteed. Fig.2 shows Tizen SDK in terms of S-M-A-R-T which is specialization, multiplicity, all in one, richness and technology.

5. Conclusion

Though Tizen is open source, cross architecture based platform; it is highly usable and portable in today's mobile environment. As Tizen not only focuses on tablets and smart phones but also on other electronic devices, this can be used for long term goals of organizations. Many versions of Tizen have been released and some are in row. Researchers from the field of mobile computing, operating systems can focus on this current developing application. In present this is available with HTML5, OLE etc. but in future Tizen may work with other technologies also.

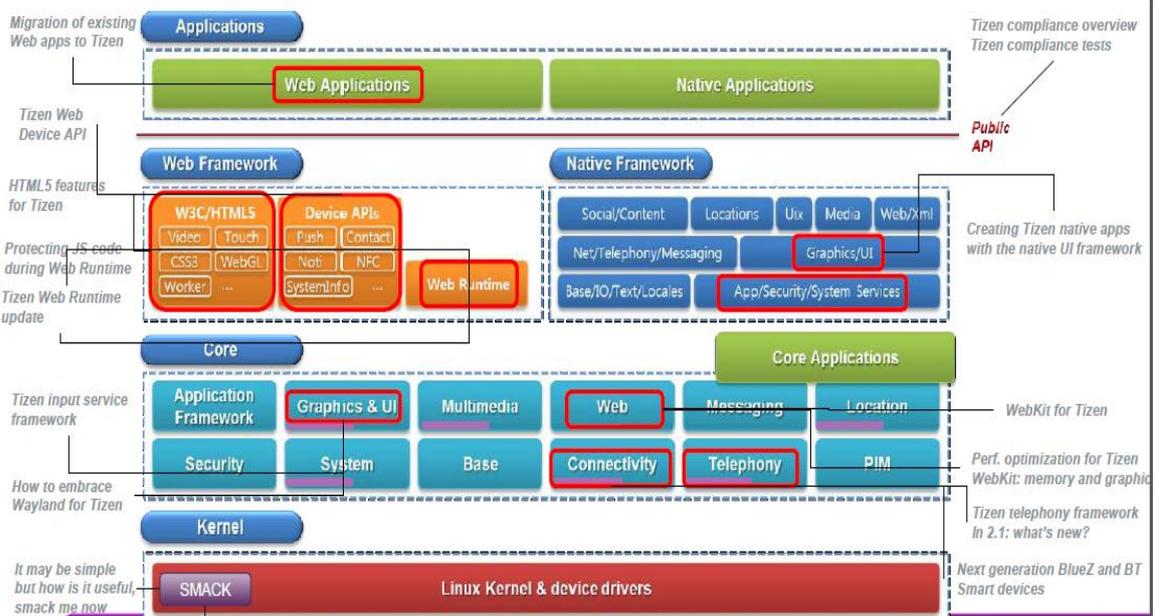


Fig 1: Tizen Architecture

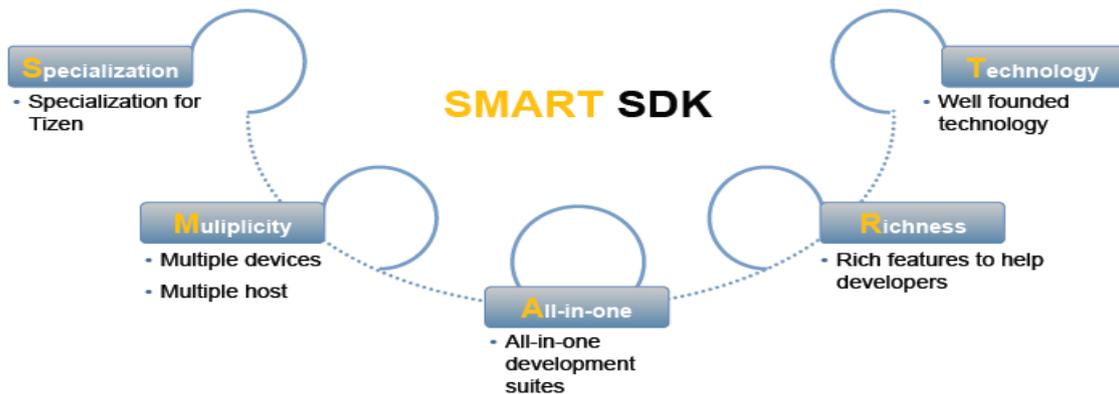


Fig. 2: Tizen SDK in terms of S-M-A-R-T [3]

6. ACKNOWLEDGMENTS

We are really thankful to God, our family members, friends and for making things possible. We also thank our seniors for their guidance.

7. REFERENCES

- [1] https://www.tizenassociation.org/PDF/Tizen_FAQ_02_24.13.pdf
- [2] https://dockr.eurogiciel.fr/blogs/embedded/wp_content/uploads/sites/2/2013/06/tizen_architecture_solutionlinux.pdf
- [3] https://www.tizen.org/sites/default/files/tizen_sdk_introductionlinuxsummit.pdf

[4]www.w3c.or.kr/Events/html5_asia/1-2.pdf

[5]https://events.linuxfoundation.org/images/stories/pdf/lceu2012_haitzler.pdf

[6]<https://www.tizen.org/blogs/tsg/2013/tizen-2.1-sdk-and-source-code-release>

IJSHRE