



Connecting with Tizen : An Overview & Roadmap

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What is Tizen?

Why Tizen?

Device profile

Tizen 2.4

Tizen 3.0

What's next?

Conclusion

What is Tizen? (1/2)

Designed for various category of devices



A completely open source software platform



What is Tizen? (2/2)

Strong product line

Core platform of 'Internet of Things'



Why Tizen?

Developer friendly Tizen Store



Game Development Support

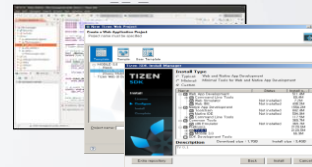


Rich Multimedia, UI Support



YouTube

Strong Development Environment,
Supported by SDK



Different Application Types



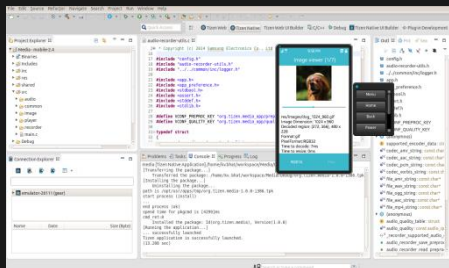
Performance



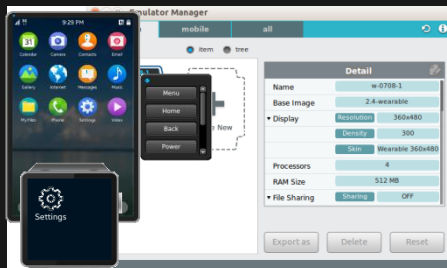
Why
Tizen?

Why Tizen? : Powerful SDK

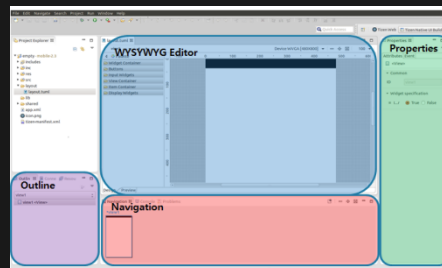
Eclipse based IDE



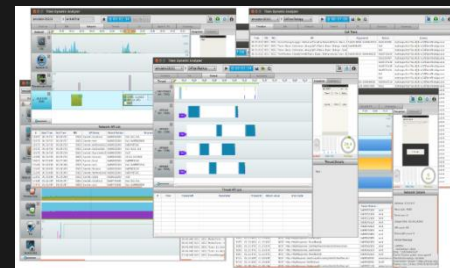
Targets like Emulator



GUI Builder



Tools



- Competitive Editor for HTML5,C,C++.
- Project management, Sample Apps

- Emulator Support
- Event Injector
- Resolution support

- GUI Builder
- Storyboard

- Code Analysis Tools
- Profiling Tools
- Web inspector

Why Tizen? : App models

Web Applications



- HTML5, W3C,
- Web API
- High Portability

Native Applications



- Full Device Access
- Native APIs
- High Performance

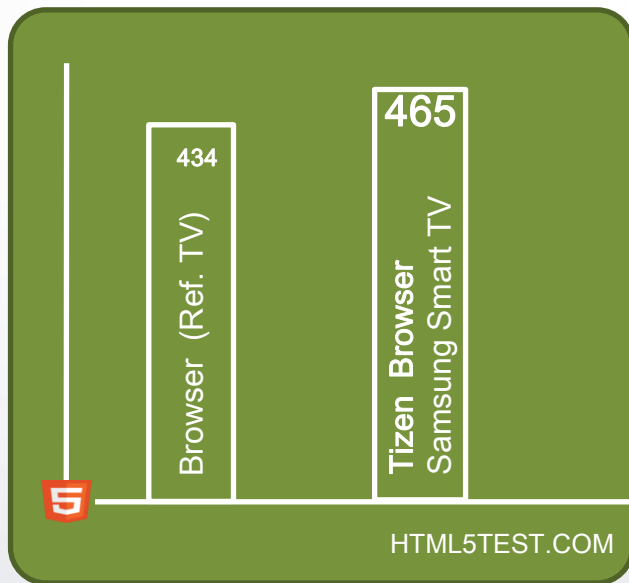
Hybrid Applications



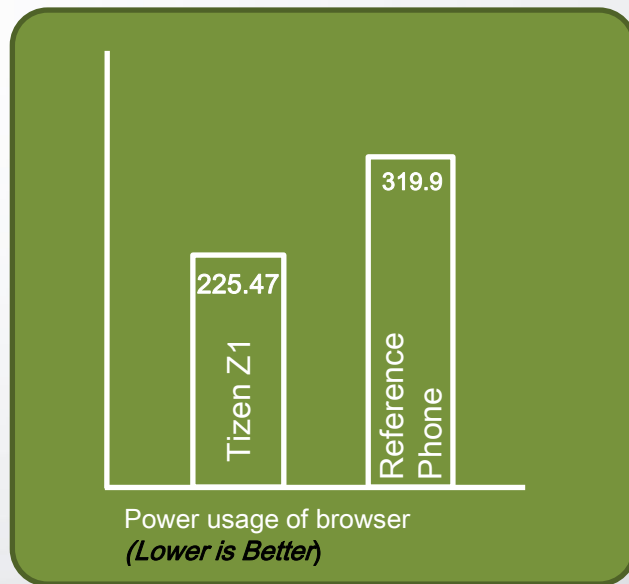
- Web ↔ Native
- Multiplatform portable
- Average Performance

Why Tizen? : Web support

- Tizen Browser has best HTML5 support and power usage



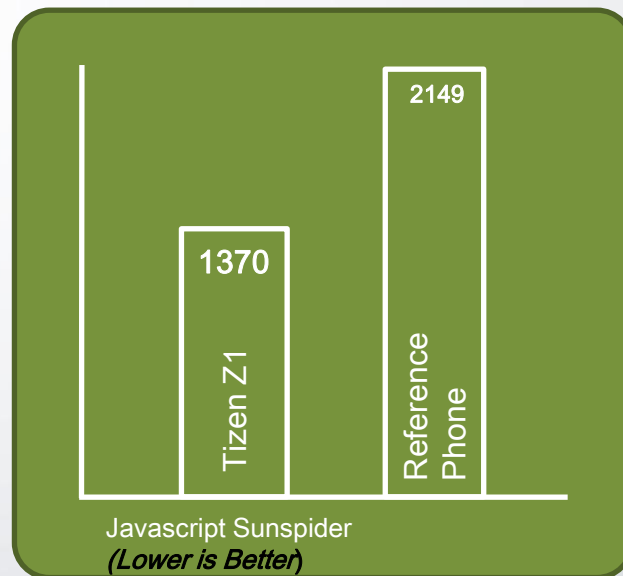
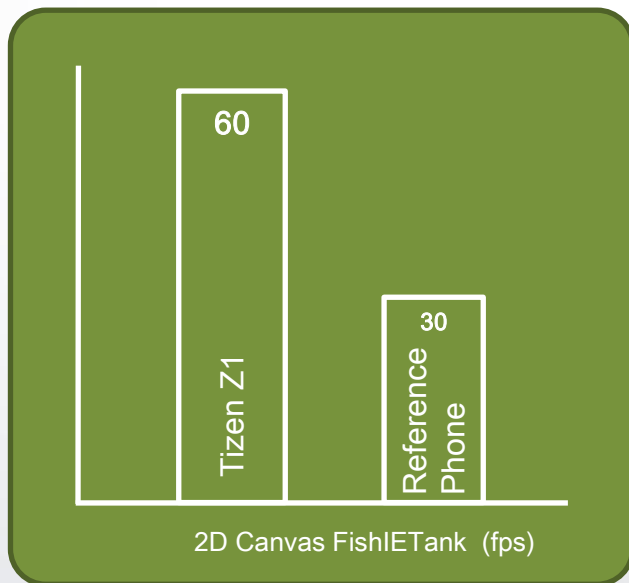
Best among all Smart TVs
Reference TV with same spec



^ Reference Phone with same spec

Why Tizen? : Web support

- 2D Canvas and Sunspider Benchmark-



* Reference Phone with same spec

Why Tizen? : Best 2D/3D graphics

- 2D Graphics: Cairo H/W Acceleration
- 3D Graphics: WebGL support



2D Canvas perf. score

3.49

2.80*

WebGL (Aquarium : fps)

60

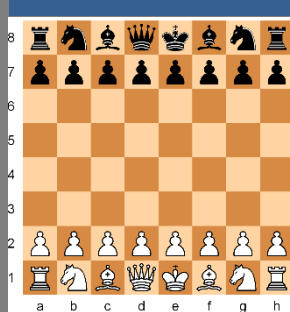
28*

* Stock Browser @Reference device

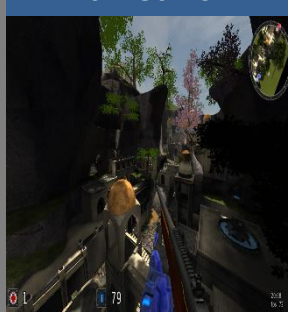


Web Game Applications

2D Game

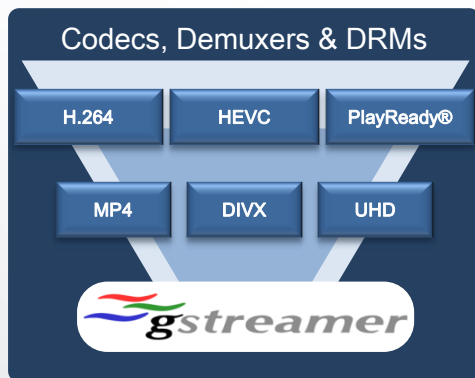


3D Game



Why Tizen? : Rich Multimedia support

- High Quality Video Playback based on Plug-in Architecture
 - Play almost every media formats without transcoding
 - Rich media support for Browser and web applications



Why Tizen? : Multiple Game Engine Support



Full List

https://wiki.tizen.org/wiki/Game_development

Why Tizen? : Tizen Store

- Single app store for multi profile devices
- Developer friendly Tizen Store Seller Promotion
- Available in 182 countries.



An abstract graphic on the left side of the slide. It features several triangles of varying sizes, some with blue and white horizontal stripes and others with solid white. A trail of small, colorful dots (blue, green, and purple) starts near the striped triangles and extends towards the bottom center of the slide. The background is a light gray with subtle, concentric circular patterns.

Tizen Device Profiles

Device profile

- Profile is a device specific extension to Common Platform
- Common Platform is common in all devices
- Profile has device specific optimizations.
- Mobile and Wearable profiles are released, TV profile is ready
- Refrigerator, IoT, and other profiles will be released in future.



Device profile – device specific optimization

Mobile



Telephony & Messaging Services



Rich Connectivity, Location service



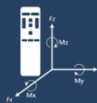
Touch Navigation



Sensors

Rich Connectivity
Battery Consumption

Wearable



Gesture Controls, Health Care



Host device connected services



Simplified UX, Voice Recognition

Low Form factor
Health Sensors

TV*



Broadcast & Secured A/V Play



TV A/V inputs & I/O devices



Focus Navigation, Web Controls

Big Screen Display
Home Center

IoT**



Intelligent N/W abstraction



Device to Device communication



Intelligent Convergence Services

Networking of Things
Intelligent Sensors

* TV profile will be released in Tizen 3.0

** IoT framework will be released in Tizen 3.0

Device profile – Mobile profile



Mobile

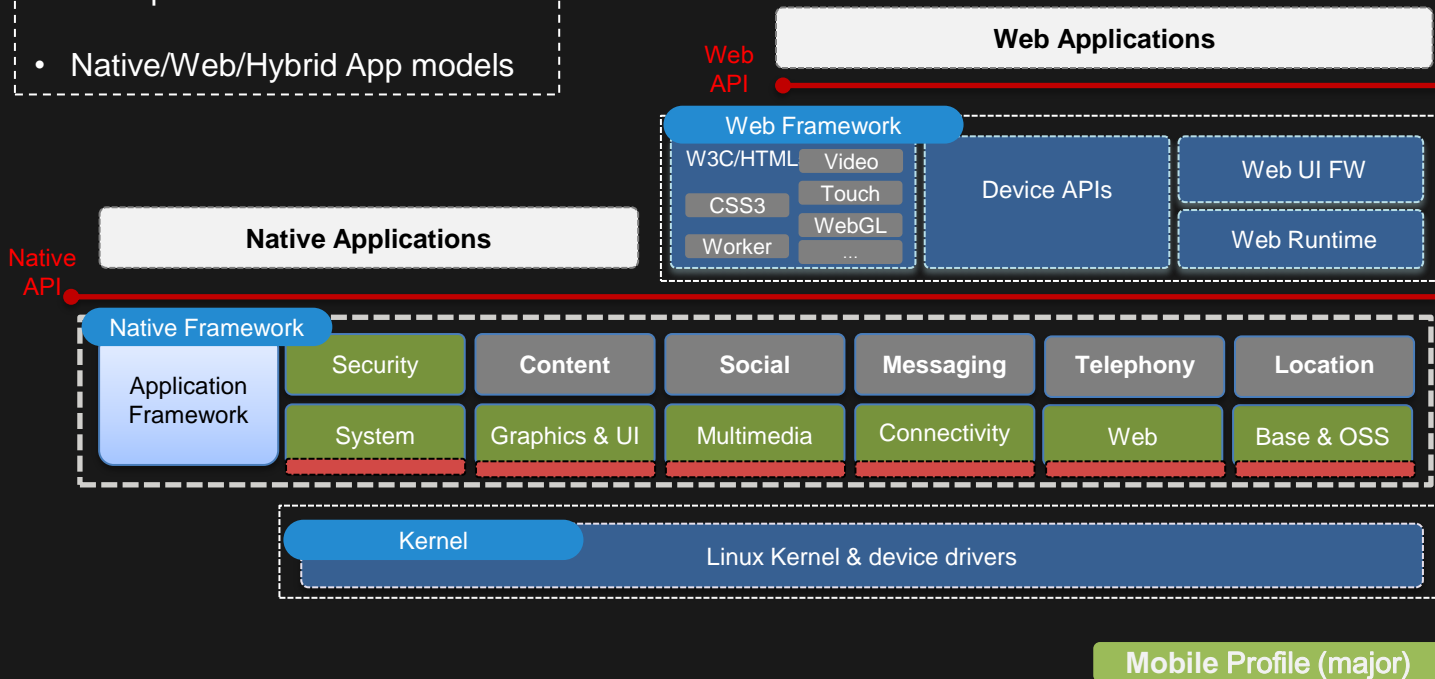
- Complete stack for full features smartphone
- Native/Web/Hybrid App models



Wearable



TV



Device profile – Wearable profile



Mobile

- Dual App Model
 - ✓ Companion (Host-Dev)
 - ✓ Standalone (Dev)
- Context awareness / Sensor enhancement
- Slim down profiles

Web API

Web Applications

Web Framework

W3C/HTML

Video

CSS3

Touch

Worker

WebGL

...

Device APIs

Web UI FW

Web Runtime

Preloaded Native Applications

Native API

Wearable

Slim Profile

Native Framework

Application Framework

Web

Context

Host Conn.

Base & OSS

Multimedia

System

Connectivity

Graphics & UI

Kernel

Linux Kernel & device drivers

Wearable Profile

TV

Device profile – TV profile



Mobile

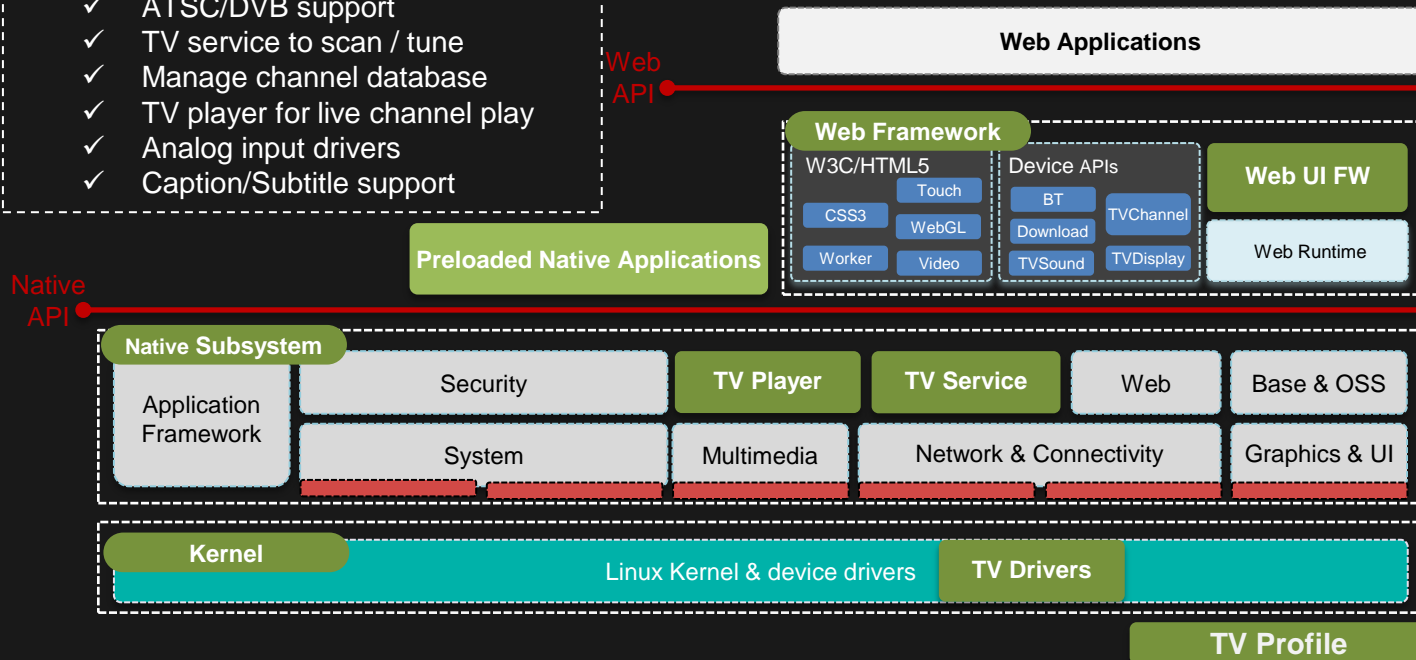
- Well established TV service and TV player
 - ✓ ATSC/DVB support
 - ✓ TV service to scan / tune
 - ✓ Manage channel database
 - ✓ TV player for live channel play
 - ✓ Analog input drivers
 - ✓ Caption/Subtitle support



Wearable



TV



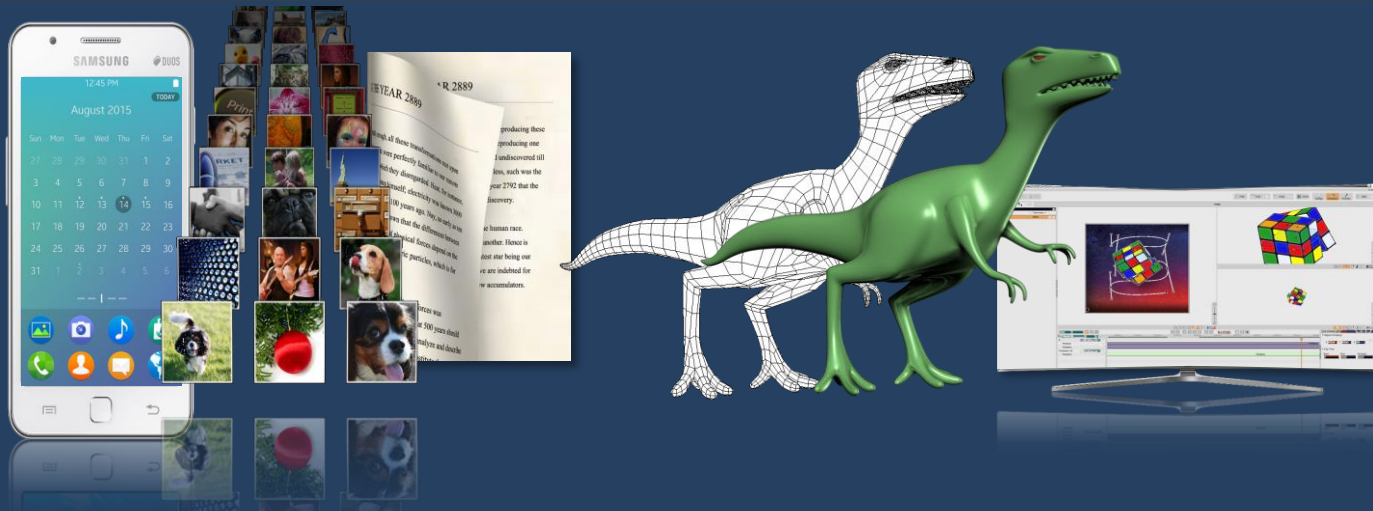
* EPG – Electronic Program Guide



Tizen 2.4 | Enhanced Features

Tizen 2.4 - Enhanced Features

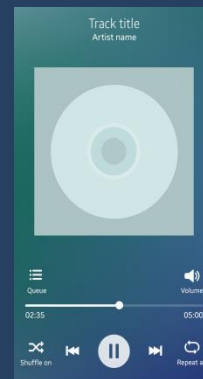
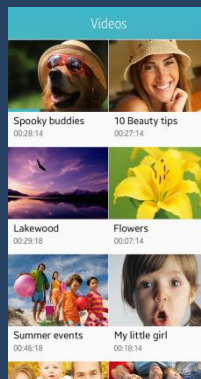
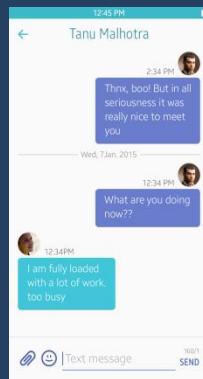
DALi 3D Ui Editor and Engine



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

Tizen 2.4 - Enhanced Features

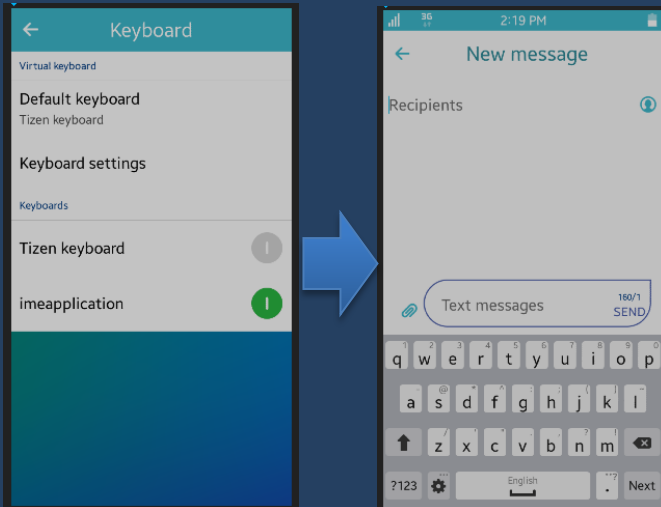
AIR UX



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

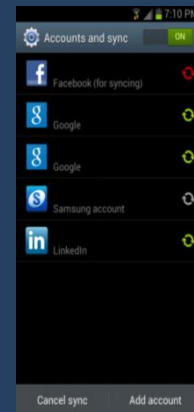
Tizen 2.4 - Features

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.



Tizen 3.0 Overview

Tizen 3.0 - overview

- Better performance through Wayland and KDBus
- Restructured to support Multi-user and 64-bit CPU
- 3 domain SMACK based new security architecture
- Chromium and Crosswalk
- Iotivity and IoT framework

Web

Crosswalk

3.0 Web API

Chromium-efl

3.0 Native API

UI

UI widgets

EFL

Theme

AT-SPI2

DALi

E19 Wayland

OpenGL ES

MM

Broadcast
Middleware

Screen
Mirroring

PulseAudio

Gstreamer

System

Launcher

DBus

Package
Manager

Deved /
Resourced

Lifecycle
management

Murphy

Buxton

Systemd

Security

Login
management

User
management

Security
Manager

Cynara

Context

Interaction
FW

Location FW

Context FW

Sensor FW

Connectivity

Iotivity

Connman

WiFi

WiFi Direct

BT FW /
BlueZ

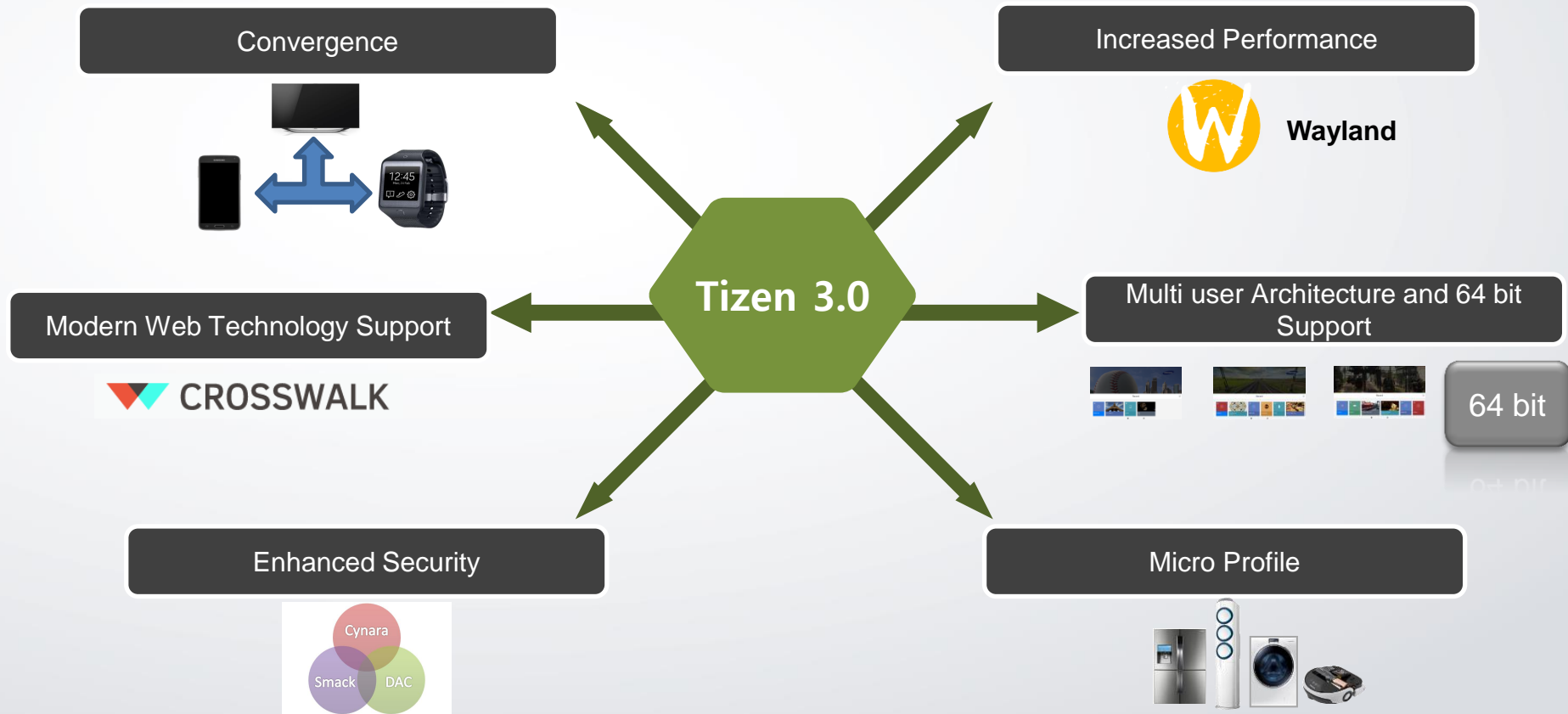
Telephony

Linux Kernel

SMACK

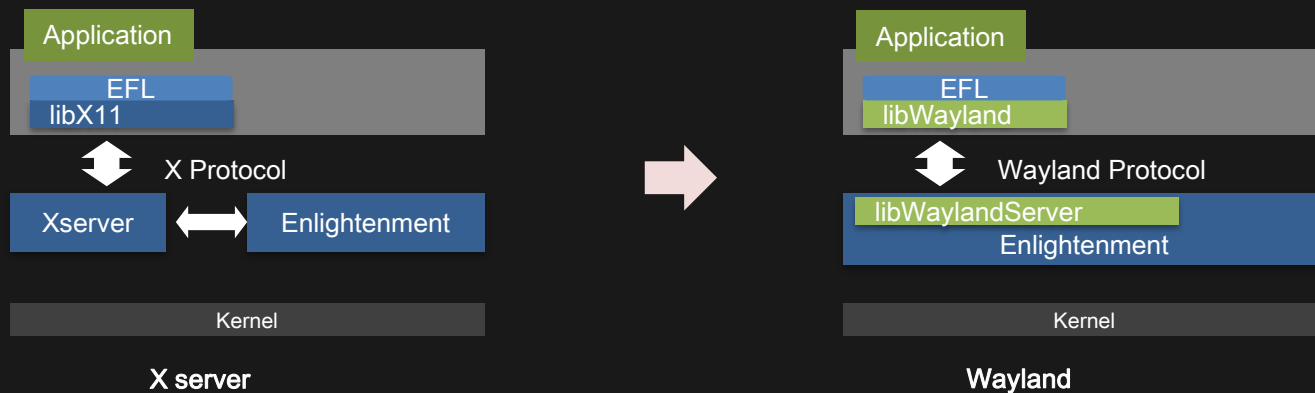
KDBus

Tizen 3.0 – What it Offers



Tizen 3.0 - performance

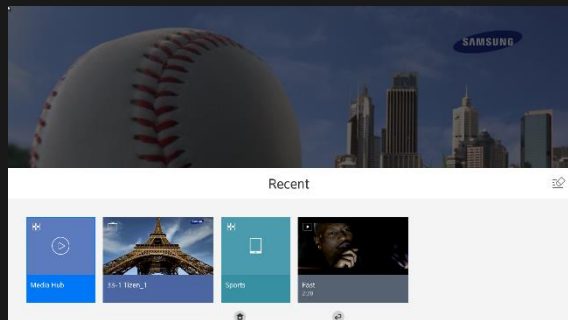
Better performance through Wayland



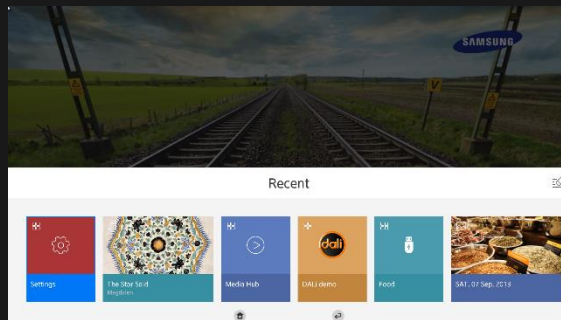
More than 30% improvement in response time and computation efficiency

Tizen 3.0 – multi-user architecture and 64bits

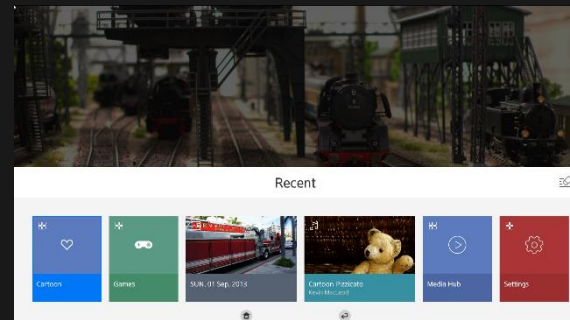
User contents will be protected by multi-user architecture
(easy personalization)



<dad>



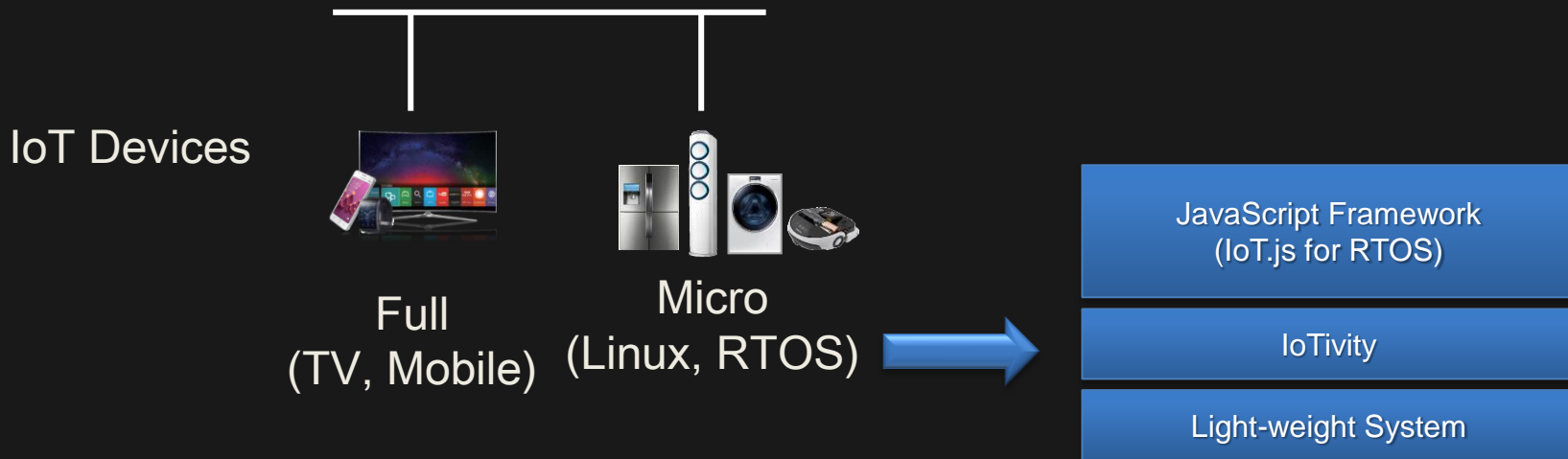
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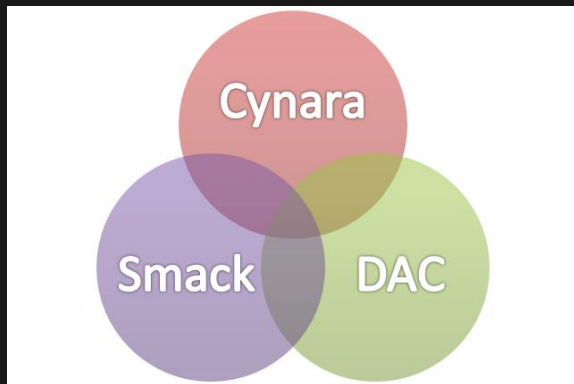
Tizen 3.0 - Micro Profile

- Targeting Devices With Connectivity But No Display
- Minimized Profile With Device Common Features & Programmable App (JS-based) Supporting

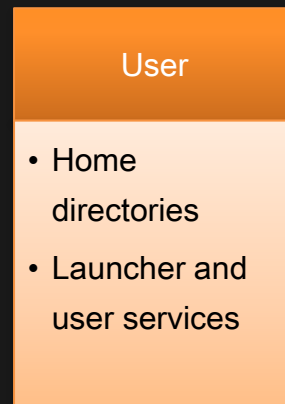
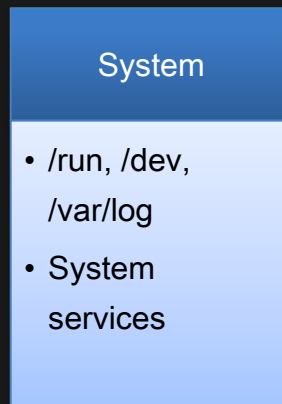
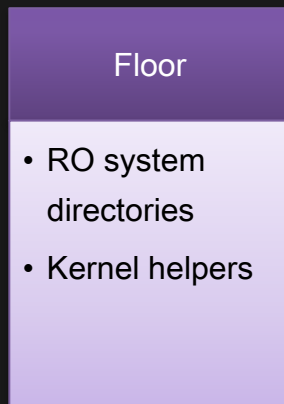


Tizen 3.0 – 3 domain SMACK

Developer don't need to write his own SMACK rule
(security system will auto-generate SMACK rule for each module)



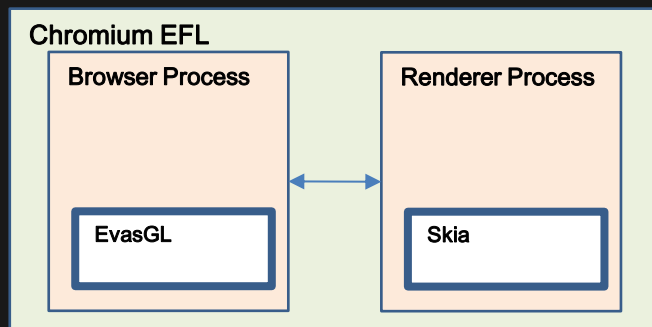
<new security model>



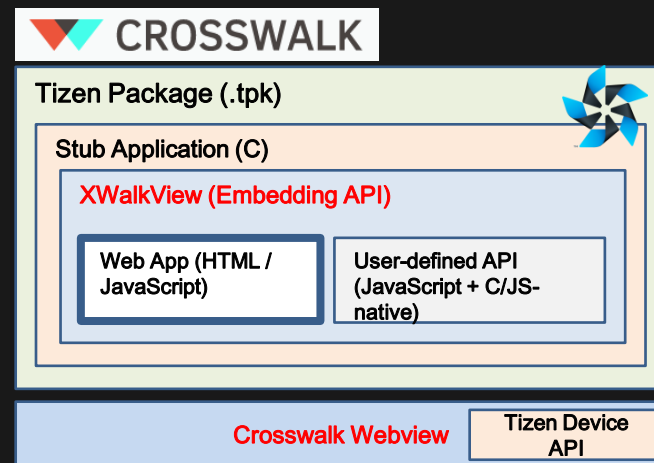
<3 domain>

Tizen 3.0 – Chromium and crosswalk

Modern web technology is integrated into platform



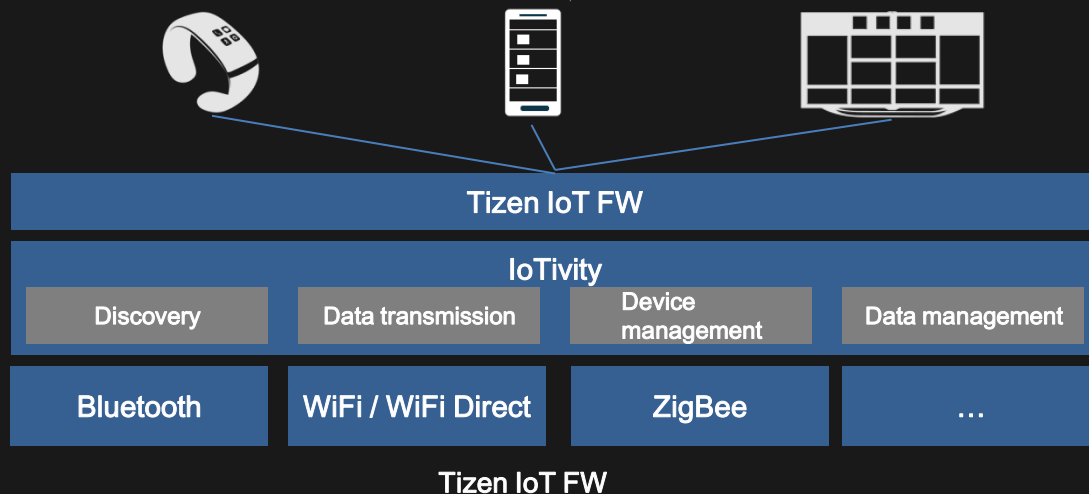
<Chromium EFL>



<Crosswalk Tizen port>

Tizen 3.0 – Device Convergence (IoTFW)

IoTivity is integrated into platform and simplified interface is provided by IoT FW

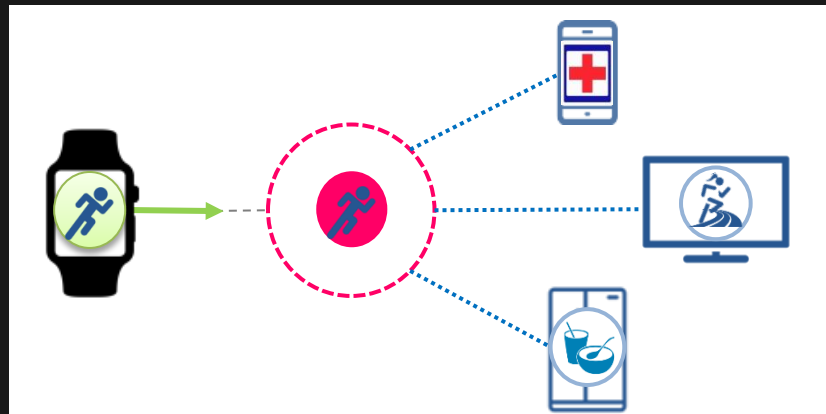
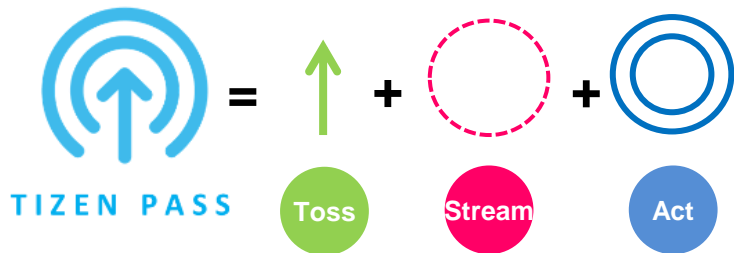


Tizen 3.0 – Device Convergence (TIZEN PASS)

Providing TIZEN PASS API for sharing data between Tizen Devices.

Remember 3 steps -

- Toss the data.
- Share the data in stream.
- Act with the data.



What's next? (1/2)

Powerful Smart Device



Various Smart Device



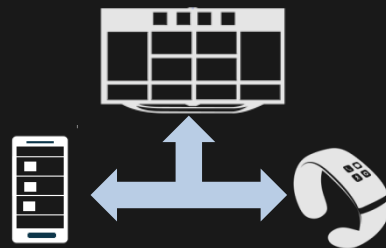
We're here!



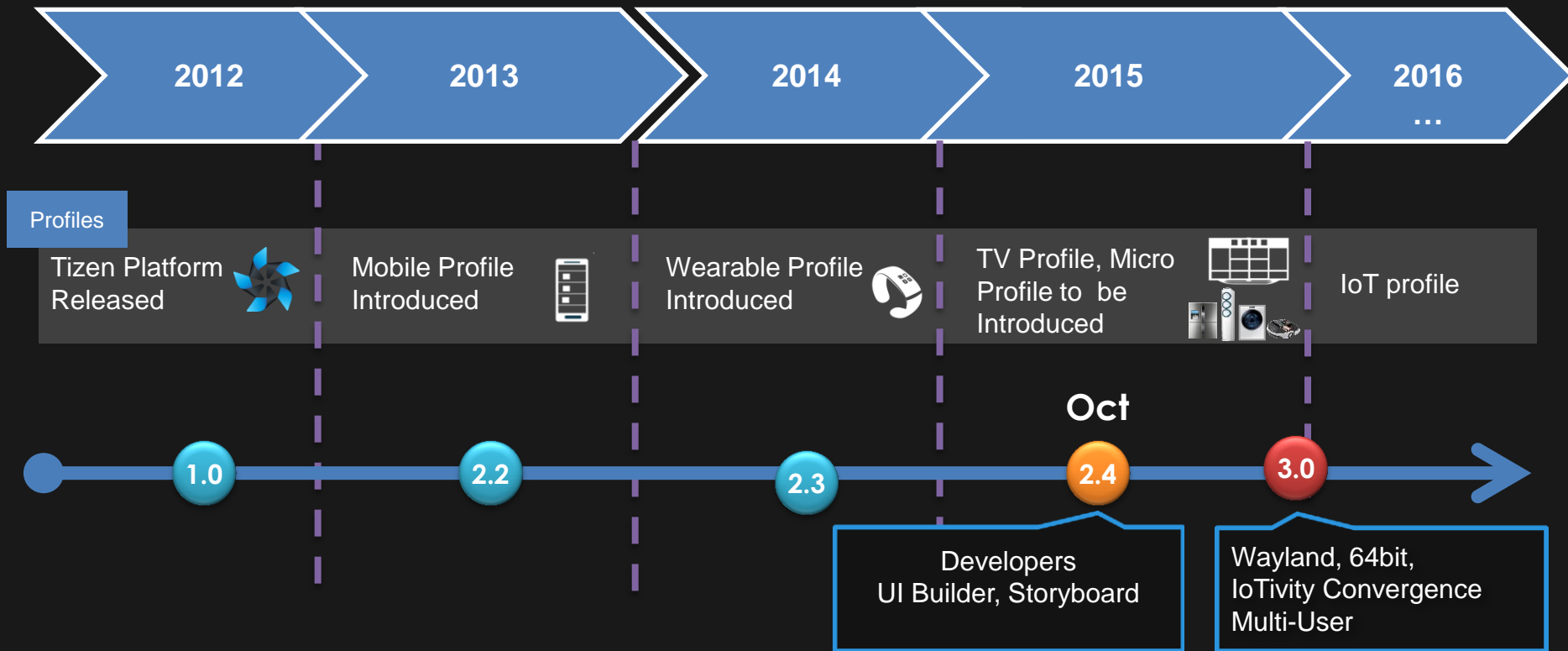
Connected Smart Device



Intelligent convergence



What's next? (2/2)



Conclusion

