Tizen IVI Architecture

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Contents

This presentation introduces Tizen's IVI profile architecture. It gives an **update on the architecture status and highlights some of the future plans and visions**.

Tizen IVI architecture definition is driven by requirements coming directly from automotive industry and via GENIVI®. Therefore, the **architecture does not fully share the same core components**, e.g., with mobile phone stack. This **presentation talks where the biggest differences are**.

Furthermore, it explains **how Tizen IVI is built bottom up from independent subsystems**.

Tizen IVI (Preview) – Status and Plans

Tizen IVI Preview
Key Non-functional Drivers

- Boot to home screen in < 7 seconds
- Provide a size optimized rootfs (< 500Mb) installation
- Provide an easy way to customize/configure and build a complete stack bottom up

Tizen IVI Preview
Key Technology Drivers

- Demonstrate Wayland display protocol and X11-less stack
  - Wayland project released a snapshot branch ("v0.85") in February 2012
  - Includes v0.85 Wayland protocol and Weston reference compositor implementations
- Demonstrate UI toolkits using Wayland with sample apps
  - Qt 4.8, EFL, and GTK+ 3/Clutter in Tizen IVI today
- Provide window management system as an installation option
  - Wayland <-> X11
  - X11 for backwards compatibility during a transition period
- Demonstrate fastboot using systemd
- Ship a GENIVI® compliant stack w/ all GENIVI Compliance 2.0 components enabled

GENIVI® Compliance 2.0 Details

- *" GENIVI® is a non-profit industry alliance committed to driving the broad adoption of an In-Vehicle Infotainment (IVI) open-source development platform."*

- *"The GENIVI compliance program provides a set of specifications for GENIVI member companies to measure their products and services. Those that meet the specifications may be registered as GENIVI compliant..."*

- Specific Component = SC, Abstract Component = AC, Placeholder Component = PC
- P1 = Mandatory P2 = Optional, must be fully disclosed if implemented For Placeholder Component requirements: P3 = Optional, does not have to be disclosed

GENIVI® Compliance 2.0 Details, cont'

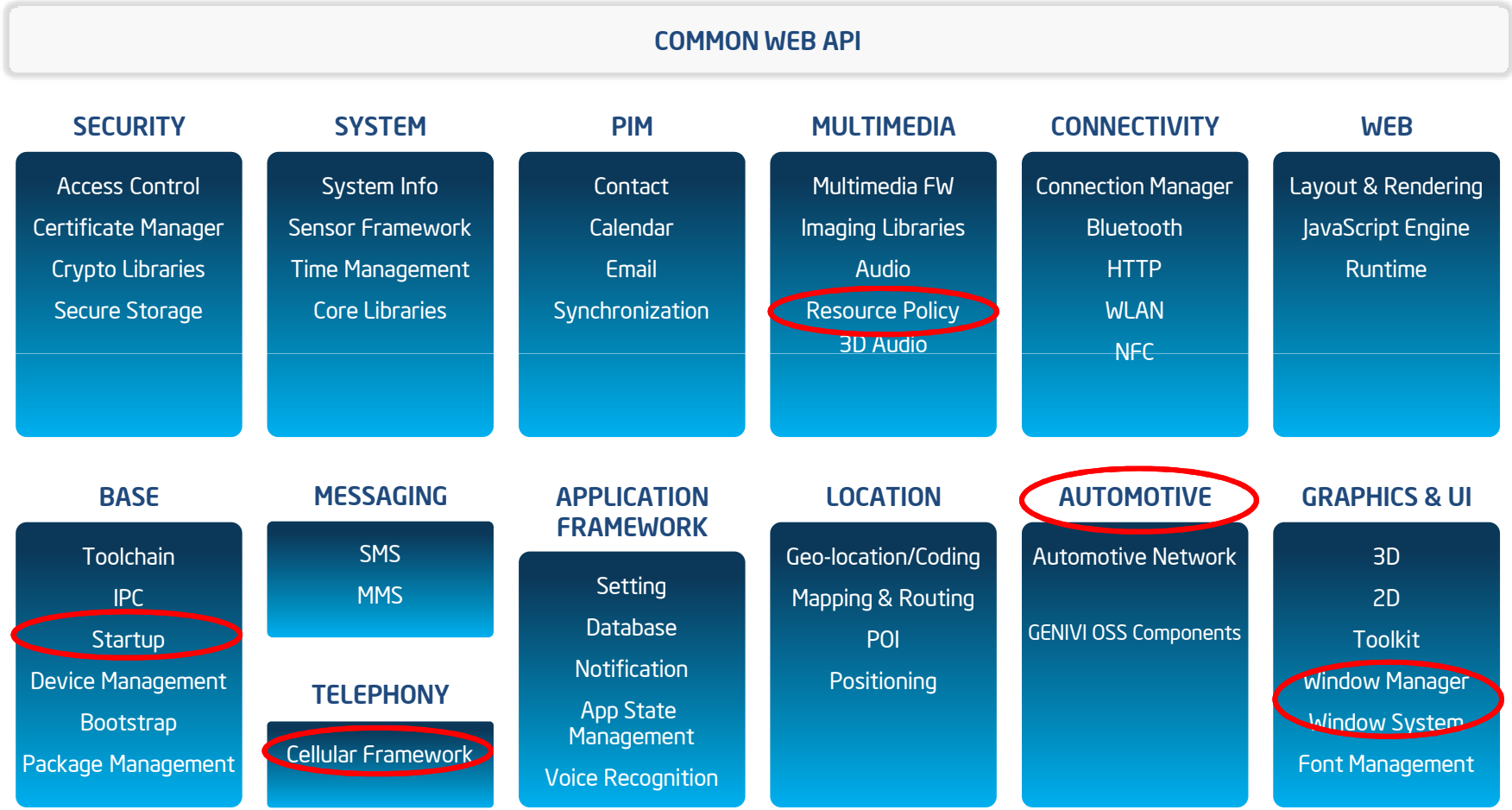
- Tizen IVI just applied for GENIVI® compliance and is providing all "P1" components in tizen.org repositories
- Examples of such components:
  - Systemd (SC)
  - Bluetooth stack (PC) -> Bluez
  - OpenGL-ES (AC) -> emgd-bin
- And many more: linux kernel, Gstreamer, alsa*, connman...

Architecture Focus Items for Tizen IVI 1.0

- Webruntime + automotive device API(s)
- Wayland + kernel updates
- Rootfs size optimization, Busybox
- Resource policy & audio routing for automotive needs
  - Independent passenger zones (audio and displays)
- Automotive network management (daemon)
  - A daemon talking to CAN, OBD... buses.
  - D-Bus API definition ongoing, based on MeeGo IVI initiative
- Active collaboration with GENIVI®
  - v3.0 compliance in October
  - Proof of concept demonstrations, e.g., persistency

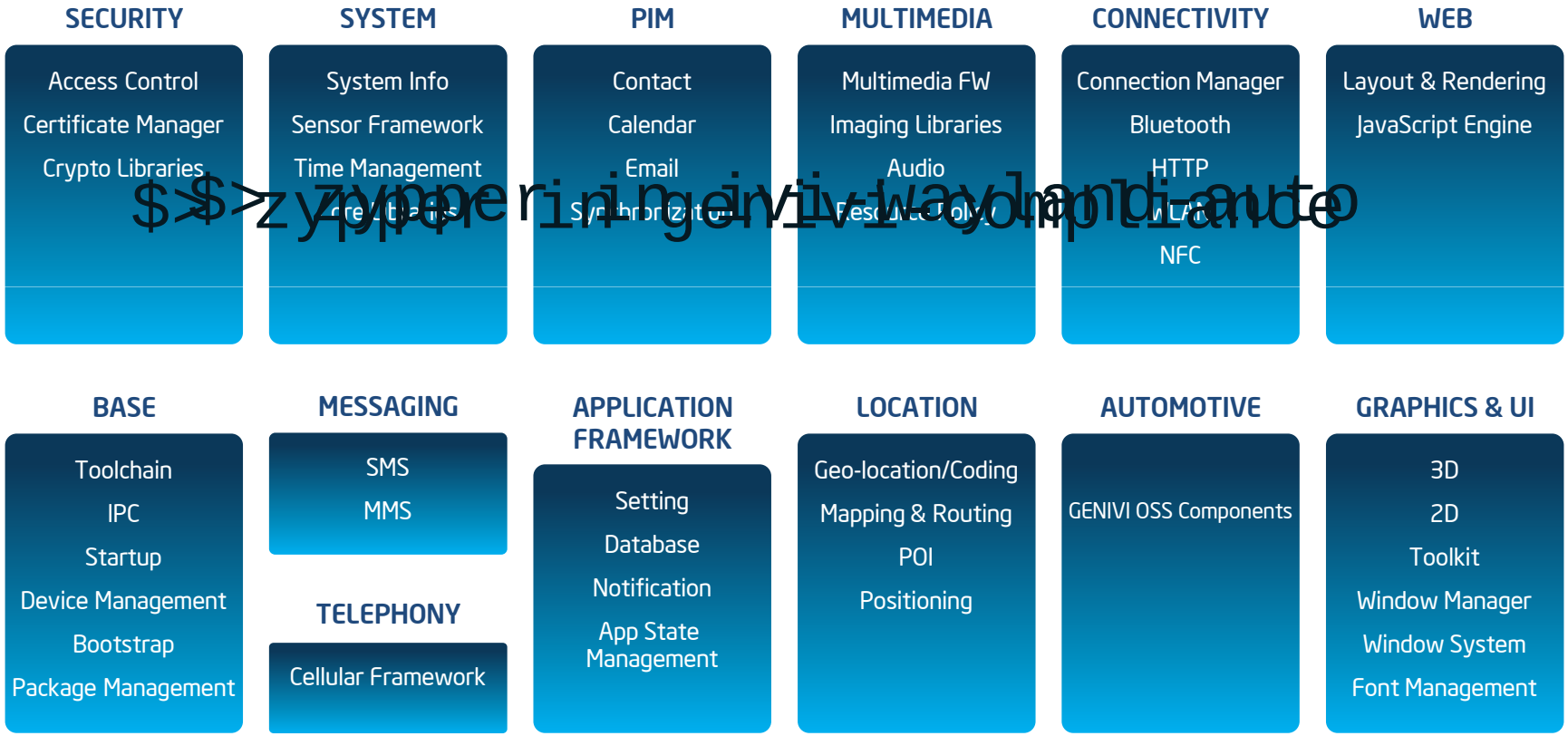
Tizen IVI Architecture – Delta

Tizen Mobile and Tizen IVI Architecture Delta



Tizen IVI – Building the Stack Bottom Up

Customization, example



Customization, next steps

- Define more installable patterns
- Map RPM package groups to the architecture diagram
  - Gives platform developers a way to see which set of packages implement each subsystem

Tizen IVI – Project Setup

Tizen IVI Project

IVI on tizen.org

Downloads
- http://download.tizen.org/previews/ivi/latest

Wiki Page
- http://wiki.tizen.org/wiki/IVI

Email list
- IVI@lists.tizen.org
- http://lists.tizen.org/listinfo/ivi

Issue Tracking
- http://bugs.tizen.org (Tizen IVI Project)

Register username to edit wiki or issues
- https://www.tizen.org/user/register

Tizen IVI Project: Reference HW

- Using devices running Intel Atom E6XX SOC

1. Nexcom VTC 1000-L
   - A commercially supported, the official Tizen IVI reference HW
   - Go to nexcom.com to buy yours
2. Intel Crossville OKI devkit
3. Pinetrail netbooks

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